Special, 4/19/2022 10:30:00 AM

BE IT REMEMBERED that on April 19, 2022, there was begun and holden a SPECIAL session of the Commissioners Court of Jefferson County, Texas, with the following members and officers present and participating except those absent as indicated:

Honorable Jeff Branick, County Judge

Commissioner Vernon Pierce, Commissioner Pct. No. 1

Commissioner Darrell Bush, Commissioner Pct. No. 2

Commissioner Michael Sinegal, Commissioner Pct. No. 3

Commissioner Everette D. Alfred, Commissioner Pct. No. 4

Honorable Zena Stephens, Sheriff

Honorable Laurie Leister, County Clerk

When the following proceedings were had and orders made, to-wit:

Jeff R. Branick, County Judge
Vernon Pierce, Commissioner, Precinct One
Darrell Bush, Commissioner, Precinct Two
Michael S. Sinegal, Commissioner, Precinct Three
Everette "Bo" Alfred, Commissioner, Precinct Four

NOTICE OF MEETING AND AGENDA OF COMMISSIONERS' COURT OF JEFFERSON COUNTY, TEXAS April 19, 2022

Notice is hereby given that the Commissioners' Court of Jefferson County, Texas, will meet at **10:30 AM,** on the **19th** day of **April 2022** at its regular meeting place in the Commissioners' Courtroom, 4th Floor, Jefferson County Courthouse, 1149 Pearl Street, Beaumont, Texas.

Said meeting will be a **Special** meeting for the purpose of transacting the routine business of the County. Persons with disabilities requiring auxiliary aids for services who wish to attend this meeting should contact the County Judge's Office to arrange for assistance.

In addition to the routine business of the County, the subject of said meeting will be the following:

9:15 a.m.- Announcement of an executive (closed) session pursuant to Texas Government Code Section 551.0725 to deliberate business and financial issues relating to a contract being negotiated, that deliberation in an open meeting, would have a detrimental effect on the Commissioners' Court in negotiations with a third person.

9:45 a.m.-To receive and consider information from Constable Jevonne Pollard regarding a proposed partnership with Estes Property Management Group to establish a substation.

1:00 p.m.-WORKSHOP- To receive information from MIS regarding the Tyler Executive Committee and all elected officials and departments heads

affected by the project to prepare for the deadline we are facing to complete the contract work involved with this project. It is critical that all elected officials and department heads affected by this software load attend this meeting in person.

Jefferson County has taken steps to minimize the exposure of COVID-19 by implementing the following steps to allow the public to view the Commissioner's Court meeting. The following options are available: View live with audio from the County Webpage: https://co.jefferson.tx.us/comm_crt/commlink.htm Listen to audio by calling 346-248-7799 Meeting ID: 917 160 6532# Participant ID: # The court will also have a question and answer session at the end of the meeting. If you would like to ask any questions of the Court, please be on the phone call. The Court will give a question and answer session at the end of the meeting as time allows. You will be called upon by your last 4 digits of your phone number. If you do not have any questions, you can pass. Please be mindful that the audio portion of this meeting will be of better quality from the website.

INVOCATION: Everette "Bo" Alfred, Commissioner, Precinct Four

PLEDGE OF ALLEGIANCE: Vernon Pierce, Commissioner, Precinct One

PURCHASING:

(a). Receive and file bids for Invitation for Bid (IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport. This project is intended to be funded by the Federal Aviation Administration (FAA) Airport Improvement Program (AIP) Grant #39 to the Airport.

SEE ATTACHMENTS ON PAGES 10 - 827

Action: TABLED

(b). Consider and approve, execute, receive and file Task Order #3 for (RFP 21-024/YS), FEMA Grant Management and Insurance Advisory Services for Jefferson County with Tidal Basin Government Consulting, LLC.to respond to FEMA Determination Memo for DR-4586-TX Winter Storm 2021/Project #185265/PW#99 for an amount not to exceed $10,000.00; pursuant to Chapter 262, Texas Local Government Code, the County Purchasing Act and 2 CFR Section 200.318-326.

SEE ATTACHMENTS ON PAGES 828 - 828

Motion by: Sinegal
Second by: Alfred
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

COUNTY AUDITOR:

(a). Consider and approve budget transfer– Beaumont Maintenance – replace west elevator power unit.

SEE ATTACHMENTS ON PAGES 829 - 830

120-6083-416-4001	COOLING AND HEATING		$11,000.00
120-6083-416-6003	BUILDING - COURTHOUSE	$11,000.00	

Motion by: Bush
Second by: Pierce
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(b). Consider and approve budget amendment– Port Arthur Maintenance – additional cost for elevator rehab.

SEE ATTACHMENTS ON PAGES 831 - 839

120-9999-415-9999	CONTINGENCY APPROPRIATION		$25,000.00
120-6084-416-6014	BUILDINGS AND STRUCTURES	$25,000.00	

Motion by: Bush
Second by: Pierce
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(c). Consider and approve electronic disbursement for $1,249.64 to Texas Department of Criminal justice for April insurance reimbursement

NO ATTACHMENTS

Motion by: Bush
Second by: Pierce
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(d). Regular County Bills – check #494200 through check #494455.

SEE ATTACHMENTS ON PAGES 840 - 848

Motion by: Bush
Second by: Pierce
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

COUNTY CLERK:

(a). Consider and possibly approve the appointment of Central Counting Station and Early Voting Ballot Board personnel for the May 7, 2022 Constitutional Amendment, Joint and Special Election to include Central Counting Station Manager, Wayne Ozio, Tabulation Supervisor Jeff Ross, Assistant Tabulation Supervisors Mary Helm, Todd Frederick and Mike Bain, Presiding CCS Judge Clifton Simoneaux, Alternate CCS Judge John Stafford, and Early Voting Ballot Board Judge Dina Carr.

NO ATTACHMENTS

Motion by: Pierce
Second by: Bush
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

COUNTY COMMISSIONERS:

(a). Consider and possibly approve a Proclamation for Soil & Water Stewardship Week.

SEE ATTACHMENTS ON PAGES 849 - 849

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(b).Consider, possibly approve, receive and file a Second Amended Order Prohibiting the Possession of firearms in the Jefferson County Courthouse and Office Buildings, Pursuant to Sec. 30.05, Texas Penal Code.

SEE ATTACHMENTS ON PAGES 850 - 851

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(c).Consider, possibly approve, authorize the County to execute, receive and file a Demolition Waiver for the City of Port Arthur for an unsafe building located at 2821 6th St., Port Arthur, TX.

SEE ATTACHMENTS ON PAGES 852 - 859

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(d).Consider, possibly approve, authorize the County to execute, receive and file a Demolition Waiver for the City of Port Arthur for an unsafe building located at 7007 Olympic Drive, Port Arthur, TX.

SEE ATTACHMENTS ON PAGES 860 - 869

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(e).Consider, possibly approve, authorize the County to execute, receive and file a General Warranty Deed from Jefferson County to Jefferson County Drainage District # 7 (DD7) to enable DD7 to construct a detention pond along Rodair Gulley south of FM 3514 to improve storm drainage.

SEE ATTACHMENTS ON PAGES 870 - 880

Action: TABLED

(f).Consider, possibly approve, authorize the County Judge to execute, Interlocal agreement between Jefferson County PCT.3 & City of Port Arthur repairs for North & South Levee Roads of Pleasure Island.

Clerk's Notes: Motion is an amended agreement with an interlineation in hand writing and pen with the approval of the Port Arthur City Council

SEE ATTACHMENTS ON PAGES 881 - 883

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

COUNTY TREASURER:

(a).Receive and File Investment Schedule for March, 2022, including the year to date total earnings on County funds.

SEE ATTACHMENTS ON PAGES 884 - 886

Motion by: Alfred
Second by: Bush
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

ENGINEERING DEPARTMENT:

(a).Execute, receive and file renewal of Pipeline Permit. 02-P-22 to Targa NGL Pipeline Company for maintaining, pipe line at the intersection of Tram Road and St. Hwy 105. This project is located in Precinct 1.

SEE ATTACHMENTS ON PAGES 887 - 899

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(b).Execute, receive and file Utility Permit 06-U-22 to CenterPoint Energy Resources for the purpose of constructing, maintaining or repairing a utility or common carrier pipeline for distribution of natural gas along S. Pine Island Road and Brooks Road. This project is located in Precinct 1 and 4.

SEE ATTACHMENTS ON PAGES 900 - 912

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

(c). Consider, approve, ratify, receive, and file the Air Products Release Form for Air Products material cost/expenses for the Erie Street Restoration per 02-OW-21 and Road Use Agreement located in Precinct 4 as of March 29, 2022.

SEE ATTACHMENTS ON PAGES 913 - 932

Motion by: Alfred
Second by: Sinegal
In Favor: Branick, Pierce, Bush, Sinegal, Alfred
Action: APPROVED

OTHER BUSINESS:

*****DISCUSSION ON ANY OTHER ITEM NOT ON AGENDA WITHOUT TAKING ACTION.**

Receive reports from Elected Officials and staff on matters of community interest without taking action.

_____

Jeff R. Branick
County Judge

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JACK BROOKS REGIONAL AIRPORT
Taxiway A Rehabilitation
AIP NO. TBD

JEFFERSON COUNTY COMMISSIONERS COURT
JEFFERSON COUNTY, TEXAS
Jefferson County Project 22-011/JW

JACK BROOKS REGIONAL AIRPORT
(FORMERLY SOUTHEAST TEXAS REGIONAL AIRPORT)

GARVER

STATE OF TEXAS
JASON E. FRANK
87979
LICENSED PROFESSIONAL ENGINEER

TEXAS REGISTERED ENGINEERING FIRM F-5713

Garver Project Number 20A12501

March 2022

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1149 Pearl Street
1st Floor, Beaumont, TX 77701

OFFICE MAIN: (409) 835-8593
FAX: (409)835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

March 8, 2022

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for Invitation for Bid **(IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport.** Information for this project may be obtained from the Jefferson County Purchasing website at https://co.jefferson.tx.us/Purchasing/ or by calling 409-835-8593. Specifications, Plans, and Bidding Documents can be obtained from the CivCast website at https://www.civcastusa.com. **Project ID is BPT_22-011/JW.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope or box. Bidders shall forward an original and three (3) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Engineering Department Conference Room (5th Floor, Historic Courthouse) 1149 Pearl Street, Beaumont, Texas 77701, at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Taxiway A Rehabilitation at the Jack Brooks Regional Airport**
BID NUMBER:	**IFB 22-011/JW**
DUE BY TIME/DATE:	**11:00 AM CT, April 6, 2022**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1149 Pearl Street, 1st Floor** **Beaumont, Texas 77701**

There will be a Pre-Bid Conference and Walk-Through at 2:00 PM CT on Thursday, March 17, 2022, at the Airport Administration Conference Room located at 5000 Jerry Ware Blvd. Beaumont, Texas 77705. This conference will be the Bidder's only opportunity to view secured areas of the project.

The County shall require the bidder to furnish a bid security in the amount of five percent (5%) of the total contract cost. The bid bond must be executed with a surety company authorized to do business in the State of Texas. Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these bid requirements should be directed to Jamey West, Contract Specialist at 409-835-8793 or via email at: jwest@co.jefferson.tx.us

Jefferson County encourages Disadvantaged Business Enterprises (DBEs) and Historically Underutilized Businesses (HUBs) to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment, or the provisions of services. Individuals requiring special accommodations are requested to contact our office at least seven (7) days prior to the bid due date (at 409-835-8593) to make appropriate arrangements.

Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County. All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

Bidders are strongly encouraged to carefully read the entire invitation.

PUBLISH:
Beaumont Enterprise & Port Arthur News:
March 9, 2022 and March 16, 2022

Deborah Clark

Deborah L. Clark, Purchasing Agent
Jefferson County, Texas

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SECTION 1: GENERAL CONDITIONS OF BIDDING AND TERMS OF CONTRACT

By execution of this document, Bidder accepts all general and special conditions of the contract as outlined below and, in the specifications, and plans.

1. BIDDING

1.1 BIDS.
All bids must be submitted on the bid form furnished in this package.

1.2 AUTHORIZED SIGNATURES.
The bid must be executed personally by the Vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the Vendor shall accompany the bid to become a valid bid.

1.3 INTERPRETATION OF BID AN/OR CONTRACT DOCUMENTS
All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

1.4 LATE BIDS.
Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.5 WITHDRAWAL OF BID PRIOR TO OPENING.
A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the Bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.6 WITHDRAWAL OF BID AFTER OPENING.
Bidder agrees that its offer may not be withdrawn or cancelled by the Vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.7 BID AMOUNTS.
Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.8 EXCEPTIONS AND/OR 5UBSTITUTIONS.
All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a Bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the Vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.9 ALTERNATES
The Invitation for Bid and/or specifications may expressly allow Bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.10 DESCRIPTIONS
Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.11 BID ALTERATIONS.
Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.12 TAX EXEMPT STATUS.
Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.13 QUANTITIES.
Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.14 BID AWARD.
Award of contract shall be made to the most responsible, responsive Bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended.

Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.15 SILENCE OF SPECIFICATIONS FOR COMPLETE UNITS.
All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.16 ADDENDA.
Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.17GENERAL BID BOND/SURETY REQUIREMENTS.
Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 GENERAL INSURANCE REQUIREMENTS
Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.19 RESPONSIVENESS.
A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered

non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.20 RESPONSIBLE STANDING OF BIDDER.

To be considered for award, Bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.21 CONFIDENTIAL/PROPRIETARY INFORMATION.

If any material in the bid submission is considered by Bidder to be confidential or proprietary information (including manufacturing and/or design processes exclusive to the Bidder), Bidder **must** clearly mark the applicable pages of Bidder's bid submission to indicate each claim of confidentiality. Additionally, Bidder must include a statement on company letterhead identifying all Bid Submission section(s) and page(s) that have been marked as confidential. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing open records acts. Merely making a blanket claim that the entire bid submission is protected from disclosure because it contains some proprietary information is not acceptable, and will make the entire bid submission subject to release under the Texas Public Information Act.

By submitting a bid, Bidder agrees to reproduction by Jefferson County, without cost or liability, of any copyrighted portions of Bidder's bid submission or other information submitted by Bidder.

1.22 PUBLIC BID OPENING.

Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. PERFORMANCE

2.1 DESIGN, STRENGTH, AND QUALITY.

Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 AGE AND MANUFACTURE.

All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 DELIVERY LOCATION

All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 DELIVERY SCHEDULE.

Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 DELIVERY CHARGES.

All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 INSTALLATION CHARGES.
All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 OPERATING INSTRUCTIONS AND TRAINING.
Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 STORAGE.
Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 COMPLIANCE WITH FEDERAL, STATE, COUNTY, AND LOCAL LAWS.
Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA.
The Bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful Bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful Bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 PATENTS AND COPYRIGHTS.
The successful Vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 SAMPLES, DEMONSTRATIONS, AND TESTING.
At Jefferson County's request and direction, Bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the Bidder/Vendor.

2.13 ACCEPTABILITY.
All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 MAINTENANCE.
Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 MATERIAL SAFETY DATA SHEETS.

Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a Bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the Bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 EVALUATION.

Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any Bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. PURCHASE ORDERS AND PAYMENT

3.1 PURCHASE ORDERS.

A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 INVOICES.

All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 PROMPT PAYMENT.

In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful Bidder(s) is required to pay subcontractors within ten (10) days after the successful Bidder receives payment from the County.

3.4 FUNDING.

Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. CONTRACT

4.1 CONTRACT DEFINITION.

The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful Bidder and Jefferson County.

4.2 CHANGE ORDER.

No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 PRICE RE-DETERIMINATION

A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The Bidder's past experience of honoring contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 TERMINATION.

Jefferson County reserves the right to terminate the contract for default if the Bidder breached any of the terms therein, including warranties of Bidder or if the Bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest Bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the Bidder in default.

4.5 CONFLICT OF INTEREST.

Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 INJURIES OR DAMAGES RESULTING FROM NEGLIGENCE.

Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 INTEREST BY PUBLIC OFFICIALS.

No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 WARRANTY

The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 UNIFORM COMMERCIAL CODE.

The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 VENUE.

This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 SALE, ASSIGNMENT, OR TRANSFER OF CONTRACT.

The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 SILENCE OF SPECIFICATIONS.
The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

5. REJECTION OR WITHDRAWAL.
Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive my informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within ~~120~~ 90 days after opening date.

6. EMERGENCY/DECLARED DISASTER REQUIREMENTS.
In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s).

Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

7. AWARD.
The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected.

Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected. In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

8. CONTRACT.
A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by

mutually agreed terms and conditions in the contract documents.

9. WAIVER OF SUBROGATION.

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

10. FISCAL FUNDING.

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

11. BID RESULTS

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page at https://www.co.jefferson.tx.us/Purchasing/ as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

12. CHANGES AND ADDENDA TO BID DOCUMENTS

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

13. SPECIFICATIONS

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid.

Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

14. DELIVERY.

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

15. CURRENCY.

Prices calculated by the bidder shall be stated in U.S. dollars.

16. PRICING.

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

17. NOTICE TO PROCEED/PURCHASE ORDER

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

18. CERTIFICATION

By signing the offer section of the Offer and Acceptance page, Bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.
- The Bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The Bidder hereby certifies that the individual signing the bid is an authorized agent for the Bidder and has the authority to bind the Bidder to the contract.

19. DEFINITIONS

"County" – Jefferson County, Texas.
Contractor" – The Bidder whose proposal is accepted by Jefferson County.

20. MINORITY-WOMEN BUSINESS ENTERPRISE PARTICIPATION

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS

The following requirements and instructions **supersede** General Requirements where applicable.

1. BID REQUIREMENT.

Each Bidder shall ensure that required parts of the bid are completed with accuracy and submitted as per the requirements within this specifications packet, including any addenda.

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1149 Pearl Street, 1st Floor
Beaumont, TX 77701

Bidder shall submit bid in a tightly sealed opaque envelope or box, plainly marked "SEALED BID." The outside of the envelope of box shall also include the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Bidder is responsible for submitting: One (1) original and three (3) bid copies; with all copies to include a completed copy of this specifications packet, in its entirety.

Additionally, Bidder shall monitor the Jefferson County Purchasing Department Website for any addenda, additional instructions, or bid updates. https://www.co.jefferson.tx.us/Purchasing/

Failure to return all required documentation could result in a response being declared as non-responsive.
Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB.

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court.

2. VENDOR REGISTRATION: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

In instances where a vendor has either an "Inactive" SAM Registration or is not currently registered with the System for Award Management, the Purchasing Department may *initially* accept proof (printout from the SAM website) that the vendor has begun the registration process in order for the IFB/RFQ/RFP submission to be considered as "responsive" to the specifications for the project.

However, the SAM Registration must be completed (showing "active" status, with no exclusions) prior to the award and/or execution of an agreement or contract for the project.

Mary Beth DeLord

From:	donotreply@sam.gov
Sent:	Friday, June 25, 2021 1:07 PM
To:	mdelord@allco.com
Cc:	mdelord@allco.com
Subject:	Registration Activated for ALLCO, L L C / 137608048 / 0VHB1 in the U.S. Government's System for Award Management (SAM).

This email was sent by an automated administrator. Please do not reply to this message.

Dear MARY BETH DELORD,

The registration for ALLCO, L L C / 137608048 / 0VHB1 is now active in the U.S. federal government's System for Award Management (SAM). If you did not provide a Commercial and Government Entity (CAGE) Code during the registration process, one has been assigned to you by the Defense Logistics Agency (DLA) CAGE Program.

To remain eligible to do business with the federal government, you must renew your entity's registration in SAM every year. The annual renewal date for the registration is 2022-06-24 17:35:17.716.

You may invite additional users to manage or review your entity registration by following these steps:

1. Go to https://www.sam.gov and log in.
2. On the Workspace page, scroll down to the User Directory.
3. Enter the email address of the user you want to invite and select Enter or select the email address from the list.
4. On the next page, select the Assign Role button in the top right corner of the page.
5. On the Assign Role page, follow the instructions provided and then select Send Invitation at the bottom of the page.
6. The user will be notified.

All invitees will receive an email message from SAM with instructions on how to complete the process.

Remember, this process is entirely FREE to you. It is FREE to register and maintain your registration in SAM. It is FREE to get help with your registration. Contact our supporting Federal Service Desk at www.fsd.gov, or by telephone at 866-606-8220 (toll free) or 334-206-7828 (internationally).

In addition, if you are located in the U.S. and its outlying areas, you can get FREE support from your local Procurement Technical Assistance Center (PTAC), an official resource for government contracting assistance. Go to http://www.aptac-us.org/ to find your closest PTAC.

Thank you,
The System for Award Management (SAM) Administrator https://www.sam.gov

3. FORM 1295 (Texas Ethics Commission).

FORM 1295 SUBMISSION REQUIREMENT/INSTRUCTIONS FOR BIDDERS:
ALL NON-EXEMPT BIDDERS ARE REQUIRED TO SUBMIT A COMPLETED FORM 1295 WITH BID SUBMISSION.

1. Submit a FORM 1295 online via the Texas Ethics Commission website link below.
Vendors must enter the required information on Form 1295, and print a copy of the completed form.
The form will include a certification of filing that will contain a unique certification number.

2. Submit a FORM 1295 hard copy (completed & signed by an Authorized Agent of the Awarded Vendor), to the Jefferson County Purchasing Department WITH BID SUBMISSION.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

SAMPLE: A sample of a completed FORM 1295 is included on page 14.

FORM 1295 Implementation Background:

In accordance with House Bill 1295 (passed January 1, 2016), Vendors entering into contracts and professional agreements with Jefferson County will be required to complete a Certificate of Interested Parties (FORM 1295), **unless contract is considered exempt as described below.**

In 2017, the Texas legislature amended the law to require Form 1295 to include an "unsworn declaration" which includes, among other things, the date of birth and address of the authorized representative signing the form. The unsworn declaration, including the date of birth and address of the signatory, replaces the notary requirement that applied to contracts entered into before January 1, 2018. The TEC filing application does not capture the date of birth or street address of the signatory and it will not appear on forms that are filed using the TEC filing application.

Changes to the law requiring certain businesses to file a Form 1295 are in effect for contracts entered into or amended on or after January 1, 2018. The changes exempt businesses from filing a Form 1295 for certain types of contracts and replace the need for a completed Form 1295 to be notarized. Instead, the person filing a 1295 needs to complete an "unsworn declaration."

FORM 1295 EXEMPTIONS:

What type of contracts are exempt from the Form 1295 filing requirement under the amended law?

The amended law adds to the list of types of contract exempt from the Form 1295 filing requirement.

A completed Form 1295 is not required for:

- a sponsored research contract of an institution of higher education
- an interagency contract of a state agency or an institution of higher education
- a contract related to health and human services if: the value of the contract cannot be determined at the time the contract is executed; and o any qualified vendor is eligible for the contract
- a contract with a publicly traded business entity, including a wholly owned subsidiary of the business entity
- a contract with an electric utility, as that term is defined by Section 31.002, Utilities Code
- a contract with a gas utility, as that term is defined by Section 121.001, Utilities Code

SAMPLE 1: FORM 1295

CERTIFICATE OF INTERESTED PARTIES — FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

ADD THE ABOVE REQUESTED INFORMATION HERE

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

JEFFERSON COUNTY, TEXAS

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

ADD IFB/RFQ/RFP/AGREEMENT/CONTRACT NUMBER OR DESCRIPTION HERE

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary
ADD NAME OF BUSINESS OWNER(S) HERE. MUST LIST ANY PERSON THAT DOES NOT WORK FOR THE BUSINESS (AS LISTED ON ITEM NO. 1 OF THIS FORM) THAT WILL PROFIT FROM THE BID/CONTRACT/PO.			

5 **Check only if there is NO Interested Party.** ☐ ONLY CHECK IF NO CONTROLLING OR INTERMIDIARY PARTY

6 **UNSWORN DECLARATION** MUST COMPLETE THIS SECTION IN ITS ENTIREY.

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 12/22/2017

Must file online at www.ethics.state.tx.us/File

BIDDER: INSERT COMPLETED FORM 1295 BEHIND THIS PAGE.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 1

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2022-868641

Date Filed:
04/04/2022

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
ALLCO, LLC
BEAUMONT, TX, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
JEFFERSON COUNTY

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
IFB 22-011/JW
TAXIWAY A REHABILITATION AT THE JACK BROOKS REGIONAL AIRPORT

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO Interested Party. [X]

6 UNSWORN DECLARATION

My name is T.W. HARRISON, and my date of birth is 3-6-1953.

My address is 6720 COLLEGE (street), BEAUMONT (city), TEXAS (state), 77707 (zip code), USA (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in JEFFERSON County, State of TEXAS, on the 6th day of APRIL (month), 2022 (year).

ALLCO, L.L.C. TEXAS

Signature of authorized agent of contracting business entity
(Declarant)

SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS (CONTINUED)

4. MULTIPLE VENDOR AWARD

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. DELIVERY

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. PAYMENT

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to:
Jefferson County Auditing Department
Attention: Accounts Payable
1149 Pearl Street, 7th floor
Beaumont, TX 77701.

7. USAGE REPORTS

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. INSURANCE

The contractor (including any and all subcontractors as defined in Section 9.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents; a copy of the policy wording or endorsement is required.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured and will provide the actual policy wording or endorsement showing as such.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

MINIMUM INSURANCE REQUIREMENTS:

Public Liability, including Products & Completed Operations	$1,000,000
Excess Liability	$1,000,000

CONTINUED ON NEXT PAGE

PROPERTY INSURANCE (policy below that is applicable to this project):

Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation Statutory Coverage (See Section 9 Below)

9. WORKERS' COMPENSATION INSURANCE

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 8 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

BIDDER: INSERT COPY OF CERTIFICATE OF INSURANCE (COI) BEHIND THIS PAGE.

Note: For bid purposes, a general COI will suffice. However, a COI that includes the notation that "Jefferson County as an additional insured" will be required from Awarded Bidder(s) prior to the issuance of a Purchase Order.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 5/28/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Nicole LeBlanc
Gulf Coast Insurance Agency	PHONE (A/C, No, Ext): (409) 898-4444 FAX (A/C, No): (409) 898-4468
PO Box 7750	E-MAIL ADDRESS: NL1@gcia-tx.com
Beaumont TX 77726	INSURER(S) AFFORDING COVERAGE / NAIC #
	INSURER A: Travelers Casualty and Surety 19038
INSURED	INSURER B: Charter Oak Fire Ins. Co 25615
Allco, LLC, Allco, Inc. All-Rent, Ltd.	INSURER C: Travelers Casualty & Surety Company
Allco, Ltd.; Rehab Construction, Bolivar Utility Services	INSURER D: Texas Mutual Insurance Co.
P.O. Box 3684	INSURER E:
Beaumont TX 77704	INSURER F:

COVERAGES **CERTIFICATE NUMBER:** MASTER 21/22 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC OTHER:	X	Y	CO1A548738	6/1/2021	6/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS	X	Y	810-0N781834	6/1/2021	6/1/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) Uninsured motorist combined single	$ 1,000,000 $ $ $ $ 1,000,000
C	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000	X	Y	CUP5J006641	6/1/2021	6/1/2022	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000 $
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] N/A If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	Y	92-866-874752-4	6/1/2021	6/1/2022	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
C	Contractors Equipment			QT6608069X439	6/1/2021	6/1/2022	Limit	$11,051,860
C	Builders Risk			QT 660 8J924107 TLC 20	11/7/2020	11/7/2021	Limit	$20,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Leased/Rented Equipment: Equipment that is leased, rented or borrowed from others.

CERTIFICATE HOLDER

****SAMPLE****

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

George Haynes/NL

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Federal Mandated Contract Provisions

Some or all of the provisions in this section will be incorporated into a professional service agreement as a result of this solicitation.

Breach of Contract Terms / Remedies

Source: 2 CFR § 200 Appendix II (A)

Applicability: This provision requires Jefferson County, as the Airport Sponsor, to incorporate administrative, contractual, or legal remedies if contractor/consultant violate or breach contract terms. The sponsor must also include appropriate penalties and sanctions. Language acceptable to meet the intent of this requirement will be included in contractual documents.

This requirement applies to all FEMA grant and cooperative agreement programs

Contract Types: This provision is required for all contracts that exceed the simplified acquisition threshold as stated in 2 CFR § 200, Appendix II (A). This threshold is occasionally adjusted for inflation and is now equal to $150,000.

Termination of Contract (for Cause and Convenience)

Source: 2 CFR § 200 Appendix II (B)

FAA Advisory Circular 150/5370-10, Section 80-09

Applicability: This provision requires Jefferson County, as the Airport Sponsor, to incorporate in all contracts over $10,000, a provision that addresses termination for cause and termination for convenience, by the sponsor. The contractual provision must address the manner by which the sponsor's contract will be affected and the basis for settlement. Language acceptable to meet the intent of this requirement will be included in contractual documents.

This requirement applies to all FEMA grant and cooperative agreement programs.

Contract Types: This provision is required for all contracts that exceed $10,000.

Equal Employment Opportunity

Source: 2 CFR § 200 Appendix II (C) 41 CFR § 60-1.4

Executive Order 11246 41 CFR § 60-4.3

Applicability: The purpose of this provision is to provide equal opportunity for all persons, without regard to race, color, religion, sex, or national origin who are employed or seeking employment with contractors performing under a federally assisted construction contract. There are two provisions, a construction clause and a specification clause.

The equal opportunity contract clause must be included in any contract or subcontract when the amount exceeds $10,000. Once the equal opportunity clause is determined to be applicable, the contract or subcontract must include the clause for the remainder of the year, regardless of the amount of the contract.

This requirement applies to all FEMA grant and cooperative agreement programs.

Contract Types: This provision is required for all contracts that exceed $10,000.

Use of Provision: 41 CFR 60-1.4 provides the mandatory **contract** language. 41 CFR 60-4.3 provides the mandatory **specification** language. The sponsor will incorporate these clauses without modification.

Note: Any contracts resulting from this RFQ will have the requisite language as set forth in 2 CFR 200 App II, 41 CFR 60-1.4, 41 CFR 60-4.3, and Executive Order 11246.

Davis-Bacon Requirements

Source: 2 CFR § 200 Appendix II (D)

29 CFR Part 5

Applicability: The Davis-Bacon Act ensures that laborers and mechanics employed under the contract receive pay no less than the locally prevailing wages and fringe benefits as determined by the Department of Labor.

For Professional Services: The emergence of different project delivery methods has created situations where Professional Service Agreements (PSAs) includes tasks that meet the definition of construction, alteration, or repair as defined in 29 CFR Part 5. If such tasks result in work that qualifies as construction, alteration, or repair and it exceeds $2,000, the PSA must incorporate this clause.

Use of Provision: 29 CFR 5 establishes the specific language the sponsor must use without modification. A/E firms that employ laborers and mechanics on a task that meets the definition of construction, alteration, or repair are acting as a contractor. The sponsor may not substitute the term "Contractor" for "Consultant" in such instances.

Copeland Anti-Kickback

Source: 2 CFR § 200 Appendix II (D)

29 CFR Part 3 & Part 5

Applicability: The Copeland Act (18 USC 874 and 40 USC 3145) makes it unlawful to induce by force, intimidation, threat of dismissal from employment, or by any other manner, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment. The Copeland Act also requires each contractor and subcontractor to furnish weekly a statement of compliance with respect to the wages paid each employee during the preceding week.

It DOES NOT apply to the FEMA Public Assistance Program.

For Professional Services: The emergence of different project delivery methods has created situations where Professional Service Agreements (PSAs) includes tasks that meet the definition of construction, alteration, or repair as defined in 29 CFR Part 5. If such tasks result in work that qualifies as construction, alteration, or repair and it exceeds $2,000, the PSA must incorporate the Copeland Anti-kickback provision.

Use of Provision: 29 CFR 5 establishes the specific language the sponsor must use without modification. A/E firms that employ laborers and mechanics on a task that meets the definition of construction, alteration, or repair are acting as a contractor. The sponsor may not substitute the term "Contractor" for "Consultant" in such instances.

Contract Workhours and Safety Standards Act Requirements

Source: 2 CFR § 200 Appendix II (E) 29 CFR Part 5

40 U.S.C. § 3701-3708

Applicability: Contract Workhours and Safety Standards Act Requirements (CWHSSA) requires contractors and subcontractors on covered contracts to pay laborers and mechanics employed in the performance of the contracts one and one-half times their basic rate of pay for all hours worked over 40 in a workweek and prohibits unsanitary, hazardous, or dangerous working conditions on federally assisted projects. The Wage and Hour division (WHD) within the U.S. Department of Labor (DOL) enforces the compensation requirements of this Act, while DOL's Occupational Safety and Health Administration (OSHA) enforces the safety and health requirements.

Jefferson County urges all contractors, regardless of funding sources for projects, to follow all applicable Federal and State labor laws.

Far Professional Services: This provision applies to professional service agreements that exceed $100,000 and employs laborers, mechanics, watchmen, and guards This includes members of survey crews and exploratory drilling operations.

Use of Provision: The following text will be included in applicable contracts without modification:

1. *Overtime requirements*. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $27.00 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. *Withholding for unpaid wages and liquidated damages*. Jefferson County shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

Rights to Inventions

Source: 2 CFR § 200 Appendix II (F)

37 CFR § 401

Applicability: This provision applies to all contracts and subcontracts with small business forms or nonprofit organizations that include performance of *experimental, developmental, or research work*. This clause is not applicable to construction, equipment, or professional service contracts unless the contract includes *experimental, developmental, or research work*. This requirement applies to "funding agreements," but it DOES NOT apply to the Public Assistance, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of "funding agreement."

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Clean Air and Water Pollution Control

Source: 2 CFR § 200 Appendix II (G)

29 CFR Part 5

Applicability: This provision is required on all contracts and lower tier contracts that exceed $150,000.

Use of Provision: The following language will be included in applicable contracts:

1. Contractor agrees to comply with all applicable standards, orders, and regulations pursuant to the Clean Air Act (42 U.S.C. § 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251-13870). The contractor agrees to report any violation to the owner immediately upon discovery. The owner assumes responsibility for notifying the EPA and the FAA.

Debarment and Suspension

Source: 2 CFR Part 180 (Subpart C) 2 CFR Part 3000

2 CFR Part 1200 DOT Order 4200.5

Applicability: Required in all FEMA grant and cooperative agreement programs, regardless of amount. This requirement applies to covered transactions as defined in 2 CFR part 180. AIP funded contracts are non-procurement transactions as defined by §180.970. Covered transactions include any AIP-funded contract, regardless of tier, that is awarded by a contractor, subcontractor, supplier, consultant, or its agents or representative in any transaction, if the amount of the contract is expected to equal or exceed $25,000. Jefferson County must verify that the firm or individual that is entering into a contract with is not presently suspended, excluded, or debarred by any Federal department or agency from participating in federally assisted projects. This is accomplished by:

1. Checking SAM.gov to verify the firm's or individual's status;
2. Collecting a certification from the firm or individual that is not suspended, debarred, or excluded; and
3. Incorporating a clause into the contract that requires lower tier contracts to verify that no suspended, debarred, or excluded firm or individual is included in the project.

See **Error! Reference source not found.**, Paragraph **Error! Reference source not found.** above for more information on SAM.gov.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Lobbying and Influencing Federal Employees

Source: 2 CFR § 200 Appendix II (J) 31 USC § 1352 – Byrd Anti-Lobbying Amendment

49 CFR Part 20, Appendix A 44 CFR Part 18

Applicability: This requirement applies to all FEMA grant and cooperative agreement programs. Consultants and contractors that apply or bid an award of $100,000 or more must certify that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or another award covered by 31 USC 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200 Appendix (J) and 31 USC 1352.

If applicable, contractors ***must sign and submit*** to Jefferson County the "**Certification Regarding Lobbying**" Form included in this bid specification.

Procurement of Recovered Materials

Source: 2 CFR § 200 Appendix II (J) Solid Waste Disposal Act

40 CFR Part 247 2 CFR § 200.322

Applicability: Sponsors of AIP funded development and equipment projects must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. Section 6002 emphasizes maximizing energy and resource recovery through use of affirmative procurement actions for recovered materials identified in the EPA guidelines. When acquiring items designated in the guidelines, the sponsor must procure

items that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition.

This requirement applies to:

- All contracts awarded by a non-Federal entity under FEMA grant and cooperative agreement programs.
- All construction and equipment projects.
- Any contract, professional and property acquisition, that includes procurement of a product that exceeds $10,000.

Information about this requirement, along with the list of EPA designated items, is available at EPA's Comprehensive Procurement Guidelines website:

https://www.epa.gov/smm/comprehensiveprocurement-guideline-cpg-program.

The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act." The Uniform Rules authorize FEMA to require additional provisions for non-Federal entity contracts.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Access to Records and Reports

Source: 2 CFR § 200.333 FAA Order 5100.38

2 CFR § 200.336

Applicability: 2 CFR § 200.333 requires a sponsor to retain records pertinent to a federal award for a period of three years from submission of final closure documents. 2 CFR § 200.336 establishes that sponsors must provide Federal entities the right to access records pertinent to the Federal award. FAA policy extends these requirements to the sponsor's contracts and subcontracts of AIP funded projects.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200. The following will be in applicable contracts:

1. The contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the local/state/federal entity providing funding for this project, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
2. The contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters have been resolved.
3. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
4. The Contractor agrees to provide the FEMA Administrator or their representatives access to construction or other work sites pertaining to the work being completed under the contract.
5. In compliance with the Disaster Recovery Act of 2018, the County and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

Affirmative Action Requirement

Source: 41 CFR Part 60-4 FAA Order 5100.38

Executive Order 11246

Applicability: Sponsors are required to set goals for minority participation in AIP funded projects exceeding $10,000. The goals for minority participation derive from Economic Area (EA) and Standard Metropolitan Statistical Area (SMSA) as established in Volume 45 of the Federal Register dated 10/03/80. Page 65984 contains a table of all EAs and SMSAs and the associated minority participation goals.

Executive Order 11246 has set a goal of 6.9% nationally for female participation for all construction projects. This value remains constant for all counties and states.

Contract Types:

- Construction: The sponsor must incorporate this notice in all solicitations for bids or requests for proposals for AIP funded construction work contracts and subcontracts that exceed $10,000.
- Equipment: The sponsor must incorporate this notice in all solicitations for equipment project exceeding $10,000 that involves installation of equipment onsite (e.g. electrical vault equipment, generators). This provision does not apply to equipment acquisition projects where the manufacturer of the equipment takes place offsite at a manufacturer's plant (e.g. firefighting and vehicles).
- Professional Services: The sponsor must incorporate this notice in any professional service agreement if the agreement includes tasks that meet the definition of construction work, as defined by the DOL, and exceeds $10,000.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of 41 CFR Part 60-4. The following will be in applicable contracts:

Solicitation Clause:

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractors aggregate workforce in each trade on all construction work in the covered area, are as follows:
    a. Goals for minority participation for each trade: 1.95%
    b. Goals for female participation in each trade: 6.90%

These goals are applicable to all of the contractor's construction work, whether or not it is federal or federally assisted, performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with these goals will be measured against the total work hours performed.

The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of these subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

As used in this notice and in the contract resulting from this solicitation, the covered area is Texas, Jefferson County, Beaumont.

Buy American Preferences

Source: 49 USC § 50101

Applicability: the buy American preference requirement in 49 USC § 50101 requires that all still in manufactured goods used on AIP projects be produced in the United States. This statute gives the FAA the ability to issue a waiver to a sponsor to use non-domestic material on an AIP funded project subject to meeting certain conditions a sponsor may request that the FAA issue a waiver from the by American preference requirements if the FA finds that:

1. Applying the provision is not in the public interest;
2. The steel or manufactured goods are not available in sufficient quantity or quality in the United States;
3. The cost of components in subcomponents produced in the United States is more than 60% of the total components of a facility or equipment, and final assembly has taken place in the United States. Items that have an FAA standard specification item number, such as specific airport lighting equipment, are considered the equipment.
4. Applying this provision would increase the cost of the overall project by more than 25%.

For construction and equipment procurement projects, language, forms, and references to 49 USC § 50101 will be included in the solicitation.

Professional Service Agreements typically do not result in a deliverable that meets the definition of a manufactured product. If a PSA includes providing a manufactured good as a deliverable under the contract, the sponsor must include the Buy American Preference provision in the agreement.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of 49 USC § 50101.

Civil Rights

Source:	49 USC § 47123	Title VI of the Civil Rights Act of 1964
	FAA Order 1400.11	US DOT Order 1050.2

Applicability: Title VI of the Civil Rights Act of 1964, as amended, Title VI, prohibits discrimination on the grounds of race, color, or national origin under any program or activity receiving Federal financial assistance. Sponsors must include appropriate clauses from the Standard DOT Title VI Assurances in all contracts and solicitations.

The text of each individual clause comes from the U.S. DOT Order 1050.2 Standard Title VI Assurances and Nondiscrimination Provisions, effective 04/24/2013. These assurances require the sponsor insert the appropriate clauses in the form provided by the DOT. Where the clause refers to the applicable activity, project, or program, it means the AIP project.

TITLE VI SOLICITATION NOTICE

Jefferson County, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC § 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of any contract as a result of this bid, the Contractor, for itself, its assignees, and successors in interest, hereinafter referred to as the Contractor, agrees to comply with the following non-discrimination statutes and authorities, including but not limited to:

- Title VI of the Civil Rights Act of 1964
- 49 CFR part 21
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Section 504 of the Rehabilitation Act of 1973
- The Age Discrimination Act of 1975
- Airport and Airway Improvement Act of 1982
- The Civil Rights Restoration Act of 1987
- Titles II and III of the Americans with Disabilities Act of 1990
- The Federal Aviation Administration's Nondiscrimination Statute
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency
- Title IX of the Education Amendments of 1972

Disadvantaged Business Enterprise

Source: 49 CFR part 26

Applicability: A sponsor that anticipates awarding $250,000 or more in AIP funding prime contracts in a federal fiscal year must have an approved Disadvantaged Business Enterprise (DBE) program on file with the FAA Office of Civil Rights (§26.21). The approved DBE program will identify a 3-year overall program goal that the sponsor bases on the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on the project. (§26.45).

Sponsors with a DBE program on file with the FAA must include the three following provisions, if applicable:

- Clause in all solicitations for proposals for which a contract goal has been established;
- Clause in each prime contract, and;
- Clause in solicitations that are obtaining DBE participation through race/gender neutral means.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1. Names and addresses of the DBE firms that will participate in the contract;
2. A description of the work each DBE firm will perform;
3. Percentage/dollar amount of the participation of each DBE firm listed under 1.
4. Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5. If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in 49 CFR part 26 Appendix A

The requirements of 49 CFR part 26 apply to this contract. It is the policy of Jefferson County to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract.

Jefferson County encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

DBE Contract Assurances

Contracts as a result of this bid will include contract assurances per §26.13, if applicable:

The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 and the award and administration of Department of Transportation-assisted contracts. Failure by contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or such other remedy as the owner deems appropriate, which may include but is not limited to:

1. Withholding monthly progress payments;
2. Accessing sanctions;
3. Liquidated damages; and/or
4. Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29) – The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives from Jefferson County. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of Jefferson County. This clause applies to both DBE and non-DBE subcontractors.

Distracted Driving

Source: Executive Order 13513 2 CFR §200.67

DOT Order 3902.10

Applicability: The FAA encourages recipients of federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

Use of Provision: The following clause will be included in all Federally-assisted contracts regardless of amount:

In accordance with executive order 13513, federal leadership on reducing text messaging while driving, Andy OT order 3902.10, text messaging while driving, the FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, Jefferson County encourages the contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles Papa forming work activities associated with the project. The contractor must include the substance of this clause and other sub tier contracts exceeding $3,500 that involve driving a motor vehicle and performance of work activities associated with the project.

Compliance with Federal Law, Regulations, and Executive Orders

The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.

Applicability: FEMA recommends that all non-Federal entities place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

"This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives."

No Obligation by Federal Government

The FAA and or FEMA is not a party to any transaction between the recipient and its contractor. The FAA and or FEMA is not subject to any obligations or liable to any party for any matter relating to the contract.

Applicability: FEMA recommends that the non-Federal entity include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

"The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

Program Fraud and False or Fraudulent Statements or Related Acts

Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or fraudulent claims for payment to the federal government. See DHS Standard Terms and Conditions: Version 8.1 (2018); and 31 U.S.C. §§ 3801-3812, which details the administrative remedies for false claims and statements made. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

FEMA recommends that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

"The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."

BIDDER INFORMATION FORM

Instructions: Complete the form below. Please provide legible, accurate, and complete contact information. PLEASE PRINT.

Bid Number & Name: IFB 22-011/JW, TAXIWAY A REHABILITATION AT JACK BROOKS REGIONAL AIRPORT

Bidder's Company/Business Name: ALLCO LLC

Bidder's TAX ID Number: [redacted]

***If Applicable*: HUB Vendor No.** N/A **DBE Vendor No.** N/A

Contact Person: BRANDON HARRISON **Title:** PROJECT MANAGER

Phone Number (with area code): 409-860-4459

Alternate Phone Number if available (with area code): N/A

Fax Number (with area code): 409-860-3857

Email Address: bharrison@allco.com

Mailing Address (Please provide a physical address for bid bond return, if applicable):

P.O. BOX 3684 (6720 COLLEGE, BEAUMONT, TX 77707)
Address
BEAUMONT, TX 77704
City, State, Zip Code

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder ALLCO LLC.
2. Permanent main office address
   6720 COLLEGE
   BEAUMONT, TX 77707
3. When organized 4-22-1985.
4. If a corporation, where incorporated TEXAS.
5. How many years have been engaged in the contracting business under your present firm or trade name? 37 YEARS
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion)
   PLEASE SEE ATTACHED.

General character of work performed by your company (GENERAL CONTRACTOR - see attached details)

7. Have you ever failed to complete any work awarded to you? NO
8. Have you ever defaulted on a Contract? NO
   If so, where and why?
9. Have you ever been fined or had your license suspended by a Contractor's Licensing Board? NO
   If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed (attach to back of this document). ATTACHED.
11. List your major equipment available for this Contract (attach to back of this document). ATTACHED.
12. List your experience in construction work similar in scope and scale to this project (attach to back of this document). ATTACHED.
13. Background and experience of the principal members of your organization, including the officers (attach to back of this document). WE WILL SUBMIT IF SUCCESSFUL BIDDER.
14. Credit available: $ N/A
15. Give Bank reference: [redacted]

ALLCO
LIST OF PROJECTS NOW ENGAGED IN COMPLETING

Contract Amount	Class of Work	Percent Completed	Where Located City/County/State	Owner or Owner Representative
20,000,000	CDBG - Residential Construction Services	0%	Houston Harris Texas	General Land Office 1700 Congress Ave. Austin, Texas 78701 512-475-5000
43,600,000	CDBG - Texas Commercial/Residential Disaster Recovery	35%	Southeast Texas Various Texas	General Land Office 1700 Congress Ave. Austin, Texas 78701 512-475-5000
10,000,000	Florida Commercial/Residential Disaster Recovery	1%	N. Florida Various Florida	Florida DEO 107 E. Madison St. Tallahassee, Florida 32399 850-717-8449
50,000,000	Alligator Bayou Pump Station Annex-Drainage District No. 7	99%	Port Arthur Jefferson Texas	Carroll & Blackman Inc. 3120 Fannin Beaumont Texas 77702 409-833-3363
10,000,000	Textile Manufacture Facility	5%	Ghent Belgium	Pure Renewable Systems 6712 E. 118 Street Bixby Oklahoma 74008 918-406-2557
15,985,000	Washington Boulevard Pavement Widening Improvements	85%	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725
21,804,200	Biological Nutrient Removal Wastewater Treatment Plant MCMUD#8	60%	Conroe Montgomery Texas	Jones/Carter 6330 West Loop South Ste 150 Bellaire Texas 77401 713-777-5337
1,058,961	Replacement of Sewer Transport Line, Phase 1	99%	Westlake Calcasieu Parish Louisiana	City of Westlake PO Box 700 Westlake, Louisiana 70669 337-433-0691

ALLCO
LIST OF PROJECTS NOW ENGAGED IN COMPLETING

Contract Amount	Class of Work	Percent Completed	Where Located City/County/State	Owner or Owner Representative
3,095,000	Discharge Pipe 1,2 & 5 Rehab	90%	Beaumont Jefferson Texas	Lower Neches Valley Auth. PO Box 5117 Beaumont, Texas 77726 409-892-4011
7,704,000	Pump Station - Civil	60%	Deweyville Orange Texas	Sabine River Authority PO Box 579 Orange, Texas 77631 409-746-2192
3,777,000	Pump Station - Mechanical/Piping	15%	Deweyville Orange Texas	Sabine River Authority PO Box 579 Orange, Texas 77631 409-746-2192
3,523,000	Lake Tawakoni Spillway Channel Bank Stabilization	35%	Point Rains Texas	Sabine River Authority PO Box 579 Orange, Texas 77631 409-746-2192
9,975,000	Wastewater Treatment Plant Expansion	10%	Magnolia Montgomery Texas	City of Magnolia 18111 Buddy Riley Blvd Magnolia, Texas 77354 281-356-2266
1,930,000	Wastewater Treatment Plant - Trickling Filter Rehabilitation	5%	Beaumont Jefferson Texas	City of Beaumont 801 Main St. Beaumont, Texas 77701 409-880-3725
1,363,000	Water Treatment Plant Improvements, Project Filters Rehab - Proposed Clearwell	25%	Nederland Jefferson Texas	Jefferson Co. WCID #10 3707 Central Blvd Nederland, Texas 77627 409-722-6922
4,215,000	Levee 26 Construction	12%	Nederland Jefferson Texas	Sabine Neches Nav. District PO Box 778 Nederland, Texas 77627 409-729-4588

ALLCO
LIST OF PROJECTS NOW ENGAGED IN COMPLETING

Contract Amount	Class of Work	Percent Completed	Where Located City/County/State	Owner or Owner Representative
5,185,000	Street Rehabilitation City Wide Phase 1	90%	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725
975,000	Sewer Plant Pump Replacement and Renewal	50%	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725

ATTACHMENT TO AIA FORM A305
CONTRACTOR'S QUALIFICATION STATEMENT

Experience

I. Commercial Building Construction/Management/Disaster Recovery

- A. Earthwork
- B. Site Drainage Work
- C. Concrete Foundations
- D. Concrete Paving and Walks
- E. Concrete Tilt Panels
- F. Steel and Panel Erection
- G. Rough and Finish Carpentry
- H. Residential
- I. Commercial

II. Civil Construction

- A. Site Clearing
- B. Drainage Work
- C. Roads and Paving
- D. Bridges
- E. Wetlands and Ponds

III. Water/Wastewater Treatment Facilities

- A. Earthwork
- B. Concrete Foundations
- C. Concrete Structures
- D. Steel Erection
- E. Equipment Setting
- F. Painting
- G. Site Drainage
- H. Piping

IV. Utility

- A. Water Lines, Sewer Lines & Storm Water Drainage Installation
- B. Rehabilitation of Sanitary Sewer/Storm Sewer
  1. Point Repairs
  2. Sliplining
  3. Pipe Bursting
- C. Lift Stations

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
1,400,000	11th Street Resurfacing Project	2020	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont, Texas 77701 409-880-3725
892,000	Emergency Repair Wastewater Treatment Plant Bar Screen	2020	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont, Texas 77701 409-880-3725
75,000	Emergency Repair Wastewater Treatment Plant Secondary Clarifier Junction Box	2020	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont, Texas 77701 409-880-3725
5,389,000	Sanitary Sewer System Improvements Phase 1	2020	Liberty Liberty Texas	HR Green 11011 Richmond Ave, Ste 200 Houston, Texas 77042 713-965-9996
1,724,766	Wastewater Treatment Sludge Thickner/Belt Press Rehabilitation	2019	Beaumont Jefferson Texas	Schaumburg & Polk Inc. 8865 College Street Beaumont, Texas 77707 409-866-0341
2,581,500	Water Treatment Plant Pretreatment Improv.	2019	Beeville Bee Texas	Enprotec/Hibbs & Todd 402 Cedar St. Abilene, Texas 79601 832-698-5560
5,343,000	High Surface Pump Station Improvements Baytown Water Authority	2019	Baytown Harris Texas	Shrader Engineers 750 Towne & Country Ste 650 Houston, Texas 77042 713-467-9961
3,212,000	Dowlen Road ACP Resurfacing Project	2019	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont, Texas 77701 409-880-3725
12,605,000	Surface Water Treatment Plant Improvements Phase I	2018	Port Arthur Jefferson Texas	Arceneaux Wilson & Cole 2901 Turtle Creek Dr. #320 Port Arthur Texas 77642 409-724-7888

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
2,861,000	Wastewater Treatment Plant Expansion Phase 2A & 2B	2018	Orange Orange Texas	Schaumburg & Polk 8865 College Street Beaumont Texas 77707 409-866-0341
726,000	Keith Road 16" Water Line Installation	2018	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725
533,700	Bigner Road Asphalt Resurfacing Project	2018	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725
23,750,000	Surface Water Treatment Plant Improvements Phase 2	2018	Port Arthur Jefferson Texas	Arceneaux Wilson & Cole 2901 Turtle Creek Dr. Ste. 320 Port Arthur Texas 77642 409-724-7888
2,200,000	City of Anahuac Wastewater Treatment Plant Rehab Contract A	2017	Anahuac Chambers Texas	Carroll & Blackman 3120 Fannin Street Beaumont Texas 77702 409-833-3363
1,300,000	City of Rose City Bridges Project #2	2017	Rose City Orange Texas	Goodwin Lasiter 1609 S. Chestnut Ste. 202 Lufkin Texas 75901 936-637-6336
740,000	Asphalt Road Repairs Rosen & Various Streets City of Bridge City	2017	Bridge City Orange Texas	Action Engineers 8460 Central Mall Dr. Ste. J Port Arthur Texas 77642 409-983-6263
3,260,000	Jack Brooks Regional Airport Runway Reconstruction	2017	Beaumont Jefferson Texas	Garver USA C/O 1149 Pearl Street Beaumont Texas 77701 713-491-8333

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
2,690,000	Port Acres Wastewater Treatment Plant Improvements	2016	Port Acres Jefferson Texas	Arceneaux Wilson & Cole 2901 Turtle Creek Dr. #320 Port Arthur Texas 77642 409-724-7888
3,260,000	Jack Brooks Regional Airport Runway Reconstruction	2016	Beaumont Jefferson Texas	Garver USA C/O 1149 Pearl Street Beaumont Texas 77701 713-491-8333
300,000	Site Grading Port Arthur Business Park	2016	Port Arthur Jefferson Texas	Arceneaux Wilson & Cole 2901 Turtle Creek Dr. #320 Port Arthur Texas 77642 409-724-7888
740,000	Asphalt Road Repairs Rosen & Various Streets City of Bridge City	2016	Bridge City Orange Texas	Action Engineers 8460 Central Mall Dr. Ste. J Port Arthur Texas 77642 409-983-6263
1,300,000	City of Rose City Bridges Project #2	2016	Rose City Orange Texas	Goodwin Lasiter 1609 S. Chestnut Ste. 202 Lufkin Texas 75901 936-637-6336
5,600,000	Crenshaw Water Plant Ground Storage Tank	2016	Pasadena Harris Texas	City of Pasadena 1114 Davis Street Ste. 300 Pasadena Texas 77506 713-475-4995
7,950,000	Water Treatment Plant Lake Livingston Water & Sewer Service Corp	2016	Livingston Polk Texas	Enprotec/Hibbs & Todd 402 Cedar Street Abilene Texas 79601 325-698-5560
12,900,000	South Park Drainage Relief Project	2015	Beaumont Jefferson Texas	City of Beaumont 801 Main Street Beaumont Texas 77701 409-880-3725
1,407,000	Water & Sewer Rehab South Park Area	2015	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-735-3000

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
1,612,000	Coopers Gully Pump Station - City of Orange	2015	Orange Orange Texas	Carroll & Blackman Inc. 3120 Fannin Beaumont Texas 77702 409-833-3363
3,400,000	Water System Improv. Keith Lake to Sabine Pass Standpipe	2015	Port Arthur Jefferson Texas	Arceneaux & Gates 2901 Turtle Creek Drive Port Arthur Texas 77642 409-724-7888
1,130,000	Wastewater Treatment Plant Improvements Phase IA & IB	2015	Orange Orange Texas	Schaumburg & Polk 8865 College Street Beaumont Texas 77707 409-866-0341
3,200,000	24" Waterline City of Port Arthur-19th St. to Sabine Neches Canal	2015	Port Arthur Jefferson Texas	Arceneaux & Gates 2901 Turtle Creek Drive Port Arthur Texas 77642 409-724-7888
3,492,000	Sanitary Sewer Impr 54" Interceptor	2015	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-785-3000
1,750,000	Wastewater Collection Rehabilitation	2015	Nederland Jefferson Texas	Schaumburg & Polk Inc. 8865 College Street Beaumont Texas 77707 409-866-0341
3,350,000	Detention Ponds & Drainage Facilities Imperial Phase II	2015	Sugarland Fort Bend Texas	LJA Engineers 2929 Briarpark Houston Texas 77042 713-953-520
3,350,000	Detention Ponds & Drainage Facilities Imperial Phase II	2015	Sugarland Fort Bend Texas	LJA Engineers 2929 Briarpark Houston Texas 77042 713-953-520
4,500,000	Orange County WCID #1 Cloverleaf Tiger Lake Lift Station/Force Main	2014	Vidor Orange Texas	Carroll & Blackman 3120 Fannin Beaumont Texas 77702 409-833-3363

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
1,800,000	City of Missouri City Prestressed Concrete Clearwell	2014	Missouri City Fort Bend Texas	Enprotec/Hibbs & Todd 402 Cedar Street Abilene Texas 79601 325-698-5560
2,500,000	Asphalt Road Repair City Wide -Bridge City	2014	Bridge City Orange Texas	d.p. Consulting Engineers 3727 Doctors Drive Port Arthur Texas 77642 409-983-6263
430,000	Clarifier Rehabilitation	2014	Orange Orange Texas	Firestone Polymers 5713 FM 1006 Orange Texas 77630 409-924-4626
457,000	Post Office Lift Station Improvements	2014	Port Neches Jefferson Texas	Carroll & Blackman Inc. 3120 Fannin Beaumont Texas 77702 409-833-3363
2,400,000	Fort Polk Sewer American Water	2014	Fort Polk Vernon Louisiana	Arceneaux & Gates 3501 Turtle Creek Drive Port Arthur Texas 77642 409-724-7888
10,000,000	Richland Chambers Wetland Expansion Improvements	2013	Fairfield Navarro Texas	Alan Plummer Associates 1349 Empire Central Ste 1000 Dallas Texas 75247 214-631-6100
2,000,000	Water System Improvements	2013	Nederland Jefferson Texas	City of Nederland 1400 Boston Avenue Nederland Texas 77627 409-723-1542
2,700,000	Sanitary Sewer 60" Trunk Outfall	2013	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-785-3000
1,150,000	Asphalt Road Repair Repair City of Bridge City	2013	Bridge City Orange Texas	d.p. Consulting Engineers 3727 Doctors Dr. Port Arthur Texas 77642 409-983-6263

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
9,971,000	Main & Port Acres WWTP Rehabilitation City of Port Arthur	2012	Port Arthur Jefferson Texas	Arceneaux & Gates 2901 Turtle Creek Dr. Ste. 201 Port Arthur Texas 77642 409-724-7888
3,500,000	Sanitary Sewer Rehab Contract 6	2012	Port Arthur Jefferson Texas	City of Port Arthur P.O. Box 1089 Port Arthur Texas 77640 409-983-8226
1,700,000	Diboll Water System Northside	2012	Angelina Diboll Texas	KSA Engineers 107 W. Lufkin Avenue Lufkin Texas 75904 936-637-6061
639,000	Nacogdoches WWTP 2010 Improvements	2012	Nacogdoches Nacogdoches Texas	Schaumburg & Polk Inc. 8865 College Beaumont Texas 77707 409-866-3413
3,100,000	Sanitary Sewer Rehab 2009 Project	2012	Nederland Jefferson Texas	City of Nederland 1400 Boston Avenue Nederland Texas 77627 409-723-1542
800,000	Waterline Installation Large Diameter Main	2011	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-785-3000
2,950,000	Wastewater Treatment Plant Improvements	2011	Liberty Liberty Texas	Schaumburg & Polk Inc. 8865 College Street Beaumont Texas 77707 409-866-0341
2,000,000	Water & Sewer Area II & III	2010	Orange Orange Texas	City of Orange P.O. Box 520 Orange Texas 77630 409-883-1900
1,400,000	Sanitary Sewer Rehab Project Contract XIV	2010	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-785-3000

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
8,500,000	Water Treatment Plant Expansion/Renovations	2010	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont Texas 77707 409-785-3000
4,000,000	Full Dept Concrete Repair Project	2010	Beaumont Jefferson Texas	City of Beaumont P.O. Box 3872 Beaumont Texas 77704 409-785-3000
6,700,000	Wastewater Treatment Plant Renovations	2009	Dayton Liberty Texas	O'Malley Engineers 1306 North Park Brenham Texas 77833 979-836-7937
3,200,000	Wastewater Treatment Plant Improvements	2009	Woodlands Montgomery Texas	Carter & Burgess Inc. 55 Waugh Suite 800 Houston Texas 77007 713-869-7900
25,000,000	East Fork Raw Water Supply Wetland Construction Project	2009	Wylie Collin Texas	Alan Plummer Associates 1349 Empire Centra Ste 1000 Dallas Texas 75247 214-631-6100
2,700,000	Alabama Command Control Center	2009	Orange Orange Texas	Port of Orange 1201 Childers Road Orange Texas 77630 409-883-4363
3,333,000	Water Treatment Plant Improvements Phase I	2009	Carthage Panola Texas	KSA Engineers 140 E. Tyler Suite 600 Longview Texas 75601 936-637-6061
5,500,000	Rolphe Christopher Blvd. Renovations	2009	Beaumont Jefferson Texas	City of Beaumont P.O. Box 3827 Beaumont Texas 77704 409-785-3000
13,200,000	FM 1179 Road Improvements	2008	Bryan Brazos Texas	Texas Dept of Transportation 1300 N. Texas Avenue Bryan Texas 77803 979-778-2165

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
2,100,000	US 69 Frontage Roads Nederland Ave & Hwy 365-Jefferson County	2008	Nederland Jefferson Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont Texas 77708 409-898-5711
5,000,000	Avocet Oceanfront Villas	2008	Bolivar Galveston Texas	Avocet Oceanfront Villas LLP 3112 East Fourth Avenue Durango, Colorado 81301
1,000,000	Seagrass Development	2008	Caplen Galveston Texas	Seagrass-Caplen LLC P.O. Box 7754 Beaumont Texas 77726 409-861-4459
5,200,000	Phelan Boulevard Extension	2008	Beaumont Jefferson Texas	City of Beaumont P.O. Box 3827 Beaumont, Texas 77704 409-785-3000
3,200,000	2006 Sanitary Sewer Improvements Contract C	2008	Lumberton Hardin Texas	Lumberton M.U.D. 55 W. Chance Cut-Off Lumberton, Texas 77656 409-755-1559
3,800,000	Water Transmission Line Singing Sands to Port Bolivar	2008	Bolivar Galveston Texas	Schaumburg & Polk Inc. 8865 College Street Beaumont Texas 77707 409-866-0341
3,300,000	Water Treatment Plant Improvements Phase II	2008	Carthage Panola Texas	City of Carthage 812 W. Panola Carthage Texas 75633 903-693-3868
9,500,000	Safety Rest Areas Hwy 59 Polk County	2008	Livingston Polk Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont Texas 77708 409-898-5711
24,200,000	Highway 96 Construction	2007	Kirbyville Jasper Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont Texas 77708 409-898-5711

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LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
3,100,000	Wastewater Treatment Plant Renovations	2007	Galveston Galveston Texas	City of Galveston P.O. Box 779 Galveston Texas 77553 409-797-3630
2,600,000	Water Treatment Plant Trinity Bay Conservation District	2007	Winnie Chambers Texas	Carroll & Blackman Inc. 3120 Fannin Beaumont Texas 77702 409-833-3363
9,900,000	Wastewater Collection Rehab Pioneer Park & Griffing Park	2006	Port Arthur Jefferson Texas	Bob Shaw Consulting Engineers 4749 Twin City Highway Port Arthur Texas 77643 409-963-0263
$1,600,000	FM 1131 Roadway Orange County	2006	Deweyville Orange Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont Texas 77708 409-898-5711
$1,000,000	Audubon Village Development	2006	Gilchrist Galveston Texas	Audubon Village LLC P.O. Box 7754 Beaumont Texas 77726 409-861-4459
7,000,000	Walden Development Phase I & II	2006	Beaumont Jefferson Texas	Crescent-Walden LLC P.O. Box 7754 Beaumont, Texas 77726 409-861-4459
8,500,000	FM 364 Major Drive Construction	2005	Beaumont Jefferson Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont Texas 77708 409-898-5711
6,000,000	Laguna Harbor Resort	2005	Port Bolivar Galveston Texas	Laguna Resources Ltd. P.O. Box 7754 Beaumont Texas 77726 409-861-4459
3,200,000	High Island to Singing Sands Transmission Line Contract IV	2005	Stowell Chambers Texas	Lower Neches Valley Authority 7850 Eastex Freeway Beaumont, Texas 77708 409-892-4011

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
4,200,000	City of Nacogdoches WW Collection System SS Replacement	2004	Nacogdoches Nacogdoches Texas	Schaumburg & Polk 8865 College Street Beaumont, Texas 77707 409-866-0341
4,200,000	West Regional Water System Transmission Line	2004	Winnie Chambers Texas	Lower Neches Valley Authority 7850 Eastex Freeway Beaumont, Texas 77708 409-892-4011
4,100,000	Water Treatment Plant West Jefferson Municipal Water Dist	2004	Fannett Jefferson Texas	dp Consulting Engineers 3800 Highway 365 Port Arthur, Texas 77642 409-983-6263
2,200,000	Orleans Street Inter-Locking Pavers	2004	Beaumont Jefferson Texas	City of Beaumont P.O. Box 3827 Beaumont, Texas 77704 409-785-3000
1,300,000	Jasper County FM82	2004	Kirbyville Jasper Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont, Texas 77708 409-898-5711
1,100,000	WWTP Bar Screen & Belt Press Conveyor	2004	Beaumont Jefferson Texas	City of Beaumont 1350 Langham Beaumont, Texas 77706 409-785-3000
9,100,000	Highway Construction Jefferson County IH-10 Feeder Roads	2003	Beaumont Jefferson Texas	Texas Dept of Transportation 8350 Eastex Freeway Beaumont, Texas 77708 409-898-5711
9,600,000	Highway Construction Jefferson County SP 93-Phase III	2003	Beaumont Jefferson Beaumont	Texas Dept of Transportation 8350 Eastex Freeway Beaumont, Texas 77708 409-898-5711
3,500,000	Highway Construction Freestone County Highway 164	2003	Buffalo Freestone Texas	Texas Dept of Transportation 2800 Commerce Street East Buffalo, Texas 75831 713-802-5551

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
5,500,000	Wastewater Treatment Plant Renovations	2003	Nederland Jefferson Texas	Schaumburg & Polk, Inc. 8865 College Street Beaumont, Texas 77707 409-866-0341
849,000	Distribution Parallel 66" Line	2003	Texas City Galveston Texas	Gulf Coast Water Authority 3630 Highway 1765 Texas City, Texas 77591 409-935-2438
13,535,000	Highway Construction Orange County Highway 87	2002	Orange Orange Texas	Texas Dept of Transportation 3128 Highway 62 Orange, Texas 77632 409-883-3476
5,500,000	Drainage & Street Improvements Concord Road	2002	Beaumont Jefferson Texas	City of Beaumont P.O. Box 3827 Beaumont, Texas 77704 409-785-3000
1,370,725	Highway Construction FM787 Bridge Project	2000	Saratoga Hardin Texas	Texas Dept of Transportation 1150 Avenue N Silsbee, Texas 77656 409-385-5269
2,000,000	Highway Construction Jefferson County Walden Road Project	1999	Beaumont Jefferson Texas	Texas Department of Transportation 8350 Eastex Freeway Beaumont, Texas 77708 409-898-5711
7,200,000	Wastewater System Improvements Contract 3,4 & 5	1998	Mauriceville Orange Texas	Schaumburg & Polk, Inc. 8865 College Street Beaumont, Texas 77707 409-866-0341
7,250,000	Highway Construction SP93 West Port Arthur Phase II	1998	Beaumont Jefferson Texas	Texas Department of Transportation 8350 Eastex Freeway Beaumont, Texas 77708 409-898-5711
1,300,000	New Water & Sewer Improvements-Delta Heights & Hwy 96 Area	1998	Pineland Sabine Texas	Hogan Corporation/City of Pineland 101 Dogwood Pineland, Texas 75968 409-381-8811

ALLCO
LIST OF COMPLETED CIVIL/HEAVY PROJECTS

Contract Amount	Class of Work	When Completed	Where Located City/County/State	Owner or Owner Representative
3,365,583	South Park Drainage Project	1997	Beaumont Jefferson Texas	Schaumburg & Polk, Inc. 8865 College Street Beaumont, Texas 77707 409-866-0341
4,300,000	Water Treatment Facility & New Office Buildings	1996	Nederland Jefferson Texas	City of Nederland 1400 Boston Avenue Nederland, Texas 77627 409-723-1542
4,200,000	Wastewater Treatment Facility & Plant Buildings	1996	Lumberton Hardin Texas	Schaumburg & Polk, Inc. 8865 College Street Beaumont, Texas 77707 409-866-0341

ALLCO REFERENCES

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REFERENCES
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DR. HANI J. TOHME, P.E.
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PORT ARTHUR TEXAS 77640
409-983-8226
hani.tohme@portarthurtx.gov

Item #	Customer's #	Year	Manufacturer	Model	Description	Serial #	Amt of Insurance
219	36130		Takeuchi	TL12-CRH	Skid Steer Loader	201201998	51,000
377	55123		Takeuchi	TL-12CR	Skid Steer	201202050	
223	66781		KOMATSU	PC78-6	TRACK HOE	2082	30,000
134	117579		Bobcat	T-190	SKID STEER	531612221	18,000
333	161408		Takeuchi	TL-12CR	Skid Steer Loader	201202341	70,000
16	185819	1993	Ford	555D	Backhoe	A422408	15,000
367	243193		Komatsu	PC360LC-10	Excavator	A32565	119,000
222	267267		KOMATSU	WB140-2	BACK HOE	A22631	22,000
32	344334		Case	580L	Backhoe	JJG0222842	14,000
331	415222		Komatsu	PC-240LC-11	Excavator	K73036	190,000
70	427275		Komatsu	PC12BUU-1	Excavator	T3069	20,000
100	432023		Komatsu	PC250LC-6	Excavator	A83082	44,000
103	435676		Komatsu	PC45MR-1	Mini Excavator	3092	22,000
371	450285	2019	Komatsu	PC 240LC-1	Excavator	K73132	220,000
373	450285		Komatsu	PC240-11	Excavator	K73132	180,000
330	462368	2016	Takeuchi	TL10CR	Skid Steer Loader	201003165	44,000
96	471803	1998	Cat	416CIT	Backhoe	1WR03191	24,000
335	494449	2019	CAT	420F2	BHL IT Backhoe	HWD03253	100,000
91	519681		Komatsu	PC200-6	Excavator	TA83322	31,000
55	540469		Cat Backhoe	416C	BACK HOE	4ZN23379	23,000
51	540500		Komatsu	PC220-6	EXCAVATOR	A83379	32,000
71	556936		Komatsu	PC128UU-1	Excavator	T3424	22,000
60	579581		Bobcat	322	MINI EXCAVATOR	223513486	9,000
102	598938		Komatsu	PC220LC-6	excavator	A83539	37,000
339	624171		Takeuchi	TL8CRW	Skid Steer Loader	200803608	40,000
90	632541		Komatsu	PC200LC-6	Excavator	TA83631	34,000
101	730791		Komatsu	PC120-6	EXCAVATOR	63900	33,000
104	741717		Cat	420D	Backhoe	FDP3930	24,000
36	790295		Caterpillar	416 CIT	Backhoe	1WR04063	24,000
185	937184		Terex/Amida		Concrete Buggy	0004-64465	600
80	951032		Takeuchi	TB1015	Excavator	1154503	3,000
79	951398		Takeuchi-	TB1015	Excavator	1154504	3,000
167	1148263		Komatsu Mini	PC88-8	MINI EXCAVATOR	5043	49,000
158	1157059	2009	BOBCAT	T250	SKID STEER	A5GS35067	19,000
74	1226061		Komatsu-	PC220LC-6LE	Excavator	A85256	40,000
115	1276464		Komatsu	pc220-6	Excavator	A85394	37,000
224	1281942		KOMATSU	PC88-8	TRACK HOE	5409	50,000
88	1285960		Komatsu	PC220 LC-6LE	Excavator	A85420	41,000
117	1287055		Komatsu	PC220-6	EXCAVATOR	A85423	37,000
31	1287085	1994	Komatsu	WA180	FRONT END LOADER	A75423	16,000
28	1305318		Komatsu	PC40-7	MINI EXCAVATOR	25473	10,000

4	1308970	1996	Komatsu	PC40	MINI EXCAVATOR	25483	16,000
151	1396232	2005	CAT	420D 4X4	Backhoe	FDP025722	23,000
198	1400281		KOMATSU	PC88MR-8	Mini Excavator	5733	51,000
343	1401011		KOMATSU	PC-360LC-11	Excavator	A35735	190,000
26	1405059	1996	Komatsu	WA180	Wheel Loader	A75746	17,000
123	1480269		PC27MR	PC27 MR-2	EXCAVATOR	15952	19,000
229	1484682		KOMATSU	WA200-5	LOADER	65964	51,000
44	1485747		Komatsu	PC45-8	MINI EXCAVATOR	5967	15,000
61	1487939		KOMATSU	PC45-8	MINI EXCAVATOR	5973	15,000
199	1507297		KOMATSU	PC88MR-8	Mini Excavator	6026	51,000
43	1554413		Komatsu	PC60-7	Excavator	56155	16,000
68	1599733		Komatsu	WA180	F/E Loader	TA76279	17,000
99	1664016		Komatsu	WA180-1	Wheel Loader	TA76455	19,000
220	1887849		CAT	420 DIT	BACK HOE	BLN07068	26,000
7	1937156	1989	JCB	1400B	RUBBER TIRED BACKHOE	347203	4,000
145	2052603		Komatsu	PC400LC-7E	Excavator	A87519	100,000
164	2111409		KOMATSU	PC18-2	MINI EXCAVATOR	17680	12,000
163	2113600		KOMATSU	PC18-2	MINI EXCAVATOR	17686	12,000
165	2113965		KOMATSU	PC18-2	MINI EXCAVATOR	17687	12,000
375	2121269		Komatsu	PC290LC-11	Excavator	A27707	210,000
226	2232699		BOBCAT	T-200	SKID STEER	518918012	19,000
30	2237021	1997	Case	580L	Backhoe	JJG0238024	16,000
141	2249470		Komatsu	PC300LC-7E	Excavator	A88058	85,000
150	2285629		Komatsu	PC220LC-8	Excavator	A88157	81,000
166	2303160		KOMATSU	PC50-2	MINI EXCAVATOR	8205A	21,000
142	2348450		Komatsu	PC220-LC-7	Excavator	A88329	81,000
148	2558129		Komatsu	WA200-5	Wheel Loader	68903	40,000
49	10-0486		Cat-IT	416 CIT	Backhoe	WR10486	25,000
345	10-0562	2014	Case	580N	4WD Backhoe	NEC700562	30,000
221	10-1016		CAT	420E	BACK HOE	HLS01016	31,000
92	10-1605		Cat	420DIT	Backhoe	BLN01605	24,000
210	11-0077		KOMATSU	PC-490LC-10	Excavator	A40077	194,000
173	11-0114		Komatsu	PC-18MR-3/A	MINI EXCAVATOR	20114	12,000
207	11-0190		KOMATSU	PC240LC-10	Excavator	90190	155,000
21	11-0199	1995	Komatsu	PC300-5	Excavator	A30199	25,000
332	11-0248		Komatsu	PC-490	Excavator	TA40248	35,000
177	11-0267		Komatsu	PC400LC-7EO	Excavator	T50267	125,000
12	11-0274	1995	John Deere	190 E	Excavator	10274	18,000
317	11-0363		Takeuchi	TB240CR	Mini Excavator	124000363	48,300
42	11-0384		Komatsu	PC220-6	Excavator	A80384	25,000
225	11-0403		KOMATSU	PC160-7	TRACK HOE	K40403	36,000
83	11-0430		Komatsu	PC400LC-6	Excavator	A80430	30,000

63	11-0434		Cat	322L	EXCAVATOR	2ES00434	38,000
378	11-0532	2017	Takeuchi	TB216R	Mini Excavator	216100532	20,000
82	11-0697		Komatsu-	PC60-7	Excavator	50697	15,000
11	11-0790		Caterpillar	322 BL	Excavator	1YS00790	20,000
19	11-0845	1994	Komatsu	PC220-S	Excavator	A70845	23,000
81	11-0846		Komatsu-	PC60	EXCAVATOR	50846	15,000
105	11-0847	2003	Komatsu	PC60-7	Mini Excavator	T50847	15,000
206	11-0850		KOMATSU	TB290CL	Excavator	185100850	65,000
18	11-0867	1993	Komatsu	PC400-5	Excavator	A70867	22,000
228	11-0931			TB290 CL	MINI TRACK HOE	185100931	65,000
336	11-0972	2016	John Deere	245G	Tackhoe	1FF245GXEGE600972	150,000
152	11-1353		Komatsu	PC78	Mini Excavator	1353	30,000
359	11-1360		Komatsu	PC-490LC-11	Excavator	A41360	238,000
76	12-0073		Takeuchi-	TL126	SKID STEER	21260073	12,000
40	12-0079		Komatsu	WA120	Wheel Loader	A30079A	21,000
77	12-0263		Takeuchi-	TL26	SKID STEER	2620263	5,000
227	12-0263				BRUSH CAT	2620263	2,000
116	12-0404		CAT	950G	WHEEL LOADER	4BS00404	36,000
197	12-0478		Takeuchi	TL10R	Skid Steer Loader	201000478	40,000
209	12-0512		Takeuchi	TL8RW	Skid Steer Loader	200800512	37,000
307	12-0916		Komatsu	WA270-7	Wheel Loader	80916	150,000
356	12-1035		Takeuchi	TL-10	Loader	201001035	39,000
236	12-1303		TAKEUCHI	TL10	SKID STEER	201001303	40,000
72	12-1848		Komatsu	WA250-MC	F/E Loader	A71848	41,000
112	13-0225		Komatsu	D41P-6B	DOZER	B30225	22,000
34	13-0234		Caterpillar	D3C	DOZER	5GS00234	23,000
147	13-0394		Crawler	DBT	DOZER	CAT00D8TEJ8B00394	198,000
309	13-0503	2014	Komatsu	D-39-X-23	Dozer	T90503	89,500
232	13-0596		CAT	D6M	DOZER	4JN00596	53,000
156	13-0606	2004	CAT	D5G-LGP	Dozer	RKG00606	42,000
176	13-0790		CAT	D6RLGP	Dozer	9PN10790	54,000
230	13-0914		CAT	D5 G	DOZER	FDW00914	41,000
114	13-1031		Komatsu	D41P-6	Dozer	1031	22,000
231	13-1037		KOMATSU	D61 GPS	DOZER	1037	36,000
128	13-1050	1996	Cat	D6R	DOZER	9PN01050	49,000
129	13-1127	1996	Cat	D8R	DOZER	7XM01127	79,000
85	13-1151		Cat--	D5CLGP	Dozer	6C501151	25,000
54	13-1323		Komatsu	D41 E-6	Dozer	B21323	35,000
98	13-1604		Cat	D6M	Dozer	4JN01604	53,000
308	13-1699		Komatsu	D61PX-23	Dozer	31699	100,000
25	13-2339	1995	Komatsu	D58 F-1	Dozer	82339	25,000
133	13-3029		Komatsu	D61PX	Dozer	B3029	34,000

5	13-3093	1999	KOMATSU	D41 P-6	DOZER	B21351	22,000
97	13-3093		Komatsu	D614PX-12	Dozer	B3093	34,000
146	13-3150		John Deere	850J	Dozer	TO850JX143150	75,000
17	13-3151	1993	Komatsu	D37	Dozer	3151	15,000
48	13-3908	1999	Komatsu	D37 P	Dozer	3908	22,000
124	13-5101		Dozer	D37PX21	DOZER	5101	29,000
126	13-5538		Dozer	D37PX21	DOZER	5538	31,000
366	13-6081		Komatsu	D-39X-24	Dozer	96081	115,000
95	13-6331	2001	Komatsu	D39P-1	Dozer	PO96331	19,000
341	13-90351		Komatsu	D-39PX-23	Dozer	90351	90,000
143	13-9892		John Deer	850J	Dozer	149892	75,000
78	14-2201	1990	Sumitomo Linkbelt--		55 Ton Crawler Crane	2201	69,000
201	14-3298	2014	Kobelco Crane	CK1100-G	110 Ton Crawler	GH04-03298	531,000
27	14-9776		American Crawler	599	Crane W/80' 46S	GS9776	28,000
33	15-0249		Ditch Witch	S110	Trencher	N50249	9,000
37	15-0434		Ditchwitch	5110	Trencher	5P00434	11,000
234	15-0495			410 SXDD	DITCH WICH	4M0495	7,000
183	15-1215	2000	Ditch Witch	3700DD	Trencher	3T1215	8,000
138	16-0125		Cat	815	Compactor	17Z00125	30,000
337	16-0125		CAT	CB24	5mooth Drum Asphalt Roller	02X400125	35,000
208	16-0135		Cat	CB54B	Double Drum	RJN00135	66,000
45	16-0172		Bomag	BW212-D	Steel Wheel Roller	940172U	27,000
56	16-0263		Bomag	BW212D	Smoth Drum Roller	280263	31,000
194	16-0280		Cat	CP323C	Padfoot Roller	EAS00280	24,000
205	16-0369		Caterpillar 66'		Smooth Drum Roller	M4C00369	60,000
325	16-0589		CAT		Padfoot Roller	0LHC00589	90,000
360	16-0717		CAT	CP56B	Pad Foot Roller	LHC00717	112,000
368	16-0860		Doosan	SX-170H	Single Drum Vibratory Roller	VX0860	6,000
127	16-1005		Bomag	BW213dh-3	Smooth Drum Roller	9.01582E+11	36,000
238	16-1007		BOMAG	213	ROLLER PADFOOT	521007	38,000
357	16-1024		Bomag	BW145DH-5	Smooth Drum Roller	1.01586E+11	78,000
352	16-1061		Bomag	BW211PDH-5	84" Sheepsfoot Roller	1.01586E+11	135,000
235	16-1095		BOMAG	BW211	ROLLER SMOOTH	371095	34,000
118	16-1199		Bomag	BW213	ROLLER	241199	20,000
108	16-1286		Cat	815	Compactor	17Z1286	32,000
240	16-3211		WACKER	R0880V	ROLLER 36'	673603211	3,000
52	16-3908		Vibromax	1103PD	roller	3908	25,000
239	16-4815		I RAND	S-D45	ROLLER PADFOOT	174815	30,000
1	16-8333		Rosco Tru Pac	ROSCO 915	Roller Pneumatic	38333	12,000
241	16-9443			RT56C	REMOTE TRENCH ROLLER	5569443	2,000
29	16-9703	1997	Vibromax	602 D SMOOTH	Roller	JKC8409703	15,000
186	17-0108	2003	Terramite	TSS38	3-Wheel Broom	23TS0108	10,000

24	17-2648		Waldron Broom		Broom	22648	6,000
242	17-4099		BROCE	RJ350	BROOM	40499	15,000
168	17-4586		Broce Broom	RJ350	Broom	404586	15,000
64	17-8920		Broce	RJ300	Broom	88290	7,000
109	17-9670		Broce Broom	JR350	BROOM	89670	6,000
365	17-9916	2016	Broce	CR-350	Broom	409916	24,000
50	18-0020	1999	Komatsu	GD 530A	Motor Grader	210020	36,000
243	18-1013		KOMATSU	GD655	MOTOR GRADER	51013	99,000
135	18-1224		Komatsu	GD 655-3	Motor Grader	51224	116,000
292	18-1558		CAT	130G	MOTORGRADER	7GB01558	44,000
2	18-3715		Caterpillar	140 G	Motor Grader	72V13715	56,000
93	18-3904		Komatsu	GD530A-2CY	Motor Grader	203904	36,000
75	18-5285	1997	Flat Allis-	65C	Motor Grader	8555285	11,000
9	18-9723	1999	CHAMPION	GC-720A	MOTORGRADER	29723	43,000
244	19-0108		GALLION	150FA	PICKER 15ton	10108	36,000
20	19-0222	1989	Galion	150A	Hydraulic Crane	10222	17,000
316	19-1024	1998	Galion	150FA	Crane	11024	20,000
140	19-3562		Grove	RE528C	28 Ton Crane(Cherry Picker)	73562	48,000
245	19-9889		GALLION	150FA	PICCKER 15ton	9889	35,000
373	20-0072		Metro	Conex	20'	SEGU-1000072	2,500
328	20-0228		Metro	Conex Box	20' Container	DCMC-C320228	3,000
302	20-1021		METRO CONTAINER	20'	OFFICE TRAILER	20-1021	12,000
14	20-1116	1993	Sanitary Sewer Vacuum		VACUUM TRAILOR	92/93-11-16	5,000
15	20-1117	1993	Sanitary Sewer Vacuum		VACUUM TRAILOR	92/93-11-17	5,000
327	20-1466		Metro	Office Trailer	20' Container Office Trailer	2151466	13,000
329	20-1892		Conex	Conex Box	20FT Box	NGE5C991892	5,000
344	20-3521		Conex	Metro Container	20' (10) Container	43521	2,000
346	20-3926		Metro	Container	20'	B5IU2183926	2,500
374	20-4144		Metro	Conex	20'	ZIMU29994144	2,800
295	20-5240		MOBILE MODULAR		OFFICE TRAILER	35240	20,000
355	20-5381		Metro	Conex Box	20'	CAXU6215381	2,500
358	20-710		Metro	Office Container	20'	710	11,000
342	20-7500		Metro	20' Container	Conex	GE5U2754473	2,500
362	20-7632		Conex	Box	Metro 40' Box	CPSU6037632	3,700
351	20-8174		Conex	Metro Container	20 FT	GE5U1198174	2,000
190	22-0511		Trimble	GCS9000	DUAL GPS SYSTEM	74805-11	800
73	22-0529		Robotic Total Station	ATS600		64620529	2,000
107	22-0742	2004	Spectra		Laser Total Station	64620742	400
312	22-0796		Sitech		Dual GPS System & Base Station	CB460-0796J640SW	50,000
110	22-1648		Specta Laser			1648	400
191	22-5185		Trimble	GCS9000	DUAL GPS SYSTEM	1481J518SP	800
189	22-6050		Trimble	GCS9000	DUAL GPS SYSTEM	90460-50	800

195	23-2438		Kubota	ZTR	Mower	32438	7,000
175	23-3031		Massey Ferguson Tractor		with Loader S#12310	9916BK23031	10,000
65	23-3255	2000	John Deere	5310 &541	Tractor & Loader	3255	16,000
41	25-0001		Bidwell	DECK PAVER	Paver	B360023900	21,000
246	25-0143		ROADTEC	RP195	ASPHALT PAVER	RP195X143	100,000
122	25-0269	1998	Gomaco	GT3600	CARB PAVER	902900-269	24,000
313	25-1617	2017	HEM	FP12-27	Form Riding Paver	71617	270,000
196	25-3802		Blaw-Know	RW-38	R$oad Widener	3802	4,000
57	25-5127		Slip form Paver Series I Kit		SF3002	5127	17,000
247	25-5668		ETNYRE		ROCK SPREADER	R5668	38,000
137	25-6843		CMI	R6843	Road Widener	R6843	60,000
296	25-7049		ETNYRE	A01959	CHIPSPREADER	K7049	175,000
248	25-7073		TEREX	PS-3502	CC PLACER	527073	50,000
53	25-7193	2000	CMI-MTP 4004 Material Transfer Place		Placer	7193	35,000
10	26-TV	1995	Television Inspection System		Television Inspection System		4,000
276	27-0150		PIPE BURSTING		POWER PACK	T04045TF150	17,000
6	27-0262	1995	TERRA-RAM		PIPE BURSTING EQUP.	12100262	17,000
249	27-2487		PIPE BURSTING TRAILER		POWER PACK	PE4045L072487	30,000
277	27-6693		PIPE BURSTING		POWER PACK	T04045796693	17,000
278	27-7313		PIPE BURSTING		POIWER PACK	T0404577313	17,000
250	27-8639		PIPE BURSTING TRAILER		POWER PACK	PE4045L078639	30,000
251	27-8640		PIPE BURSTING TRAILER		POWER PACK	PE4045L078640	30,000
58	30-8212		Texture Curing Machine	TC3004		8212	19,000
47	33-0025		Terex TB 42		Manlift	99690025	7,000
301	33-0395	2008	GENIE	GS-2632	SCISSOR LIFT	GS3208-90395	6,000
319	33-0397	2008	Genie	GS-2632	Scissor Lift	GS3208-90397	9,000
318	33-0440	2008	Genie	GS-3246	Scissor Lift	G54608-90440	9,000
300	33-2304	2008	GENIE	GS-2632	SCISSOR LIFT	GS3208-92304	6,000
187	33-3817	2004	Genie	Z-45/25	Manlift	NZ452504-23817	17,000
211	33-4459	2007	JLG 600S		Manlift	300114459	28,000
363	33-5555	2013	Genie	GS-3246	Scissor Lift	GS4613A-11555	11,000
35	36-0188		Caterpillar	CAT SS 2S0	Soil Stabilizer	6DD00188	42,000
94	36-0197		Cat	RM250C	Road Reclaimer	AWG00197	90,000
264	36-0664	2014	CAT	RM300	MIXER	BWR00664	250,000
120	36-6229		CMI-RS-425		SOIL STABILIZER	526-229	69,000
262	40-0389	2005	CAT	725	ARTICULATING DUMP TRUCK	CAT00725PBIL00389	75,000
89	40-0543		Cat	D250E	Articulating Dump Truck	4PS-00543	50,000
179	40-1064		Cat	725	Articulated Truck	AFX01064	75,000
178	40-1219		Cat	725	Articulated Truck	AFX01219	75,000
263	40-1412	2004	CAT	725	ARTICULATING DUMP TRUCK	CATAFX01412	75,000
289	40-2733		CAT	725	ARTICULATING DUMP TRUCK	B1L02733	90,000
290	40-2764		CAT	725	ARTICULATING DUMP TRUCK	B1L02764	90,000

252	41-1030		TERES	3066	OFF ROAD WATER 5,000 GALLON	A7101030	17,000
303	42-3408		MAGNUM	MM80	GENERATOR	53408	11,500
155	42-9908		Detroit	150KW	Prime Generator Set	129908	6,000
285	44-0030		LINCOLN CLASSIC	300D	WELDER	C1070100030	3,000
338	44-0356R		Miller	Bobcat 250	Welding Machine	MJ440356R	5,000
315	44-0368		Miller Bobcat	250	Welding Machine	MH330368R	4,300
354	44-0463		Miller	Bobcat250	Welding Machine	MK390463R	5,000
353	44-0841		Miller	Bobcat 250	Welding Machine	MJ320841R	5,000
87	44-0962		Cat	-613	Water Wagon	8LJ00962	16,000
253	44-6096		LINCOLN	400	WELDER	1980806096	1,000
380	44-871R		Miller	Trailblazer	325 Welding Machine	NB080871R	6,100
376	45-0057		Sullair	185DPQ	185 CFM Air Compressor	2.01904E+11	15,000
256	45-0328		INGERSALL RAND	185	COMPRESSOR	232105UDD328	4,000
257	45-0379		LEROI		COMPRESSOR	N3272X379	4,000
38	45-0413	1999	Ingersoll Rand	P375	COMPRESSOR	296788	8,000
217	45-0907		Atlas Copco	XAS 185KD	Air Compressor	HOP050907	4,000
218	45-0914		Atlas Copco	XAS 185KD	Air Compressor	HOP050914	4,000
258	45-1328		INGERSALL RAND	185	COMPRESSOR	1.92913E+11	4,000
364	45-1428	2018	Airman	PDS1855-6E1	Air Compressor	B46311428	18,000
286	45-2023		INGERSALL RAND	185	COMPRESSOR	382023UARB34	4,000
255	45-3038		INGERSALL RAND	185	COMPRESSOR	323038UFL295	6,000
125	45-4425		Ingersoll Rand	P185WJD	Air compressor	364425	6,000
259	45-5271		SULLAIR	185	COMPRESSOR	004-125271	4,000
314	45-5304	2017	Hobart	Atlas Copco	Air Compressor	HOP055304	20,000
8	45-7085	1999	INGERSOL RAND		AIR COMPRESSOR	297085	6,000
113	45-7286	2000	Ingersoll Rand		Air Compressor	317286	6,000
254	45-759S		INGERSALL RAND	185	COMPRESSOR	337595UEN295	6,000
121	46-0481		CAT	DP70	FORKLIFT	9CP00481	12,000
160	46-1240	2000	CASE	S86G	FORKLIFT	JJG0291240	16,000
381	47-0378		CAT	H80 Hammer	Hammer	MY800378	17,000
69	47-0698	2001	Allied		Hydraulic Hammer	698	6,000
149	47-6435		Arrow	13S0- DROP HAMMER	Hydraulic Hammer	6435	15,000
214	47-9757	2014	PH3 Hammer			109757	6,000
291	48-4819	2015	HUSQVARNA		CONCRETE SAW	1348191001	7,000
261	48-7871		HUSQUVARNA	FS660 D36	CONCRETE SAW	1257871001	7,000
84	48-B69B		Target	65 HP	Saw	378698	400
280	49-0532		ALMOND ECLIPSE		ARROW BOARD	532AB07	1,000
281	49-0533		ALMOND ELCIPSE		ARROW BOARD	533AB07	1,000
311	49-113		Solar Tech		Message Board	4GM2M1514H1414113	15,000
310	49-3674		Solar Tech		Message Board	4GM2M1518G1413674	15,000
279	49-3904		DOT	DH1000	MESSAGE BOARD	513904	1,000
66	49-8759	2001	Solar Tech Message Board			408759	1,000

67	49-8761	2001	Solar Tech Message Board			408761	1,000
213	49-9089	2005	Solar Message Board			4GM2M151351409089	2,000
212	49-9090	2005	Solar Message Board			4GM2M151X51409090	2,000
86	50-0163		Asphalt Zipper-	AZ480	Asphalt Zipper	48000163	19,000
106	51-0000		Peerless		Centrifugal Pump		28,800
361	51-0023		Xylem	CD150M	Diesel Pump	0437002-3	11,000
270	51-0858		DEUT2		6" PUMP	858	4,000
282	51-1064		PIONEER VAC ASST		12" PUMP	1064	3,000
269	51-1235		CORNELL		6" PUMP	6NHTA-RPEM184	1,000
283	51-1325		PIONEER VAC ASST		12" PUMP	1325	3,000
294	51-1525		PIONEER	PP66S2	6" PUMP	26681525	37,000
284	51-1788		PIONEER VAC ASST		12" PUMP	1788	3,000
272	51-2407		HM ISUZU		4" PUMP	2407	3,000
274	51-3655		JOHN DEERE		4" PUMP	3655	1,000
326	51-3741	2017	Xylem	CD150M	Diesel Pump	M17640347-1	30,000
325	51-3744	2017	Xylem	CD150M	Diesel Pump	M17642374-4	30,000
204	51-3912		Bakercorp		6" Pump	Z3912	1,000
275	51-6704		JET PUMP		300	6704	12,000
273	51-7186		DEUT2		4" PUMP	7186	3,000
271	51-8902		CORNELL		6" PUMP	8902	1,000
216	52-2598	2010	Club Car	XRT1550SE		162598	1,000
193	52-3155		Club Car		UTILITY VEHICLE	3155	1,000
62	55-0178		Cat	621F	Scraper	8PL00178	50,000
287	55-0239		CAT	621F	SCRAPER	8PL00239	50,000
288	55-0240		CAT	621F	SCRAPER	8PL00240	50,000
130	55-0499	1996	Cat	621F	Scraper	4SK00499	50,000
132	55-0500	1996	Cat	621F	Scraper	45K0500	50,000
139	55-0647		Cat	621F	SCRAPER	4SK00647	50,000
131	56-0215		10,000 Gallon	UL 142	Fuel Tank	10244-10215	10,000
161	57-0092		Griffin		Dewatering System	5WPRD92	17,000
268	57-0845		GRIFFIN PUMP		VACUUM PUMP	6WPRD-0845	10,000
3	57-0950		Griffin		Dewatering System	06WPRD-950	17,000
265	57-1185		GRIFFIN PUMP		VACUUM PUMP	6WPRD-1185	10,000
267	57-1189		GRIFFIN PUMP	6WPRD-1189	VACUUM PUMP	6WPRD-1189	10,000
266	57-1191		GRIFFIN PUMP		VACUUM PUMP	6WPRD-1911	10,000
306	57-7103		Deep Rock Well Point		Hydraulic Drill	1R9BU1012FM477103	25,000
162	57-7881		Deep Rock DR20	WELL POINT	Hydraulic Drill	7881	21,000
233	59-3060		DITCHWICH	JT 4020	BORING RIG	2R3060	32,000
157	99-0000		RICOH	C50005PF	COPIER		800
334	99-0025		Venture		Concrete Pump	38STG37K1810025	30,000
297	99-0361		CATERPILLAR	PC250B	COLD PLANER	PCS00361	16,500
180	99-0550		Quick Tiller		Quick Tiller	1020550	2,000

181	99-0SS1		Stone Dawg		Landscape Rake	1020551	1,000
335	99-1026	2018	Ventures		Concrete Pump	38STG37K1811026	30,000
154	99-1058		Wester Data System			1058J028SB	800
293	99-1099	2016	AMES	4200	PROFILOGRAPH MACHINE	201099	21,000
111	99-1238	2005	Scorpion Attenuator			1238	8,000
39	99-1410	1999	Butt Fusin Machine			J1410	6,000
153	99-1680		Belmont	Premier	Mobile Office Trailer	16x80	2,000
320	99-1718		NTS		Hydraulic Pipe Puller	1718	13,000
144	99-1820		Western Data Systems			T1826	800
372	99-2018		Bobcat	Brushcat	66" Brushcat Mower	B37K02018	6,000
322	99-2632		Horizon	Signal Trailer	Solar Assisted	50PAU1019JL002632	35,000
324	99-2633		Horizon	Signal Trailer	Solar Assisted	50PAU1010JL002633	35,000
323	99-2661		Horizon	Signal Trailer	Solar Assisted	50PAU1015JL002661	35,000
321	99-2662		Horizal	Signal Trailer	Solar Assisted	50PAU1017JL002662	35,000
347	99-3101		Landa	HD Series	Pressure Washer with Tank & Hose	11072570-103101	3,400
348	99-4711	2009	Kohler		Pressure Washer & Trailer	2818704711	8,000
202	99-4722		McElroy	C678	Gas Fusion Machine	C64722	32,000
13	99-4CID	1992	Sewer Cleaner	800		354CID	10,000
59	99-5170		Profilograph with Trailer Vin			#16HCB10181H085170	4,000
23	99-6924	1996	Gorman Rupp 6			1076924	4,000
349	99-7688	2019	NPK	PH-3	Hydraulic Hammer	127688	10,000
370	99-9094	2019	Stanley	Labounty	Drop Hammer	31319094	7,500
298	99-9977		RUNWAY		CLOSURE MARKER W. GENERATOR	5AJLS0916FB509977	23,000
299	99-9978		RUNWAY		CLOSURE MARKER W/ GENERATOR	5AJLS0916FB509978	23,000
369	99-C010		Barge		26' Boat & 2 YAHAMA MOTORS (150HP)	HKO44280C010	26,000
340			Metro		40' Container-Office	SHOU8017500	30,000
379			Allmand	MP25	Diesel Generator	21-001063	20,000
382		2016	Komatsu	D61PX-23	Dozer	KMT0C120LEA031697	50,000
383			Conex Storage Container	20-9133	20ft Storage Container	CNSU2019133	3,000

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? YES

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner, in verification of the recitals comprising this statement of Bidder's Qualifications.

The Bidder shall provide a brief description of any litigation or administrative proceeding of the following types, either pending or concluded within the proceeding year, to which the Bidder (and the ultimate controlling person, if different from the Bidder) or any of its directors or executive officers was a party or of which the property of any such person is or was the subject; the names of the parties and the court or agency in which such litigation or proceeding is or was pending shall be given:

(a) Administrative or judicial proceedings of any state federal agency or authority concerning environmental violations; THERE ARE NONE

(b) Proceedings which may have a material effect upon the solvency of the ultimate holding company, including but not necessarily limited to, bankruptcy and receivership; and THERE ARE NONE

(c) Criminal proceedings. THERE ARE NONE

Dated at BEAUMONT this 6TH day of APRIL, 20 22.

ALLCO LLC
(Name of Bidder)

By _____

Title T.W. HARRISON - PRESIDENT

STATE OF TEXAS)
) §.
COUNTY OF JEFFERSON)

T.W. HARRISON being duly sworn deposes and says that he is

PRESIDENT of ALLCO LLC
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

SUBSCRIBED AND SWORN TO BEFORE ME this 6TH day of APRIL, 20 22.

JACQUELINE CHRISTOPHER
Notary Public, State of Texas
Comm. Expires 05-21-2024
Notary ID# 155932-5

Jacqueline Christopher
(Notary Public)

My Commission Expires:
MAY 21, 2024

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

OFFICE USE ONLY
Date Received

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

ALLCO LLC

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

JEFFERSON COUNTY

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☒ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

N/A

4

Signature of vendor doing business with the governmental entity

APRIL 6, 2022

Date

T.W. HARRISON - PRESIDENT

ALLCO, L.L.C. TEXAS

Adopted 8/7/2015

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

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LOCAL GOVERNMENT OFFICER
CONFLICTS DISCLOSURE STATEMENT – OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20_____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

THIS FORM IS FOR OFFICE USE ONLY

GOOD FAITH EFFORT (GFE) DETERMINATION CHECKLIST

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
☒ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting **Disadvantaged Business Enterprises (DBE)s** for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of DBE Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting DBE Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .?

☒ Yes	☐ No	1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum DBE Subcontractor participation?
☒ Yes	☐ No	2. **Notify** in writing a reasonable number of DBEs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☒ Yes	☐ No	3. **Provide** DBEs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☒ Yes	☐ No	4. **Negotiate** in good faith with interested DBEs, and not reject bids from DBEs that qualify as lowest and responsive Bidders?
☒ Yes	☐ No	5. **Document** reasons DBEs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected DBEs?
☒ Yes	☐ No	6. If Prime Contractor/Consultant has zero (0) DBE participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

T.W. HARRISON
Printed Name of Authorized Representative

Signature

PRESIDENT
Title

APRIL 6, 2022
Date

ALLCO, L.L.C. TEXAS

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

NOTICE OF INTENT (NOI) TO SUBCONTRACT WITH DISADVANTAGED BUSINESS ENTERPRISES (DBE)

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
[X] Yes [ ] No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each DBE Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: ALLCO LLC DBE: [ ] Yes [X] No

Address: 6720 COLLEGE (Street) BEAUMONT (City) TEXAS (State) 77707 (Zip)

Phone (with area code): 409-860-4459 Fax (with area code): 409-860-3857

Project Title & No.: Jack Brooks Regional Airport Taxiway A Rehabilitation, IFB #22-011/JW

Prime Contract Amount: $

DBE Subcontractor Name:

DBE Status (Gender & Ethnicity):

Certifying Agency: [ ] Tx. Bldg & Procurement Comm. [ ] Jefferson County [ ] Tx Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

T.W. HARRISON		APRIL 6, 2022
Printed Name of Contractor Representative	Signature of Representative	Date
N/A	N/A	N/A
Printed Name of DBE	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

PRE-APPROVAL FOR SUBCONTRACTOR SUBSTITUTIONS MUST BE OBTAINED FROM THE JEFFERSON COUNTY PURCHASING AGENT'S REPRESENTATIVE. THE "DBE SUBCONTRACTOR/SUBCONSULTANT CHANGE FORM" MUST BE COMPLETED AND FAXED TO 409-835-8456.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

PAGE 1 OF 4

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
☒ Yes ☐ No

Prime Contractor: ALLCO LLC DBE: ☐ Yes ☒ No

DBE Status (Gender & Ethnicity): N/A

Address: 6720 COLLEGE (Street) BEAUMONT (City) TEXAS (State) 77707 (Zip)

Phone (with area code): 409-860-4459 Fax (with area code): 409-860-3857

Project Title & No.: Jack Brooks Regional Airport Taxiway A Rehabilitation IFB/RFP No.: 22-011/JW

Total Contract: $ Total DBE Subcontract(s): $

Construction DBE Goals: 12.8% MBE:: % 12.6% WBE: %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR DBE OFFICE USE ONLY:

Verification date DBE Program Office reviewed and verified DBE Sub information Date: Initials:

PART I. DBE SUBCONTRACTOR DISCLOSURE

DBE Subcontractor Name:

DBE Status (Gender & Ethnicity):

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Contact person: Title:

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

DBE Subcontractor Disclosure

PART I: Continuation Sheet **(Duplicate as Needed)**

DBE Subcontractor Name: _____

DBE Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

DBE Subcontractor Name: _____

DBE Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All DBE Subcontractor Participation may be verified with the DBE Subcontractor(s) listed on Part I.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING DBE SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the DBE goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-DBEs." *(Complete Part III)*
- ☐ DBEs were solicited but did not respond.
- ☐ DBEs solicited were not competitive.
- ☐ DBEs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County DBE Office contacted for assistance in locating DBEs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-DBE" SUBCONTRACTS

The Bidder shall use this area to provide a listing of all "Non-DBE" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-DBE" Subcontractors the Bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that Bidder is the apparent low Bidder. A list of those "Non-DBE" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

PAGE 4 OF 4

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *DBE Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): T.W. HARRISON

Title: PRESIDENT

Signature: _____

Date: APRIL 6, 2022

E-mail address: tharrison@allco.com

ALLCO, L.L.C. TEXAS

Contact person that will be in charge of invoicing for this project:

Name (print or type): DALE HARRISON

Title: COMPTROLLER

Date: APRIL 6, 2022

E-mail address: dharrison@allco.com

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

RESIDENCE CERTIFICATION/TAX FORM

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Non-resident Bidder" refers to a person who is not a resident.

(4) "Resident Bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that ALLCO LLC [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	[redacted]
Company Name submitting bid/proposal:	ALLCO LLC
Mailing address:	6720 COLLEGE, BEAUMONT, TX 77707
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
N/A	

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HOUSE BILL 89 VERIFICATION

I, T.W. HARRISON, the undersigned representative of (company or business name) ALLCO LLC (heretofore referred to as company) being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath that the company named above, under the provisions of Subtitle F, Title 10, Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.002, Texas Government Code:

1. **"Boycott Israel"** means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made ordinary business purposes; and

2. **"Company"** means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or an limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business association that exist to make a profit.

ALLCO, L.L.C. TEXAS

Signature of Company Representative T.W. HARRISON

APRIL 6, 2022
Date

On this 6TH day of APRIL, 20 22, personally appeared

T.W. HARRISON, the above-named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

Notary Seal

Jacqueline Christopher
Notary Signature

JACQUELINE CHRISTOPHER
Notary Public, State of Texas
Comm. Expires 05-21-2024
Notary ID# 155932-5

APRIL 6, 2022
Date

SENATE BILL 252 CERTIFICATION

On this day, I, Deborah L. Clark, Purchasing Agent for Jefferson County, Texas, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that I did review the website of the Comptroller of the State of Texas concerning the listing of companies that is identified under Section 806.051, Section 807.051, or Section 2253.253 and I have ascertained that the below named company is not contained on said listing of companies which do business with Iran, Sudan, or any Foreign Terrorist Organization.

ALLCO LLC

Company Name

IFB 22-011/JW

IFB/RFP/RFQ number

Certification check performed by:

_____

Purchasing Representative

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID SURETY HERE

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE ALLCO, LLC

P.O. Box 3684, Beaumont, TX 77704

as Principal, hereinafter called the Principal, and Colonial American Casualty and Surety Company

1299 Zurich Way, Schaumburg, IL 60196-105

a corporation duly organized under the laws of the State of Illinois

as Surety, hereinafter called the Surety, are held and firmly bound unto Jefferson County

as Obligee, hereinafter called the Obligee, in the sum of Five Percent of Amount Bid

Dollars ($ 5%),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Taxiway A Rehabilitation at the Jack Brooks Regional Airport, IFB 22-011/JW

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 6th day of April , 2022

Jackie Christopher
(Witness)

ALLCO, LLC
(Principal)
By: T. W. Harrison President
(Seal) (Title)

Mary Beth DeLord
(Witness)

Colonial American Casualty and Surety Company
(Surety) (Seal)
By: Jillian O'Neal
Attorney-in-Fact (Title)

Bond Number Bid Bond

Obligee Jefferson County

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **Robert D. Murray, Vice President**, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint Jillian O'Neal, its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 19th day of June, A.D. 2019.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 19th day of June, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 6th day of April, 2022.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
www.reportsfclaims@zurichna.com
800-626-4577

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **Robert D. Murray, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Edward ARENS, Philip BAKER, Michele BONNIN, Jillian O'NEAL, Erica A. COX and Rebecca GARZA, all of The Woodlands, Texas,** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 20th day of November, A.D. 2019.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 20th day of November, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact, The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Secretary of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 1st day of April, 2022.

Brian M. Hodges

By: Brian M. Hodges
Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
www.reportsfclaims@zurichna.com
800-626-4577

ZURICH

Texas Important Notice

IMPORTANT NOTICE

To obtain information or make a complaint:

You may call Zurich North America's toll-free telephone number for information or to make a complaint at:

1-800-382-2150

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights, or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance:
P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 490-1007
Web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

PREMIUM OR CLAIM DISPUTES:

Should you have a dispute concerning your premium or about a claim, you should contact the company first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR POLICY:

This notice is for information only and does not become a part or condition of the attached document.

AVISO IMPORTANTE

Para obtener información o para presentar una queja:

Usted puede llamar al número de teléfono gratuito de Zurich North America's para obtener información o para presentar una queja al:

1-800-382-2150

Usted puede comunicarse con el Departamento de Seguros de Texas para obtener información sobre compañías, coberturas, derechos, o quejas al:

1-800-252-3439

Usted puede escribir al Departamento de Seguros de Texas a:
P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 490-1007
Sitio web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

DISPUTAS POR PRIMAS DE SEGUROS O RECLAMACIONES:

Si tiene una disputa relacionada con su prima de seguro o con una reclamación, usted debe comunicarse con la compañía primero. Si la disputa no es resuelta, usted puede comunicarse con el Departamento de Seguros de Texas.

ADJUNTE ESTE AVISO A SU PÓLIZA: Este aviso es solamente para propósitos informativos y no se convierte en parte o en condición del documento adjunto.

CONTRACT

THIS AGREEMENT made this _____ day of _____, 2021, by and between

TBD. a Corporation organized and existing under the laws of the State of **Texas** hereinafter called the "Contractor",

and **JEFFERSON COUNTY, TEXAS**, hereinafter called the "Owner".

W I T N E S S E T H:

That the Contractor and the Owner for the consideration stated herein mutually agree as follows:

ARTICLE 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, incidentals and services, including utility and transportation services and perform and complete all work required for the construction of **Taxiway A Rehabilitation** in strict accordance with the Contract Documents.

ARTICLE 2. The Contract Price. The Owner will pay the Contractor, because of his performance of the Contract, for the total quantities of work performed at the lump sum and unit prices stipulated in the Proposal for the **Base Bid, not to exceed a total contract value of: COST IN WORDS ($XXX,XXX.XX)** subject to additions, and deductions as provided in the Section entitled "CHANGES IN THE WORK" under GENERAL PROVISIONS.

ARTICLE 3. Contract Time. The Contractor agrees to begin work within ten (10) calendar days after issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within **Two Hundred and Ten (210)** consecutive calendar days thereafter (except as modified in accordance with the GENERAL PROVISIONS of these Contract Documents). If the Contractor shall fail to complete the work within the time specified, he and his Surety shall be liable for payment to the Owner, as liquidated damages ascertained and agreed, and not in the nature of a penalty, the amount specified in the PROPOSAL of these Contract Documents for each day of delay. To the extent sufficient in amount, liquidated damages shall be deducted from the payments to be made under this Contract.

ARTICLE 4. Contract. The executed Contract Documents shall consist of the following:

1. General Conditions of Bidding and Terms Of Contract
2. Special Requirements/Bid Submission Instructions
3. Federal Mandated Contract Provisions
4. Title Vi Solicitation Notice
5. Bidder Information
6. Statement Of Bidder's Qualifications
7. Conflict Of Interest Questionnaire
8. Local Government Officer
9. Good Faith Effort (GFE) Determination Checklist
10. Notice Of Intent (NOI) To Subcontract with Disadvantaged Business Enterprises (DBE)
11. Disadvantaged Business Enterprises (DBE) Subcontracting Participation Declaration Form
12. Residence Certification/Tax Form
13. House Bill 89 Verification
14. Senate Bill 252 Certification
15. Bid Surety
16. Contract
17. Notice Of Award
18. Notice To Proceed
19. Performance And Payment Bonds
20. Offer And Acceptance Form
21. Bid Form and Proposal
22. Vendor References Form
23. Signature Page
24. Certification Regarding Lobbying
25. Bid Affidavit
26. Addenda
27. Wage Rates

SAMPLE

28. Change Order Form
29. General Provisions (FAA AC 150/5370-10H)
30. Special Provisions
31. Technical Specifications

This Agreement, together with other Documents enumerated in this Article 4, which said other Documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract between the parties hereto. In the event that any provisions in any component part of this Contract conflicts with any provision of any other component part, the conflict shall be resolved by the Engineer whose decision shall be final.

ARTICLE 5. Surety. The Surety on the Performance-Payment Bond shall be a surety company of financial resources satisfactory to the Owner, authorized to do business in the State of Texas, and shall comply with applicable Texas laws.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed in four (4) counterparts, each of which shall be considered an original on the day and year first above written.

TBD
(Contractor)

ATTEST:_____ By_____

_____ Title:_____
(Print the names underneath all signatures)

_____
(Street)

_____
(City)

JEFFERSON COUNTY, TEXAS,
(Owner)

ATTEST:_____ By _____

_____ Title:_____

(Print the names underneath all signatures)

SAMPLE

NOTICE OF AWARD
DATED:_____ , 2021

TO: .

ADDRESS:

PROJECT OWNER: JEFFERSON COUNTY

FAA AIP GRANT No. X-XX-XXXX-XXX-XXXX

CONTRACT FOR: TAXIWAY A REHABILITATION

CONSTRUCTION OF: JACK BROOKS REGIONAL AIRPORT
****

You are notified that your Bid dated XXX, 2021 for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a contract for Base Bid.

The Contract Price of your contract is_____ dollars and no /100 ($XXXXXX).

You must comply with the following conditions precedent within FIFTEEN (15) days of the date of this *Notice of Award* that is by, XXXXX, 2021

1. You must deliver to the **OWNER 4** fully executed counterparts of the Agreement including all the Contract Documents.

2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Advertisement for Bids, General Conditions (Article 2), and Supplementary Conditions.

3. You must deliver to the **OWNER 4** original ***Certificates of Insurance***, naming the Owner ***(Jefferson County)*** and Engineer ***(Garver, LLC.)*** and their respective agents and employees, to be expressly named as additional insured's, in accordance with the General Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid in default, to annul this Notice of Award, and to declare your Bid Security forfeited.

Within ten (10) days after you comply with the above conditions, OWNER will return to you one (1) fully signed counterpart of the Agreement with the Contract Documents attached.

Sincerely,
GARVER, LLC

Jason Frank, PE
Senior Project Manager

ACCEPTANCE OF AWARD:
CONTRACTOR:

_____
BY:_____
TITLE:_____
DATE:_____

XXXXXXX, 2021

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Re: Jack Brooks Regional Airport
Taxiway A Rehabilitation; Jefferson County Contract 22-011/JW
AIP No. X-XX-XXXX-XXX-XXXX
Notice to Proceed

Dear Mr. _____:

Please consider this letter as your Notice to Proceed with construction on the above referenced project, effective XXXXXXX, 2021.

Under the terms of the Contract, contract time will start when construction begins or ten (10) days after the effective date of this Notice to Proceed, whichever comes first. Work must be completed within 210 calendar days of the start of contract time, and construction phase 2 must be completed within 60 calendar days. Before you start work at the site, Special Provisions Section C-01 requires that you must deliver to the Engineer and Owner Certificates of Insurance which you are required to purchase and maintain in accordance with the Contract. As stipulated in the Contract Proposal, failure to complete the work within the contract time (including phase 2) shall result in the assessment of liquidated damages. The damages are therein set in the amount of $1,500.00 per calendar day.

Please call me if you have any questions.

Sincerely,

GARVER, LLC

Jason Frank, P.E.
Sr. Project Manager

CC: Alex Rupp, Jack Brooks Regional Airport (via email)

PERFORMANCE AND PAYMENT BONDS HERE

OFFER AND ACCEPTANCE FORM
OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer.

We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): ONE, TWO, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

ALLCO LLC
Company Name

P.O. BOX 3684 (6720 College, 77707)
Address

BEAUMONT TEXAS 77704
City State Zip

Signature of Person Authorized to Sign

T.W. HARRISON
Printed Name

PRESIDENT
Title

For clarification of this offer, contact:

BRANDON HARRISON - PROJECT MANAGER
Name & Title

409-860-4459 409-860-3857
Phone Fax

bharrison@allco.com
E-mail

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

ACCEPTANCE OF OFFER

The Offer is hereby accepted for the following items: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as **Contract No. 22-011/JW, Taxiway A Rehabilitation at the Jack Brooks Regional Airport**. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

COUNTERSIGNED:

Jeff R. Branick
Jefferson County Judge

Date

ATTEST:

Laurie Leister
Interim Jefferson County Clerk

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID FORM AND PROPOSAL

Place Jack Brooks Regional Airport Taxiway A Rehabilitation

Date APRIL 6, 2022

Proposal of ALLCO LLC,

a corporation organized and existing under the laws of the State of TEXAS,

or

Proposal of _____,

a partnership consisting of _____

or

Proposal of _____,

an individual doing business as _____,

To: Jack Brooks Regional Airport

This bid results from your advertisement for bids for the construction of the **Taxiway A Rehabilitation.**

The undersigned Bidder, having visited the site of the work, having examined the Plans, Specifications, and other Contract Documents including all Addenda, and being familiar with all of the conditions relating to the construction of the proposed project, hereby agrees to comply with all other conditions or requirements set forth in the Plans, Specifications, and other Contract Documents, and further proposes to; furnish all material, supplies, equipment, and appliances; to furnish all labor, tools, equipment and incidentals to complete the work in accordance with the Plans, Specifications, and other Contract Documents at and for the unit prices proposed in the attached Bid Form(s).

The undersigned Bidder agrees to begin work within ten (10) calendar days after the issuance by, or on behalf of, the Owner of a "Work Order" or "Notice to Proceed" (except as modified in accordance with the GENERAL FAA PROVISIONS of these Contract Documents). Should the work fail to be completed within the time herein stated, the Contractor shall pay to the Owner, as fixed and agreed liquidated damages, and not as a penalty, the sum, for each day of delay until the work is completed and accepted, as stipulated in GENERAL FAA PROVISIONS of these Contract Documents. It is understood that additional time for the completion of the project is to be allowed only for delays as stipulated in GENERAL FAA PROVISIONS of these Contract Documents.

List of Plans

Sheet Number	Drawing Number	Sheet Title
		GENERAL
1	GI-001	COVER SHEET
2	GI-002	SHEET INDEX AND SUMMARY OF QUANTITIES
3	GI-101	PROJECT LAYOUT AND SURVEY CONTROL PLAN
4	GC-001	CONSTRUCTION SAFETY & PHASING NOTES 1
5	GC-002	CONSTRUCTION SAFETY & PHASING NOTES 2
6	GC-101	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1
7	GC-102	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2A
8	GC-103	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2B
9	GC-201	CONSTRUCTION SAFETY DETAILS 1
10	GC-202	CONSTRUCTION SAFETY DETAILS 2
11	GC-203	CONSTRUCTION SAFETY DETAILS 3
12	GC-204	CONSTRUCTION SAFTEY DETAILS 4
		CIVIL
13	CV-101	EXISTING CONDITIONS AND DEMOLITION PLAN
14	CE-101	EROSION CONTROL PLAN
15	CE-201	EROSION CONTROL DETAILS
16	CC-101	GRADING AND DRAINAGE PLAN 1
17	CC-102	GRADING AND DRAINAGE PLAN 2
18	CC-103	GRADING AND DRAINAGE PLAN 3
19	CC-104	GRADING AND DRAINAGE PROFILES
20	CC-201	GRADING AND DRAINAGE DETAILS 1
21	CC-202	GRADING AND DRAINAGE DETAILS 2
22	CH-101	PRE-DEVELOPMENT DRAINAGE AREA MAP
23	CH-102	POST-DEVELOPMENT DRAINAGE AREA MAP
24	CP-001	TYPICAL SECTIONS
25	CP-101	PLAN AND PROFILE 1
26	CP-102	PLAN AND PROFILE 2
27	CP-103	PLAN AND PROFILE 3
28	CJ-201	JOINT LAYOUT PLAN 1
29	CJ-202	JOINT LAYOUT PLAN 2
30	CJ-203	JOINT LAYOUT PLAN 3
31	CJ-301	JOINT DETAILS
		MARKINGS
32	CM-101	TAXIWAY MARKING PLAN 1
33	CM-102	TAXIWAY MARKING PLAN 2
34	CM-103	TAXIWAY MARKING PLAN 3
35	CM-104	RUNWAY MARKING PLAN 1
36	CM-105	RUNWAY MARKING PLAN 2

37	CM-201	TAXIWAY MARKING DETAILS 1
38	CM-202	TAXIWAY MARKING DETAILS 2
39	CM-203	RUNWAY MARKING DETAILS
		ELECTRICAL
40	EN-001	LIGHTING LEGEND AND GENERAL NOTES
41	EN-002	LIGHTING KEYED NOTES
42	ED-101	LIGHTING REMOVAL PLAN 1
43	ED-102	LIGHTING REMOVAL PLAN 2
44	ED-103	LIGHTING REMOVAL PLAN 3
45	ED-104	LIGHTING REMOVAL PLAN 4
46	ED-10S	LIGHTING REMOVAL PLAN 5
47	ED-106	LIGHTING REMOVAL PLAN 6
48	EL-101	LIGHTING INSTALLATION PLAN 1
49	EL-102	LIGHTING INSTALLATION PLAN 2
50	EL-103	LIGHTING INSTALLATION PLAN 3
51	EL-104	LIGHTING INSTALLATION PLAN 4
52	EL-105	LIGHTING INSTALLATION PLAN 5
53	EL-106	LIGHTING INSTALLATION PLAN 6
54	EL-501	LIGHTING REMOVAL DETAILS
55	EL-502	LIGHTING INSTALLATION DETAILS 1
56	EL-503	LIGHTING INSTALLATION DETAILS 2
57	EL-504	LIGHTING INSTALLATION DETAILS 3
58	EL-505	LIGHTING INSTALLATION DETAILS 4
59	EL-506	LIGHTING INSTALLATION DETAILS 5
60	EL-507	LIGHTING INSTALLATION DETAILS 6
61	EL-508	LIGHTING INSTALLATION DETAILS 7
62	EL-509	LIGHTING INSTALLATION DETAILS 8
63	EL-510	LIGHTING INSTALLATION DETAILS 9
64	EL-511	LIGHTING INSTALLATION DETAILS 10
		CROSS SECTIONS
65	XS-101	TAXIWAY A EAST CROSS SECTIONS 1
66	XS-102	TAXIWAY A EAST CROSS SECTIONS 2
67	XS-103	TAXIWAY A EAST CROSS SECTIONS 3
68	XS-104	TAXIWAY A EAST CROSS SECTIONS 4
69	XS-201	TAXIWAY A WEST CROSS SECTIONS 1
70	XS-202	TAXIWAY A WEST CROSS SECTIONS 2
71	XS-203	TAXIWAY A WEST CROSS SECTIONS 3
72	XS-204	TAXIWAY A WEST CROSS SECTIONS 4
73	XS-205	TAXIWAY A WEST CROSS SECTIONS 5
74	XS-206	TAXIWAY A WEST CROSS SECTIONS 6

List of Technical Specifications

Specification Item No.	Description
SS-101	Safety Plan Compliance Document (SPCD)
SS-110	Standard Specifications
SS-120	Construction Safety and Security
SS-130	Trench and Excavation Safety Systems
SS-300	Basic Electrical Requirements
SS-301	Electrical Demolition Work
SS-305	Directional Boring
SS-310	Airport Lighting Systems
C-100	Contractor Quality Control Program (CQCP)
C-102	Temporary Air and Water Pollution, Soil Erosion, and Siltation Control
C-105	Mobilization
P-101	Preparation/Removal of Existing Pavements
P-152	Excavation, Subgrade, and Embankment
P-155	Lime-Treated Subgrade
P-208	Aggregate Base Course
P-501	Cement Concrete Pavement
P-605	Joint Sealants for Pavements
P-610	Concrete for Miscellaneous Structures
P-620	Runway and Taxiway Marking
D-701	Pipe for Storm Drains and Culverts
D-751	Manholes, Catch Basins, Inlets and Inspection Holes
D-752	Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures
T-901	Seeding
T-904	Sodding
T-905	Topsoil
L-108	Underground Power Cable for Airports
L-110	Airport Underground Electrical Duct Banks and Conduits
L-115	Electrical Manholes and Junction Structures
L-125	Installation of Airport Lighting Systems

Bidder acknowledges receipt of the following addendum (addenda):

Addendum No. ONE dated MARCH 08, 2022

Addendum No. TWO dated MARCH 29, 2022

Addendum No. _____ dated _____

The undersigned Bidder agrees that this bid shall be good and shall not be withdrawn for a period of ninety (90) calendar days after the opening thereof. If written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned within ninety (90) days after the opening thereof, or at any time thereafter before this Proposal is withdrawn, the undersigned agrees to execute and deliver an Agreement (Contract) in the prescribed form, and furnish the required Performance and Payment Bond, within ten (10) days after the Agreement is presented to him for signature.

It is understood by the undersigned Bidder that the Owner reserves the right to reject any or all bids.

The following provisions are also included by reference:

- Davis Bacon Act (29 CFR Part 5.5)
- EEO Compliance Reports (41 CFR Part 60-1.7)
- Trade Restriction Certification (49 CFR Part 30)
- Buy American Preferences (Title 49 United States Code, Chapter 501)
- Certification of Non-Segregated Facilities (41 CFR Part 60-1.8)
- Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion (49 CFR Part 29)

Accompanying this Proposal as bid security is a certified check/bid bond (*strike one*)

in the amount of FIVE PERCENT OF GREATEST AMOUNT BID Dollars

($ 5% OF GAB), being not less than five percent (5%) of the total amount of the bid for the base bid. If the undersigned Bidder is the successful Bidder, but fails or refuses to execute the contract and furnish the required bond within the prescribed ten (10) days of the notification of award, then this bid security is to become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused by such failure or refusal.

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

BASE BID

BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
SS-120-3.1	CONSTRUCTION SAFETY AND SECURITY	L.S.	1	$320,000.00	$320,000.00
	Unit price in words: Three Hundred Twenty thousand dollars and No /100				
SS-130-4.1	TRENCH AND EXCAVATION SAFETY SYSTEMS	L.S.	1	$900.00	$900.00
	Unit price in words: Nine Hundred dollars and No /100				
C-100-14.1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	L.S.	1	$50,000.00	$50,000.00
	Unit price in words: Fifty thousand dollars and No /100				
C-102-5.1	TEMPORARY EROSION CONTROL	L.S.	1	$40,000.00	$40,000.00
	Unit price in words: Forty thousand dollars and No /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

C-105-6.1	MOBILIZATION (MAXIMUM 5% OF TOTAL BID EXCLUSIVE MOBILIZATION)	L.S.	1	$307,000.00	$307,000.00
	Unit price in words: Three Hundred Seven Thousand — dollars and No — /100				
P-101-5.1	CONCRETE PAVEMENT REMOVAL	S.Y.	26400	$18.00	$475,200.00
	Unit price in words: Eighteen — dollars and No — /100				
P-101-5.2	PAVEMENT MARKING REMOVAL	S.F.	7387	$12.00	$88,644.00
	Unit price in words: Twelve — dollars and No — /100				
P-152-4.1	UNCLASSIFIED EXCAVATION	C.Y.	10695	$24.00	$256,680.00
	Unit price in words: Twenty Four — dollars and No — /100				
P-152-4.2	UNSUITABLE EXCAVATION	C.Y.	500	$59.00	$29,500.00
	Unit price in words: Fifty Nine — dollars and No — /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-155-8.1	LIME-TREATED SUBGRADE (12")	S.Y.	18480	$15.00	$277,200.00
	Unit price in words: Fifteen ——— dollars and No ——— /100				
P-155-8.2	LIME	TON	880	$238.00	$209,440.00
	Unit price in words: Two Hundred Thirty Eight ——— dollars and No ——— /100				
P-208-5.1	6" AGGREGATE BASE COURSE	S.Y.	17550	$28.00	$491,400.00
	Unit price in words: Twenty Eight ——— dollars and No ——— /100				
P-501-8.1	11.5" PORTLAND CEMENT CONCRETE PAVEMENT	S.Y.	16610	$142.00	$2,358,620.00
	Unit price in words: One Hundred forty Two ——— dollars and No ——— /100				
P-620-5.1a	PAVEMENT MARKINGS (WHITE) WITH REFLECTIVE MEDIA	S.F.	27676	$2.25	$62,271.00
	Unit price in words: Two ——— dollars and Twenty Five /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-620-5.1b	PAVEMENT MARKINGS (YELLOW) WITH REFLECTIVE MEDIA	S.F.	13552	$5.50	$74536.00
	Unit price in words: Five ——— dollars and Fifty ——— /100				
P-620-5.1c	PAVEMENT MARKINGS (RED) WITH REFLECTIVE MEDIA	S.F.	450	$8.00	$3,600.00
	Unit price in words: Eight ——— dollars and No ——— /100				
P-620-5.1d	PAVEMENT MARKINGS (BLACK) WITHOUT REFLECTIVE MEDIA	S.F.	60500	$1.30	$78,650.00
	Unit price in words: One ——— dollars and Thirty ——— /100				
D-701-5.1	18" REINFORCED CONCRETE PIPE, CLASS III	L.F.	427	$94.00	$40,138.00
	Unit price in words: Ninety Four ——— dollars and No ——— /100				
D-701-5.2	24" REINFORCED CONCRETE PIPE, CLASS III	L.F.	684	$113.00	$77,292.00
	Unit price in words: One Hundred thirteen ——— dollars and No ——— /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

D-751-5.1	5' X 5' AIRFIELD RATED GRATE INLET	EACH	7	$16,000.00	$112,000.00
	Unit price in words: Sixteen Thousand ——— dollars and No ——— /100				
D-752-5.1	24" REINFORCED CONCRETE SAFETY END TREATMENT	EACH	1	$2,645.00	$2,645.00
	Unit price in words: Two Thousand Six Hunded Forty Five dollars and No ——— /100				
T-901-5.1	SEEDING	ACRE	4.3	$4,956.28	$21,313.00
	Unit price in words: Four Thousand Nine Hunded Fifty Six dollars and Twenty Eight /100				
T-904-5.1	SODDING	S.Y.	6000	$8,00	$48,000.00
	Unit price in words: Eight ——— dollars and No ——— /100				
T-905-5.1	TOPSOIL (OBTAINED ON-SITE OR OFF-SITE 4" THICKNESS)	S.Y.	25430	$3.00	$76,290.00
	Unit price in words: Three ——— dollars and No ——— /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-300-5.1	LOCKOUT/TAGOUT AND CONSTANT CURRENT REGULATOR CALIBRATION PROCEDURES	L.S.	1	$7,000.00	$7,000.00
	Unit price in words: Seven Thousand ——— dollars and No ——— /100				
SS-301-5.1	EXISTING STAKE MOUNTED EDGE LIGHT, REMOVED	EACH	124	$210.00	$26,040.00
	Unit price in words: Two Hundred Ten ——— dollars and No ——— /100				
SS-301-5.2	EXISTING BASE MOUNTED GUIDANCE SIGN, REMOVED	EACH	24	$315.00	$7,560.00
	Unit price in words: Three Hundred Fifteen ——— dollars and No ——— /100				
SS-301-5.3	EXISTING ABANDONED SIGN BASE, DEMOLISHED	EACH	6	$370.00	$2,220.00
	Unit price in words: Three Hundred Seventy ——— dollars and No ——— /100				
SS-305-5.1	DIRECTIONAL BORING, 1-WAY 2"C POLYETHYLENE CONDUIT	L.F.	25	$52.00	$1,300.00
	Unit price in words: Fifty Two ——— dollars and No ——— /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-305-5.2	DIRECTIONAL BORING, 2-WAY 2"C POLYETHYLENE CONDUIT	L.F.	1400	$67.00	$93,800.00
	Unit price in words: Sixty Seven ——— dollars and No ——— /100				
SS-310-5.1	TEMPORARY AIRFIELD LIGHTING (PHASE 1)	L.S.	1	$40,000.00	$40,000.00
	Unit price in words: Forty thousand ——— dollars and No ——— /100				
SS-310-5.2	TEMPORARY AIRFIELD LIGHTING (PHASE 2A)	L.S.	1	$17,000.00	$17,000.00
	Unit price in words: Seventeen Thousand ——— dollars and No ——— /100				
SS-310-5.3	TEMPORARY AIRFIELD LIGHTING (PHASE 2B)	L.S.	1	$3,500.00	$3,500.00
	Unit price in words: Three Thousand Five Hundred dollars and No ——— /100				
L-108-5.1	NO. 8 AWG, 5 KV, L-824, TYPE C CABLE, INSTALLED IN TRENCH, DUCT BANK OR CONDUIT	L.F.	15000	$1.65	$24,750.00
	Unit price in words: One ——— dollars and Sixty Five /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-108-5.2	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE, INSTALLED IN TRENCH, ABOVE THE DUCT BANK OR CONDUIT, INCLUDING CONNECTIONS/TERMINATIONS	L.F.	11000	$1.65	$18,150.00
	Unit price in words: One dollars and Sixty five /100				
L-108-5.3	TRENCHING FOR DIRECT-BURIED BARE COUNTERPOISE WIRE, 8" MINIMUM DEPTH	L.F.	8500	$3.50	$29,750.00
	Unit price in words: Three dollars and Fifty /100				
L-110-5.1	NON-ENCASED ELECTRICAL CONDUIT, 1-WAY 2-INCH	L.F.	11000	$15.50	$170,500.00
	Unit price in words: Fifteen dollars and Fifty /100				
L-110-5.2	CONCRETE ENCASED ELECTRICAL DUCT BANK, 2-WAY 2-INCH	L.F.	600	$74.00	$44,400.00
	Unit price in words: Seventy Four dollars and No /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-115-5.1	2-CAN JUNCTION CAN PLAZA	EACH	22	$4,110.00	$90,420.00
	Unit price in words: Four thousand One Hundred Ten dollars and No ———— /100				
L-125-5.1	L-861T(L) BASE MOUNTED TAXIWAY EDGE LIGHT, INSTALLED	EACH	169	$1,725.00	$291,525.00
	Unit price in words: One Thousand Seven Hundred Twenty Five dollars and No ———— /100				
L-125-5.2	L-858(L) BASE MOUNTED, SIZE 2, 1-MODULE GUIDANCE SIGN, INSTALLED	EACH	7	$4,900.00	$34,300.00
	Unit price in words: Four Thousand nine Hundred dollars and No ———— /100				
L-125-5.3	L-858(L) BASE MOUNTED, SIZE 2, 2-MODULE GUIDANCE SIGN, INSTALLED	EACH	5	$6,200.00	$31,000.00
	Unit price in words: Six Thousand Two Hundred — dollars and No ———— /100				
L-125-5.4	L-858(L) BASE MOUNTED, SIZE 2, 3-MODULE GUIDANCE SIGN, INSTALLED	EACH	13	$7,000.00	$91,000.00
	Unit price in words: Seven Thousand ———— dollars and No ———— /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-125-5.5	VEHICULAR STOP SIGN, INSTALLED	EACH	2	$800.00	$1,600.00
	Unit price in words: Eight Hundred ——— dollars and No ——— /100				

TOTAL (BASE BID) $6,527,133.00

Total price in words: Six Million Five Hundred Twenty Seven Thousand One Hundred Thirty Three dollars and No ——— /100

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

BASE BID

BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
SS-120-3.1	CONSTRUCTION SAFETY AND SECURITY	L.S.	1	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
SS-130-4.1	TRENCH AND EXCAVATION SAFETY SYSTEMS	L.S.	1	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
C-100-14.1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	L.S.	1	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
C-102-5.1	TEMPORARY EROSION CONTROL	L.S.	1	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

C-105-6.1	MOBILIZATION (MAXIMUM 5% OF TOTAL BID EXCLUSIVE MOBILIZATION)	L.S.	1	$	$
	Unit price in words: _____ dollars and _____ /100				
P-101-5.1	CONCRETE PAVEMENT REMOVAL	S.Y.	26400	$	$
	Unit price in words: _____ dollars and _____ /100				
P-101-5.2	PAVEMENT MARKING REMOVAL	S.F.	7387	$	$
	Unit price in words: _____ dollars and _____ /100				
P-152-4.1	UNCLASSIFIED EXCAVATION	C.Y.	10695	$	$
	Unit price in words: _____ dollars and _____ /100				
P-152-4.2	UNSUITABLE EXCAVATION	C.Y.	500	$	$
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-155-8.1	LIME-TREATED SUBGRADE (12")	S.Y.	18480	$	$
	Unit price in words: _____ dollars and _____ /100				
P-155-8.2	LIME	TON	880	$	$
	Unit price in words: _____ dollars and _____ /100				
P-208-5.1	6" AGGREGATE BASE COURSE	S.Y.	17550	$	$
	Unit price in words: _____ dollars and _____ /100				
P-501-8.1	11.5" PORTLAND CEMENT CONCRETE PAVEMENT	S.Y.	16610	$	$
	Unit price in words: _____ dollars and _____ /100				
P-620-5.1a	PAVEMENT MARKINGS (WHITE) WITH REFLECTIVE MEDIA	S.F.	27676	$	$
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-620-5.1b	PAVEMENT MARKINGS (YELLOW) WITH REFLECTIVE MEDIA	S.F.	13552	$	$
	Unit price in words: _____ dollars and _____ /100				
P-620-5.1c	PAVEMENT MARKINGS (RED) WITH REFLECTIVE MEDIA	S.F.	450	$	$
	Unit price in words: _____ dollars and _____ /100				
P-620-5.1d	PAVEMENT MARKINGS (BLACK) WITHOUT REFLECTIVE MEDIA	S.F.	60500	$	$
	Unit price in words: _____ dollars and _____ /100				
D-701-5.1	18" REINFORCED CONCRETE PIPE, CLASS III	L.F.	427	$	$
	Unit price in words: _____ dollars and _____ /100				
D-701-5.2	24" REINFORCED CONCRETE PIPE, CLASS III	L.F.	684	$	$
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

D-751-5.1	5' X 5' AIRFIELD RATED GRATE INLET	EACH	7	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
D-752-5.1	24" REINFORCED CONCRETE SAFETY END TREATMENT	EACH	1	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
T-901-5.1	SEEDING	ACRE	4.3	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
T-904-5.1	SODDING	S.Y.	6000	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
T-905-5.1	TOPSOIL (OBTAINED ON-SITE OR OFF-SITE 4" THICKNESS)	S.Y.	25430	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-300-5.1	LOCKOUT/TAGOUT AND CONSTANT CURRENT REGULATOR CALIBRATION PROCEDURES	L.S.	1	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-301-5.1	EXISTING STAKE MOUNTED EDGE LIGHT, REMOVED	EACH	124	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-301-5.2	EXISTING BASE MOUNTED GUIDANCE SIGN, REMOVED	EACH	24	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-301-5.3	EXISTING ABANDONED SIGN BASE, DEMOLISHED	EACH	6	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-305-5.1	DIRECTIONAL BORING, 1-WAY 2"C POLYETHYLENE CONDUIT	L.F.	25	$	$
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-305-5.2	DIRECTIONAL BORING, 2-WAY 2"C POLYETHYLENE CONDUIT	L.F.	1400	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-310-5.1	TEMPORARY AIRFIELD LIGHTING (PHASE 1)	L.S.	1	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-310-5.2	TEMPORARY AIRFIELD LIGHTING (PHASE 2A)	L.S.	1	$	$
	Unit price in words: _____ dollars and _____ /100				
SS-310-5.3	TEMPORARY AIRFIELD LIGHTING (PHASE 2B)	L.S.	1	$	$
	Unit price in words: _____ dollars and _____ /100				
L-108-5.1	NO. 8 AWG, 5 KV, L-824, TYPE C CABLE, INSTALLED IN TRENCH, DUCT BANK OR CONDUIT	L.F.	15000	$	$
	Unit price in words: _____ dollars and _____ /100				

L-108-5.2	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE, INSTALLED IN TRENCH, ABOVE THE DUCT BANK OR CONDUIT, INCLUDING CONNECTIONS/TERMINATIONS	L.F.	11000	$	$
	Unit price in words: _____ dollars and _____ /100				
L-108-5.3	TRENCHING FOR DIRECT-BURIED BARE COUNTERPOISE WIRE, 8" MINIMUM DEPTH	L.F.	8500	$	$
	Unit price in words: _____ dollars and _____ /100				
L-110-5.1	NON-ENCASED ELECTRICAL CONDUIT, 1-WAY 2-INCH	L.F.	11000	$	$
	Unit price in words: _____ dollars and _____ /100				
L-110-5.2	CONCRETE ENCASED ELECTRICAL DUCT BANK, 2-WAY 2-INCH	L.F.	600	$	$
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-115-5.1	2-CAN JUNCTION CAN PLAZA	EACH	22	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
L-125-5.1	L-861T(L) BASE MOUNTED TAXIWAY EDGE LIGHT, INSTALLED	EACH	169	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
L-125-5.2	L-858(L) BASE MOUNTED, SIZE 2, 1-MODULE GUIDANCE SIGN, INSTALLED	EACH	7	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
L-125-5.3	L-858(L) BASE MOUNTED, SIZE 2, 2-MODULE GUIDANCE SIGN, INSTALLED	EACH	5	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				
L-125-5.4	L-858(L) BASE MOUNTED, SIZE 2, 3-MODULE GUIDANCE SIGN, INSTALLED	EACH	13	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-125-5.5	VEHICULAR STOP SIGN, INSTALLED	EACH	2	$_____	$_____
	Unit price in words: _____ dollars and _____ /100				

TOTAL (BASE BID) $_____

Total price in words: _____ dollars and _____ /100

It is understood the quantities of work to be done at unit prices are approximate and are intended for bidding purposes only. Amounts are to be shown in both words and figures. In case of discrepancy the amount shown in words shall govern.

Contract Award will be based on the lowest qualified bidder, depending on the availability of funds.

Bidders understand the Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to State and local laws and ordinances pertaining to the letting of construction contracts. Funding availability will be considered in selecting the bid award. The bidder agrees this bid shall be honored and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" and to fully complete the project within:

- **210 Calendar Days** thereafter.
    - Construction Phase 2 shall be completed within 60 **Calendar Days** thereafter.

Bidder further agrees to pay as liquidated damages the sum of **one thousand five hundred dollars ($1500.00)** for each calendar day to complete the work beyond the allotted time (including Phase 2) or as extended by an approved Change Order or Supplemental Agreement.

VENDOR REFERENCES FORM

Bidder: Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

REFERENCE ONE

Government/Company Name: Jefferson County

Address: 1149 Pearl Street, Beaumont, TX 77701

Contact Person and Title: Jeff Branick, County Judge

Phone: 409-835-8466 Fax: 409-839-2311

Email Address: jbranick@co.jefferson.tx.us Contract Period: 2016 - 2017

Scope of Work: Jack Brooks Regional Airport Runway Reconstruction / Airport Taxiway D Reconstruction

REFERENCE TWO

Government/Company Name: Garver USA

Address: 12141 Wickchester Lane, Suite 200, Houston, TX 77079

Contact Person and Title: Colin Bible, PE, Project Manager

Phone: 972-377-7480 Fax: 713-395-5486

Email Address: cmbible@garnerusa.com Contract Period: 2016 - 2017

Scope of Work: Jack Brooks Regional Airport Runway Reconstruction / Airport Taxiway D Reconstruction

REFERENCE THREE

Government/Company Name: City of Beaumont

Address: P.O. Box 3827, Beaumont, TX 77704

Contact Person and Title: David Tingle, E.I.T., Project Manager

Phone: 409-785-4781 Fax: 409-880-3732

Email Address: David.Tingle@beaumonttexas.gov Contract Period: 2017 - 2021

Scope of Work: Washington Boulevard Pavement Widening Phase 2

SIGNATURE PAGE

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would Bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions?.....Yes ☐ No ☒

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other Bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other Bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the Bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

ALLCO LLC
Bidder (Entity Name)

(6720 College, Beaumont, TX 77707)
P.O. Box 3684
Street & Mailing Address

Beaumont, TX 77704
City, State & Zip

409-860-4459
Telephone Number

tharrison@allco.com
E-mail Address

Signature

T.W. HARRISON - PRESIDENT
Print Name

APRIL 6, 2022
Date Signed

409-860-3857
Fax Number

ALLCO, L.L.C. TEXAS

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

T.W. HARRISON - PRESIDENT

Name and Title of Contractor's Authorized Official *(Please Print)*

APRIL 6, 2022

Date

ALLCO, L.L.C. TEXAS

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID AFFIDAVIT

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF TEXAS COUNTY OF JEFFERSON

BEFORE ME, the undersigned authority, a Notary Public in and for the State of TEXAS,

on this day personally appeared T.W. HARRISON (name), who

after being by me duly sworn, did depose and say:

"I, T.W. HARRISON (name) am a duly authorized officer of/agent

for ALLCO LLC (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said ALLCO LLC (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other Bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the Bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of Bidder: ALLCO LLC

(mailing) P.O. Box 3684, Beaumont, TX 77704, (physical) 6720 College, Beaumont, TX 77707

Fax: 409-860-3857 Telephone# 409-860-4459

by: T.W. HARRISON (print name) Title: PRESIDENT

Signature:

ALLCO, L.L.C. TEXAS

SUBSCRIBED AND SWORN to before me by the above-named

T.W. HARRISON on

this the 6TH day of APRIL, 20 22.

JACQUELINE CHRISTOPHER
Notary Public, State of Texas
Comm. Expires 05-21-2024
Notary ID# 155932-5

Notary Public in and for the State of TEXAS

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

INSERT ADDENDA HERE

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number: IFB 22-011/JW

IFB Title: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

IFB Due: **11:00 am CT, Wednesday, April 6, 2022**

Addendum No.: 1

Issued (Date): March 8, 2022

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this Addendum: Clarification of Bid Due Date and Time

Bids for this IFB are due by 11:00 am CT, Wednesday, April 6, 2022

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Jackie Christopher
Witness

Mary Beth DeLord
Witness

Approved by ____ Date: _____

Authorized Signature (Bidder)

T.W. HARRISON
PRESIDENT
Title of Person Signing Above

ALLCO LLC
Typed Name of Business or Individual

P.O. BOX 3684, BEAUMONT, TX 77704
Address

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

RECEIVED MAR 29 2022

ADDENDUM TO IFB

IFB Number: IFB 22-011/JW

IFB Title: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

IFB Due: **11:00 am CT, Wednesday, April 6, 2022**

Addendum No.: 2

Issued (Date): March 29, 2022

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this Addendum:

- **Included Pre-Bid Sign in Sheet**
- **Answering prospective bidder questions:**

Q	**Please clarify that you want the 1 original and all 3 copies to be returned with each in a complete spec book, thus making us return 4 complete spec books. That is how it is being said on SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS Page 12, 1. BID REQUIREMENT, 4th paragraph.**
A	**That is correct.**
Q	**Can you provide the engineer's estimate?**
A	**Engineer's estimate will not be provided.**
Q	**Can you confirm we are to submit bidder qualifications as described in Section 20-Proposal Requirements Conditions?**
A	**Per section 20 contractor is required to submit bidder's qualifications.**
Q	**Can you confirm this project has Buy American requirements?**
A	**That is correct, this project is subject to Buy American Requirements.**
Q	**Can we get a copy of the Pre-Bid Meeting sign-in sheet?**

A	Sign in sheet will be posted here and on Jefferson County Procurement website. https://co.jefferson.tx.us/Purchasing/NoticesForBid/View/ADD/163
Q	The contract time already includes a large amount of assumed "normal" weather related events as described in Section C-06 of the Terms Conditions. Given the already tight timeframe, we request that the time of completion be revised to 300 calendar days since we essentially will not be provided any relief for weather delays.
A	We will review request however the statement is incorrect. Should average weather days in any given month exceed those listed in Section C-06 of the specifications, and work cannot take place, those days would be reviewed and added to the contract time if warranted.
Q	As discussed at the pre-bid meeting, will the contractor be allowed to access Phase 2 through the first Phase area? or is the back road that leads to Phase Two entrance is the only way?
A	Alternative staging areas and access routes have been provided. See drawing sheets GC-100 to GC-103.
Q	If the prime contractor makes a ligament intent to request DBE/HUB participation but due to uncontrol circumstances DBE/HUB vendors do not provide a proposal would the prime contractor not be at fault if the DBE goal is not met?
A	The prime contractor should make a good-faith effort to meet the DBE requirement of 10.73% and CLEARLY document the good-faith efforts taken to meet the requirements. We encourage the prime contractor to submit documentation showing the efforts to obtain DBE subcontractor(s). At a minimum documentation should include all emails/letters sent to proposed DBE subs and their responses and reasons why they are unable to perform work. Should the contractor not be able to meet the DBE requirements, the documentation provided will be reviewed for good-faith effort and possible reduction of the DBE requirement.
Q	Can you clarify the difference between the areas designated as concrete pavement and reinforced concrete pavement?
A	The pavement designated as reinforced contains #4 Bars @12" O.C. This is noted in details 3-7 on Sheet 31, Drawing Number CJ-301
Q	As discussed in the pre-bid meeting, the total days to complete the job are 210 calendar days. To add on to the previous question asked, rain days are built in the 210 total? Also, if we have 17 rain days in August and the AVG rain days for August are 16 we are only being credited 1 day? Let me know I have the correct understanding.
A	That is correct. Should average weather days in any given month exceed those listed in Section C-06 of the specifications, and work cannot take place, those days would be reviewed and added to the contract time if warranted.
Q	To confirm work hours, no night work is expected?
A	Correct, night work will not be required.
Q	Sheet 69 in the bid documents, Vendor Reference Sheet. Is the sheet only for selected material vendors or also for subcontractors?
A	This sheet is for the prime contractor /bidder to fill out.

Updated Specifications:

- **Updated minority and female participation goals on page 25**
- **Updated Construction Contract Time on page 46**
- **Updated Construction Contract Time on page 49**
- **Removed footer annotation on page 52**
- **Updated Construction Contract Time on page 68**
- **Updated cement requirements on specification P-501 sheet 4**

Updated Drawings:

- **Added sheet GC-100 "CONSTRUCTION SAFETY AND PHASING PLAN – OVERALL" laying out primary and secondary construction staging areas.**
- **Updated Construction Safety and Phasing notes on sheets GC-001 and GC-002**
- **Updated Construction Contract Time on sheets GC-101, GC-102, and GC-103**
- **Removed the need for night work on sheet GC-101**
- **Updated Reinforcement Requirements on sheet CJ-301**

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Jackie Christopher
Witness

Mary Beth DeLord
Witness

Approved by ____ Date: _____

Authorized Signature (Bidder)

T.W. HARRISON
PRESIDENT
Title of Person Signing Above

ALLCO LLC
Typed Name of Business or Individual

P.O. BOX 3684, BEAUMONT, TX 77704
Address

WAGE RATES

Article 5159a of the Revised Civil Statutes of Texas, passed by the 43rd Legislature Acts of 1933, Page 91, Chapter 45, provides that any government subdivision shall ascertain the general prevailing rate of per diem wages in the locality in which the work is to be performed for each craft or type of workman or mechanic and shall specify in the call for bids and in the Contract the prevailing rate of per diem wages which shall be paid for each craft type of workman. This Article further provides that the CONTRACTOR shall forfeit, as a penalty, to the City, County, or State, or other political subdivision, Ten Dollars ($10.00) per day for each laborer, or workman, or mechanic who is not paid the stipulated wage for the type of work performed by him as set up on the wage scale. The OWNER is authorized to withhold from the CONTRACTOR, after full investigation by the awarding body, the amount of this penalty in any payment that might be claimed by the CONTRACTOR or Subcontractor. The Act makes the CONTRACTOR responsible for the acts of the Subcontractor in this respect.

The Article likewise requires that the CONTRACTOR and Subcontractor keep an accurate record of the names and occupations of all persons employed by him and show the actual per diem wages paid to each worker, and these records are open to the inspection of the OWNER.

The Davis Bacon minimum wage rates for this project are as follows:

LABOR CLASSIFICATION AND MINIMUM WAGE SCALE

General Decision Number: TX20220038 01/07/2022
Superseded General Decision Number: TX20210038

State: Texas

Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022, Executive Order 14026

generally applies to the contract. The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022, Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/07/2022

* SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.98	
ELECTRICIAN	$ 27.11	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.34	
Structures	$ 12.23	
LABORER		
Asphalt Raker	$ 12.36	
Flagger	$ 10.33	
Laborer, Common	$ 11.02	
Laborer, Utility	$ 11.73	
Pipelayer	$ 12.12	
Work Zone Barricade Servicer	$ 11.67	

PAINTER (Structures).....$ 18.62

POWER EQUIPMENT OPERATOR:
- Asphalt Distributor.....$ 14.06
- Asphalt Paving Machine.....$ 14.32
- Broom or Sweeper.....$ 12.68
- Concrete Pavement Finishing Machine.....$ 13.07
- Concrete Paving, Curing, Float, Texturing Machine....$ 11.71
- Concrete Saw.....$ 13.99
- Crane, Hydraulic 80 Tons or less.....$ 13.86
- Crane, Lattice boom 80 tons or less.....$ 14.97
- Crane, Lattice boom over 80 Tons.....$ 15.80
- Crawler Tractor.....$ 13.68
- Excavator, 50,000 pounds or less.....$ 12.71
- Excavator, Over 50,000 pounds.....$ 14.53
- Foundation Drill, Crawler Mounted.....$ 17.43
- Foundation Drill, Truck Mounted.....$ 15.89
- Front End Loader 3 CY or Less.....$ 13.32
- Front End Loader, Over 3 CY.$ 13.17
- Loader/Backhoe.....$ 14.29
- Mechanic.....$ 16.96
- Milling Machine.....$ 13.53
- Motor Grader, Fine Grade....$ 15.69
- Motor Grader, Rough.....$ 14.23
- Off Road Hauler.....$ 14.60
- Pavement Marking Machine....$ 11.18
- Piledriver.....$ 14.95
- Roller, Asphalt.....$ 11.95
- Roller, Other.....$ 11.57
- Scraper.....$ 13.47
- Spreader Box.....$ 13.58

Servicer.....$ 13.97

Steel Worker
- Reinforcing Steel.....$ 15.15
- Structural Steel Welder.....$ 12.85
- Structural Steel.....$ 14.39

TRUCK DRIVER

Low Boy Float.....$ 16.03
Single Axle.....$ 11.46
Single or Tandem Axle Dump..$ 11.48
Tandem Axle Tractor w/Semi
Trailer.....$ 12.27

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union, which prevailed in the survey for this classification, which in this example would be Plumbers 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Division National Office Branch of Wage Surveys. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Change Order

No. _____

Date of Issuance: Effective Date:
Project: Owner: Owner's Contract No.:
Contract: Date of Contract:
Contractor: Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:
Original Contract Price:

CHANGE IN CONTRACT TIMES:
Original Contract Times:
□ Working days □ Calendar days

Substantial completion (days or date):
$ Ready for final payment (days or date):
[Increase] [Decrease] from previously approved Change

Orders No._____ to No._____:

[Increase] [Decrease] from previously approved Change Orders
No._____ to No._____:

Substantial completion (days):

$ Ready for final payment (days):
Contract Price prior to this Change Order: Contract Times prior to this Change Order:

Substantial completion (days or date):

$ Ready for final payment (days or date):
[Increase] [Decrease] of this Change Order: [Increase] [Decrease] of this Change Order:
Substantial completion (days or date):

$ Ready for final payment (days or date):
Contract Price incorporating this Change Order: Contract Times with all approved Change Orders:

Substantial completion (days or date):
$ Ready for final payment (days or date):

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized signature)
Date:	Date:	Date:

Approved by Funding Agency (if applicable): Date:

GENERAL PROVISIONS

SECTION 10 DEFINITION OF TERMS

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	Advertisement	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	Airport	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	Airport Improvement Program (AIP)	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	Air Operations Area (AOA)	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	Building Area	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	Calendar Day	Every day shown on the calendar.

Paragraph Number	Term	Definition
10-13	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**Change Order**	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.

Paragraph Number	Term	Definition
10-23	**Construction Safety and Phasing Plan (CSPP)**	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. b. Owner Force Account - Work performed for the project by the Owner's employees.

Paragraph Number	Term	Definition
10-31	Intention of Terms	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.
10-32	Lighting	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.
10-33	Major and Minor Contract Items	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	Materials	Any substance specified for use in the construction of the contract work.
10-35	Modification of Standards (MOS)	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	Notice to Proceed (NTP)	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	Owner	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is **Jefferson County, TX.**
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

Paragraph Number	Term	Definition
10-42	Plans	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	Proposal	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.

Paragraph Number	Term	Definition
10-54	Specifications	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	Sponsor	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	Structures	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	Subgrade	The soil that forms the pavement foundation.
10-58	Superintendent	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	Supplemental Agreement	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	Surety	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	Taxilane	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	Taxiway	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	Taxiway/Taxilane Safety Area (TSA)	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.

Paragraph Number	Term	Definition
10-64	**Work**	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	**Working day**	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	**Owner Defined terms**	None

END OF SECTION 10

SECTION 20 PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 Advertisement (Notice to Bidders). See Page A-1

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals.*

Mobilization is limited to **5 percent** of the total project cost.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; **This shall occur at the time referenced in the Advertisement and the Proposal, unless otherwise specified herein.**

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials

furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner *in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid* before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

SECTION 30 AWARD AND EXECUTION OF CONTRACT

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals.*

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders.*

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within ~~*[ ] calendar days of the date specified for publicly opening proposals*~~ *the time referenced in the Advertisement and the Proposal,* unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract.*

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within *the time specified in the proposal.*

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of

this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

SECTION 40 SCOPE OF WORK

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others.*

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

SECTION 50 CONTROL OF WORK

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. See Special Provisions (Page K-1)

A. FEDERAL AVIATION ADMINISTRATION REQUIREMENTS

B. STATE TERMS AND CONDITIONS

C. LOCAL TERMS AND CONDITIONS

50-05 Cooperation of Contractor. The Contractor shall be supplied with three hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): **electronic CAD format (.dwg or .dgn).**

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications.*

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work.*

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and

replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases

the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

SECTION 60 CONTROL OF MATERIALS

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. *See Section C-105*

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

SECTION 70 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows:

Owner	Contract (Phone Number)
XXXX Utility	XXXX (XXX-XXX-XXXX)

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic*, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is on sheet(s) **GC-001 through GC-103** of the project plans.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and

Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Detailed phasing information is provided in the Construction Safety and Phasing Plan.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the

Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to

prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work,* and Section 90, paragraph 90-05, *Payment for Extra Work.* If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time.*

70-21 Insurance Requirements. See Special Provisions.

END OF SECTION 70

SECTION 80 EXECUTION AND PROGRESS

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least **25** percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within 10 days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work *and in advance of the preconstruction meeting.* The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has

been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
See Proposal and Contract		

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

SECTION 90 MEASUREMENT AND PAYMENT

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

MEASUREMENT AND PAYMENT TERMS

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton or hundredweight.
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Term	Description
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities*, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand.* No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. Retainage will not be withheld on this project. No retainage will be withheld by the Owner from progress payments due the prime Contractor. Retainage by the prime or subcontractors is prohibited, and no retainage will be held by the prime from progress due subcontractors.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the project work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment.*

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the

Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

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SECTION A – FEDERAL AVIATION ADMINISTRATION REQUIREMENTS

A-01 CIVIL RIGHTS - GENERAL

The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A-02 CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:
The Owner, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Compliance with Nondiscrimination Requirements:
During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the **Title VI List of Pertinent Nondiscrimination Acts And Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

a. Withholding payments to the contractor under the contract until the contractor complies; and/or

b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities:
During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);

- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;

- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);

- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

A-03 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A-04 RIGHT TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

A-05 SEISMIC SAFETY

The contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A-06 ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives, access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A-07 BUY AMERICAN PREFERENCE

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must complete and submit the Buy American certification included in the contract documents with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

See Section 010470 "Bidder Certifications" for Contractor Buy American Certification.

A-08 DISADVANTAGED BUSINESS ENTERPRISE

The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of Department of Transportation-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;

2) Assessing sanctions;

3) Liquidated damages; and/or

4) Disqualifying the Contractor from future bidding as non-responsible.

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives from the Owner. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

A-09 ENERGY CONSERVATION REQUIREMENTS

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201et seq).

A-10 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division

A-11 TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (U.S.T.R.);

b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R.; and

c. has not entered into any subcontract for any product to be used on the Federal on the project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

(1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or

(2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or

(3) who incorporates in the public works project any product of a foreign country on such U.S.T.R. list;

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by U.S.T.R, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

A-12 VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A-13 TAX DELINQUENCY AND FELONY CONVICTIONS

The Contractor shall be required to complete the certification regarding tax delinquency and felony convictions included in these contract documents.

Felony conviction: Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A-14 COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A-15 DAVIS-BACON REQUIREMENTS

1. Minimum Wages

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under

the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage

requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without

weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(ii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(iii) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually

performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination: Debarment.

   A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with the Davis-Bacon and Related Act Requirements

   All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards

   Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility

    (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    (iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

A-16 DISTRACTED DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 "Text Messaging While Driving" (12/30/2009), the FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 and involve driving a motor vehicle in performance of work activities associated with the project.

A-17 AFFIRMATIVE ACTION REQUIREMENT

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   Timetables

   Goals for minority participation for each trade: **(Vol. 45 Federal Register pg. 65984 10/3/80)**

   Goals for female participation in each trade: X.X%

   These goals are applicable to all of the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is **Jefferson County, Texas.**

A-18 EQUAL EMPLOYMENT OPPORTUNITY (E.E.O.)

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identify or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however*, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

    a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

    b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

    c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

    d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the

completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

    f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

    g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such a superintendents, general foremen,

etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is

the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A-19 PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage

or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

A-20 TERMINATION OF CONTRACT

Termination for Convenience:

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

a) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

b) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

c) reasonable and substantiated claims, costs and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and

d) reasonable and substantiated expenses to the contractor directly attributable to Owner's termination action

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination for Default:

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights and remedies associated with Owner termination of this contract due default of the Contractor.

A-21 PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use of products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or,

b) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/epawaste/conserve/tools/cpg/products/. Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

A-22 DEBARMENT AND SUSPENSION

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT:

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT:

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov

2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to disclose to a higher tire participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A-23 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements

   No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages

   In the event of any violation of the clause set forth in paragraph (1) of this clause, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

   The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this clause.

4. Subcontractors.

   The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A-24 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

The bidder or offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the

extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

A-25 BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide contractor written notice that describes the nature of the breach and corrective actions the contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the contractor must correct the breach. Owner may proceed with termination of the contract if the contractor fails to correct the breach by deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A-26 CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. § 740-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds $150,000.

SECTION B – STATE TERMS AND CONDITIONS

B-01 NOT USED

SECTION C – LOCAL TERMS AND CONDITIONS

C-01 CONTRACTOR'S INSURANCE

Contractor shall obtain insurance of the types and in the amounts described below. The insurance shall be written by insurance companies and on forms acceptable to Owner.

Owner and Garver, LLC shall be included as an insured under the CGL, (using ISO Additional Insured Endorsement CG 20 10 11 85 or a substitute providing equivalent coverage), and under the commercial automobile liability (using ISO Additional Insured Endorsement CA 2048 or a substitute providing equivalent coverage), and commercial umbrella, if any. This insurance, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

C-01.1 Commercial General and Umbrella Liability Insurance: Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance, with a limit of not less than $5,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to the Project.

CGL insurance shall be written on ISO occurrence form CG 20 10 (11-85) (or a substitute combination of the following forms CG 20 10 (10-01) and CG 20 37 (10-01) providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury and liability assumed under an insured contract.

There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from pollution, explosion, collapse, underground property damage, or amending the contractual coverage in the ISO occurrence form.

CGL insurance shall be written with an ISO form CG 25 03 05 09 Designated Construction Project(s) General Aggregate Limit or a substitute form providing equivalent coverage.

C-01.2 Continuing CGL Coverage: Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance, with a limit of not less than $5,000,000 each occurrence for at least 3 years following substantial completion of the Work.

Continuing commercial umbrella coverage, if any, shall include liability coverage for damage to the insured's completed Work equivalent to that provided under ISO form CG 00 01.

C-01.3 Owner's and Contractor's Protective Liability Insurance: Contractor shall maintain Owner's and Contractor's Protective Liability (OCP) insurance on behalf of Owner and Garver, LLC, as named insured, with a limit of $1,000,000.

C-01.4 Railroad Protective Liability Insurance: Not applicable

C-01.5 Commercial Auto and Umbrella Liability Insurance: Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident.

Such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

Commercial auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

If the Contract Documents require Contractor to remove and haul hazardous waste from the Project site, or if the Project involves such similar environmental exposure, pollution liability coverage equivalent to that provided under the ISO Pollution Liability-Broadened Coverage for Covered Autos Endorsement (CA 99 48) shall be provided, and the Motor Carrier Act Endorsement (MCS 90) shall be attached.

C-01.6 Workers' Compensation Insurance: Contractor shall maintain workers' compensation and employer's liability insurance.

The employer's liability, and if necessary commercial umbrella, limits shall not be less than $500,000 each accident for bodily injury by accident or $500,000 each employee for bodily injury by disease.

If Contractor leases its employees, the alternate employer endorsement (WC 00 03 01 A) shall be attached showing Owner in the schedule as the alternate employer.

Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy.

Where applicable, Nonappropriated Fund Instrumentalities Act (NFIA) shall be attached to the policy. NFIA extends the coverage of the Longshore and Harbor Workers' Compensation Act to civilian employees working on United States military bases throughout the world who are not paid with funds appropriated by Congress. These employees, working in facilities operated for the comfort, contentment, and improvement of armed forces personnel, are instead compensated with funds generated from earnings of their facility.

Where applicable, Outer Continental Shelf Lands Act Endorsement shall be attached to the policy.

Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.

If project is located in a state where workers compensation is secured via monopolistic state funds, include evidence of the "Stop Gap" endorsement to the general liability policy.

C-01.7 Property Insurance: If applicable, Contractor shall purchase and maintain property insurance for the Work. Such insurance shall be written in an amount at least equal to the initial contract sum as well as subsequent modifications of that sum. The insurance shall apply on a replacement cost basis. If the insurance obtained in compliance with this paragraph is builders risk insurance, coverage shall be written on a completed value form.

The property insurance as required above shall name as insureds the Owner, Contractor, and all subcontractors and sub-subcontractors on the Project.

C-01.8 Primary and Non-contributory: Contractor agrees that the insurance listed above, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

C-01.9 Waiver of Subrogation: Contractor waives all rights against the Owner and Garver, LLC and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability, commercial umbrella liability insurance, automobile liability insurance and workers compensation insurance maintained pursuant to paragraph C-01 of this agreement.

C-01.10 No Implied Waiver: Contractor shall furnish certifications matching the coverage requirements. Failure of Owner or Engineer to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Owner or Engineer to identify a deficiency from evidence that is provided shall not be construed as a waiver of the contractors obligations to furnish and maintain such insurance, or as a waiver to the enforcement of any of the provisions at a later date.

Any waiver of the contractor's obligation to furnish such certificate or maintain such evidence must be by written change order and signed by a Managing Member (Officer) of the Engineer and the Owner.

C-01.11 Cancellation, Non-Renewal, and/or Impairment Notification: The Contractor shall not cause any insurance policy to be cancelled or permit it to lapse and all insurance policies shall include an endorsement to the effect that the insurance policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance until notice has been mailed to the Owner and Engineer, stating the date when such cancellation or reduction shall be effective, which date shall not be less than (60) days after such notice.

The amount shown in the bid item for the Owner's Protective Insurance shall include that amount of additional premium required for obtaining Owner's and Engineer's Protective Liability insurance for the Owner and Garver, LLC. The Engineer has the right to request justification from the contractor for the full amount of the cost included under the items "Owner's Protective Insurance".

Notice shall be sent via email and regular mail to the following persons and addresses:

Owner:
Alex Rupp
5000 Jerry Ware Drive
Beaumont, TX 77705
ARupp@co.Jefferson.tx.us

Garver:
Jason Frank, PE
Garver, LLC
12141 Wickchester
Suite 200
Houston, TX 77079
JEFrank@GarverUSA.com

C-01.12 Sample Certificate of Liability Insurance:

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) (must be dated)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agency Name Agency Address www.stephens.com	CONTACT NAME: Agency contact PHONE (A/C, No, Ext): Agency ph# FAX (A/C, No): E-MAIL ADDRESS: Agency contact email address
INSURED Named Insured on the policies	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Carrier Name (AM Best Rating) INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY ✓ COMMERCIAL GENERAL LIABILITY CLAIMS-MADE ✓ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY ✓ PRO-JECT LOC	X	X	XXXXXXXXXX			EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 5,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 5,000,000 $ 5,000,000
	AUTOMOBILE LIABILITY ✓ ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS ✓ HIRED AUTOS NON-OWNED ✓ AUTOS	X	X	XXXXXXXXXXX			COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	✓ UMBRELLA LIAB ✓ OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $ XXXXX	X	X	XXXXXXXXXXX Umbrella / Excess only if needed to meet the required underlying General Liability limit			EACH OCCURRENCE AGGREGATE	$ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N/A If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	XXXXXXXXXXX			✓ WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 500,000 $ 500,000 $ 500,000
				XXXXXXXXXXX				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Owner & Garver, LLC shall be included as an Additional Insured by endorsement #CG2010(11/85) on the General Liability and #CA2046 on the Automobile and Umbrella or substitute endorsement providing equivalent coverage. Coverage shall be Primary and non-contributory with respect to any other insurance or self-insurance programs afforded to the Owner and Garver LLC. Waiver of Subrogation applies in favor of the Owner and Garver LLC on all policies. 60 day notice will be provided to the Owner and Garver LLC in the event of cancellation, non-renewal and/or impairment of the Contractor's policies.

CERTIFICATE HOLDER	CANCELLATION
Owner and Garver LLC	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE (must be signed by the Contractor's Insurance Agent)

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C-02 UTILITIES

All work in this contract shall be in accordance with the Texas Underground Facilities Damage Prevention Act. The Contractor shall abide by the most current edition of this Act.

Underground utilities exist within and adjacent to the limits of construction. An attempt has been made to locate these utilities on the plans. However, all existing utilities may not be shown and the actual locations of the utilities may vary from the locations shown.

The Contractor shall be responsible for the protection of all existing utilities, structures, equipment, or improvements crossed by or adjacent to his construction operations. Where existing utilities, service lines, structures, equipment, etc. are cut, broken, or damaged, the Contractor shall replace or repair immediately these items with the same type of original material and construction or better, at his own expense to the satisfaction of the Owner and the Engineer. After damage discovery, the Contractor shall immediately coordinate with the Owner and the Engineer on the complete repair and/or replacement work required. Following written notice of work required, the Contractor shall expeditiously begin and finish this work with all labor and materials required. All repair and/or replacement work, labor, and materials shall be supplied and installed by the Contractor. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects and any expenses incurred by the Owner shall be withheld from the Contractor's payments.

C-03 LEGAL HOLIDAYS

Holidays that shall be observed are the following: New Year's Day (January 1); Dr. Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Columbus Day (2nd Monday in October); Thanksgiving Day (4th Thursday in November); Day after Thanksgiving (Friday following Thanksgiving); Christmas Eve (December 24); and Christmas Day (December 25). If a holiday falls on a Saturday or Sunday, the observed day shall be the Friday preceding the Saturday or the Monday following the Sunday. No construction observation will be furnished on legal holidays or Sundays, except in an emergency. The Contractor shall observe these legal holidays and all Sundays, and no work shall be performed on these days except in an emergency. Calendar day contract time includes delays for all holidays. Refer to Section C-06 for more information.

C-04 CLEAN UP

From time to time, the Contractor shall clean up the site, including any work areas at the airport, in order that the site presents a neat appearance and the progress of the work not be impeded. One such period of clean up shall immediately precede final inspection.

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary plant, equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

C-05 PROJECT MEETINGS AND COORDINATION

A preconstruction conference will be called by the Engineer at a time convenient to the Owner and before the issuance of the "Notice to Proceed". The Engineer and the Contractor and such subcontractors as the Contractor may desire shall attend this meeting with the Owner.

The Owner and/or Engineer will call such coordination conferences as may seem expedient to him for the purpose of assuring coordination of the work covered by this Contract. The Contractor shall attend all such conferences. This in no way relieves the Contractor of his responsibility to fully coordinate his work under this Contract.

C-06 LIQUIDATED DAMAGES FOR DELAY

The number of calendar days allowed for completion of the project is stipulated in the Proposal and in the Contract and shall be known as the Contract Time. The Contractor agrees that time is a critical element for this Contract. Loss will accrue to the Owner due to delayed completion of the work; and the cost to the Owner of the administration of the Contract, including engineering, inspection, and supervision, will be increased as the time occupied in the work is lengthened. The Contractor agrees that for each day of delay beyond the number of calendar days herein agreed upon for the completion of the work herein specified and contracted for, the Owner may withhold, permanently, from the Contractor's total compensation, the sum of **One Thousand Five Hundred** Dollars ($1500.00) as stipulated damages for each day of such delay. Should the amount otherwise due the Contractor be less than the amount of such ascertained and liquidated damages, the Contractor and his Surety shall be liable to the Owner for such deficiency.

It is understood and agreed by and between the Owner and the Contractor that the time of completion herein set out is a reasonable time. The Contractor shall perform fully, entirely, and in an acceptable manner, the work contracted for within the contract time stated in the Contract. The contract time shall be counted from ten days after the effective date of the "Notice to Proceed", or the date work commences, whichever occurs first; and shall include all Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of any orders of the Engineer for suspension of the prosecution of the work, due to the fault of the Contractor, shall be counted as elapsed contract time, and shall not be considered for an extension of time.

Extensions of time for completion, under the condition of 3(a) next below, will be granted; extensions may be granted under other stated conditions:

1. If the satisfactory execution and completion of the Contract shall require work or material in greater amounts or quantities than those set forth in the Contract, then the Contract time shall be increased in the same proportion as the additional work bears to the original work contracted for.

2. An average or usual number of inclement weather days, when work cannot proceed, is to be anticipated during the construction period and is not to be considered as warranting extension of time. The days included in the contract time for Normal Weather-Related Events and holidays are as follows:

(On A Monthly Basis)

Month	Normal Weather-Related Events	Holidays
January	9	1
February	5	1
March	6	0
April	8	1
May	8	1
June	12	0
July	10	1
August	13	0
September	9	1
October	8	0
November	6	3
December	8	2

If, however, it appears that the Contractor is delayed by conditions of weather, outside of normal weather-related events detailed in the proceeding table, extensions of time may be granted.

3. Should the work under the Contract be delayed by other causes which could not have been prevented or contemplated by the Contractor, and which are beyond the Contractor's power to prevent or remedy,

existing facilities shown in the plans and the actual location located during construction. These record documents shall be available to the Engineer for examination and shall be delivered to the Engineer upon completion of the work.

C-10 CONTRACTOR/SUBCONTRACTOR/SUPPLIER LEGAL DISPUTES

Any fees, expenses, charges, fines or other costs borne by the Owner as a result of legal disputes or lawsuits between the contractor and his subcontractors, or between the contractor and his suppliers, shall be deducted from monies due or which may thereafter become due the contractor.

C-11 GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there, which shall appear within a period of 12 months from the date of final acceptance of the work. The Contractor will be responsible for all costs associated with construction observation and oversight for the repair work. The Owner will give notice of defective materials and work with reasonable promptness. In the event repair work is required, the Contractor shall remedy any defects and pay for any damage to other work resulting there, which shall appear within a period of 12 months from the date of the acceptance of the repair work.

C-12 CONTRACTOR'S RELEASE AND AFFIDAVIT

At the project's completion, the Contractor shall execute the attached Release and Lien Waiver to release all claims against the Owner arising under and by virtue of his Contract. The date of the Release shall be that agreed to for the final acceptance of the project with the Owner.

C-13 SUBMITTALS

The Contractor shall prepare and submit information required by the individual Specification sections sufficiently in advance of the related work to allow an appropriate review time by the Engineer. The types of submittals are indicated in the individual Specification sections.

During the preconstruction conference, the Contractor shall review his submittal schedule and procedures, including notifying the Engineer whether electronic submittals or paper submittals will be provided for all submittal packages in the project. Mixing of package types will not be allowed. The Contractor shall provide one of the following submittal package types:

1. Submit electronic submittals via email as PDF electronic files directly to the Engineer's designated representative, or post these PDF electronic files directly to the Engineer's FTP site specifically established for this project. Electronic submittals shall be in Adobe Acrobat (*.PDF) format and shall be legible when printed.

2. Submit six (6) paper submittal copies via mail or other courier service to the Engineer's designated representative.

Submittals shall be neat, organized, and easy to interpret. Assemble complete submittal package into a single indexed electronic file or hard cover bound book, incorporating submittal requirements of an individual Specification section, the transmittal form with unique submittal numbering system, and electronic links or tabs enabling navigation to each item. Unless approved otherwise by the Engineer, all submittals for the individual Specification section shall be submitted at one time.

Submittals must come directly from the Prime Contractor; submittals from subcontractors or suppliers will not be reviewed.

Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review. Faxed submittals or submittals with extremely small or otherwise unreadable print will not be accepted. Submittals not required by the Contract Documents will be returned by the Engineer without action.

The Contractor shall be responsible for payment of any subsequent submittal reviews beyond the second iteration of a specific item as indicated by the construction submittal log. In this event, the Owner's representative shall conduct the submittal review and payment for the submittal review shall be directly deducted from the Contractor's payment. The Contractor shall pay for additional submittal reviews at the Owner's contract rate.

The Contractor shall retain complete copies of submittals on project site. Use only final submittals that are marked with approval notation from Engineer's submittal review stamp with comments form.

Resubmittals shall continue the unique, sequential, submittal numbering system. Resubmittals without unique numbering, example resubmittals transmitted as 005A or 005REV, are unacceptable and will be returned un-reviewed.

The Contractor will implement, in conjunction with the Engineer and LRNA Manager of Construction, project-specific procedures/policies for construction management services during construction to assist in obtaining completed Projects in accordance with the purpose and intent of the construction documents including, but not limited to the following:

1. Use web based Construction Management Software (EADOC) provided to the Contractor. Access to this system will be provided at no cost to the Contractor by LRNA.

2. Ensure that ALL Subcontractors, and any other project participants use the EADOC Construction Management Software provided by LRNA. Access to this system will be provided at no cost to each by LRNA.

C-14 STORMWATER POLLUTION PREVENTION PLAN

Refer to Technical Specification C-105.

C-15 TEST BORINGS/SUBSURFACE INFORMATION

Soil characteristics provided in any soil reports, or as shown on boring logs, are representative only at the location of the sample taken, and neither the Owner, Engineer nor Engineer's consultants will be responsible for variations in the soil characteristics at other locations. Any subsurface information or geotechnical reports made available to Contractor was obtained and intended for the Owner's design and estimating purposes only. Such reports and drawings are not Contract Documents.

The Contractor may not rely upon or make any claim against Owner, Engineer, or Engineer's Consultants with respect to (1) the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto, (2) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, or (3) any Contractor interpretation or other conclusion drawn from any data, interpretations, opinions, or information.

C-16 WAGE RATES

The Davis Bacon minimum wage rates for this project are applicable and included in Section M of this Contract:

END OF SPECIAL PROVISIONS

RELEASE OF LIEN

FROM: Contractor's Name:_____

Address: _____

TO: Owner's Name:_____

Address: _____

DATE OF CONTRACT: _____

Upon receipt of the final payment and in consideration of that amount, the undersigned does hereby release the Owner and its agents from any and all claims arising under or by virtue of this Contract or modification thereof occurring from the undersigned's performance in connection with the

_____

project.

Contractor's Signature: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____

CONTRACTOR'S AFFIDAVIT

FROM: Contractor's Name:_____

Address: _____

TO: Owner's Name:_____

Address: _____

DATE OF CONTRACT: _____

I hereby certify that all claims for material, labor, and supplies entered into contingent and incident to the construction or used in the course of the performance of the work on the

_____

project have been fully satisfied.

Contractor's Signature: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____

The Surety Company consents to the release of the retained percentage on this project with the understanding that should any unforeseen contingencies arise having a right of action on the bond that the Surety Company will not waive liability through the consent to the release of the retained percentage.

Dated: _____

Surety Company: _____

By: _____
Resident Agent, State of Texas

TECHNICAL SPECIFICATIONS

ITEM SS-101 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

DESCRIPTION

101-1.1 The Contractor shall thoroughly review the approved Construction Safety and Phasing Plan (CSPP) and shall comply with approved CSPP. The Contractor shall certify such compliance by completing the attached SPCD and submitting to the Engineer for approval.

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Contractor Safety Plan Compliance Documents

Owner Name: Jefferson County

Airport: Jack Brooks Regional Airport

Project Description: Taxiway A Rehabilitation

Contractor: _____

Each item listed below corresponds to a specific section of the approved CSPP. The Contractor shall certify that he/she will comply with each section of the approved CSPP. Each certified section with a "no" response must be fully explained in an attachment to the SPCD. The document shall be signed and dated by a principle or owner in the Contractor's company. All other requested information shall be completed by the Contractor and submitted to the Engineer for approval as part of the SPCD.

1. **Section 1 - Correspondence:** This project shall be completed in accordance with Section 1 "Coordination" of the approved Construction Safety Plan Compliance Document.

Owner:	
Contact: Alex Rupp, Airport Manager	**Phone:** 409-719-4900
Engineer:	
Project Manager: Jason Frank	**Phone:** 713-395-4282
Project Engineer: Ken Rutabana	**Phone:** 214-619-9016
Construction Observer: TBD	**Phone:**
Materials Testing: TBD	**Phone:**
Contractor:	
Project Manager:	**Phone:**
Superintendent:	**Phone:**
Subcontractors:	**Phone:**

Yes_____No_____

2. **Section 2 - Phasing:** This project shall be completed in accordance with Section 2 "Phasing" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

3. **Section 3 – Areas of Operations Affected by Construction Activity:** This project shall be completed in accordance with Section 3 "Areas of Operations Affected by Construction Activity" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

4. **Section 4 – Protection of Navigational Aids (NAVAIDS):** This project shall be completed in

accordance with Section 4 "Protection of Navigational Aids (NAVAIDS)" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

5. **Section 5 – Contractor Access:** This project shall be completed in accordance with Section 5 "Contractor Access" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

6. **Section 6 – Wildlife Management:** This project shall be completed in accordance with Section 6 "Wildlife Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

7. **Section 7 – Foreign Object Debris (FOD) Management:** This project shall be completed in accordance with Section 7 "Foreign Object Debris (FOD) Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

8. **Section 8 – Hazardous Materials (HAZMAT) Management:** This project shall be completed in accordance with Section 8 "Hazardous Materials (HAZMAT) Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

9. **Section 9 – Notification of Construction Activities:** This project shall be completed in accordance with Section 9 "Notification of Construction Activities" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

10. **Section 10 – Inspection Requirements:** This project shall be completed in accordance with Section 10 "Inspection Requirements" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

11. **Section 11 – Underground Utilities:** This project shall be completed in accordance with Section 11 "Underground Utilities" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

12. **Section 12 – Penalties:** This project shall be completed in accordance with Section 12 "Penalties" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

13. **Section 13 – Special Conditions:** This project shall be completed in accordance with Section 13 "Special Conditions" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

14. **Section 14 – Runway and Taxiway Visual Aids:** This project shall be completed in accordance

with 14 "Runway and Taxiway Visual Aids" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

15. **Section 15 – Marking and Signs for Access Routes:** This project shall be completed in accordance with Section 15 "Marking and Signs for Access Routes" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

16. **Section 16 – Hazard Marking and Lighting**: This project shall be completed in accordance with Section 16 "Hazard Marking and Lighting" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

17. Section 17 – Work Zone Lighting for Nighttime Construction: This project shall be completed in accordance with Section 17 "Work Zone Lighting for Nighttime Construction" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

18. **Section 18 – Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces**: This project shall be completed in accordance with Section 18 "Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

19. **Section 19 – Other Limitations on Construction:** This project shall be completed in accordance with Section 19 "Other Limitations on Construction" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

I certify that, for the project identified herein, the responses to the foregoing items are correct as marked, and that I shall comply with the approved Construction Safety and Plan.

Signed: _____
Contractor's Authorized Representative

Date: _____

_____

Print Name and Title of Contractor's Representative

END OF ITEM SS-101

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ITEM SS-110 STANDARD SPECIFICATIONS

GENERAL

110-1.1 The standard specifications adopted by the Texas Department of Transportation (November 1, 2014) are bound in a book titled "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges". These specifications are referred to herein as "Standard Specifications." The latest edition shall apply. A copy of these "Standard Specifications" may be purchased or downloaded by going to the Texas Department of Transportation's web page, http://www.txdot.gov, contacting Support Services Division, or calling the Texas Department of Transportation's Support Services Division. For additional information on specifications or information on Departmental Materials Specifications (DMS), Material Producer Lists (MPL), Test Procedures, Material Inspection Guide, and other materials information, go to http://www.txdot.gov.

INCORPORATION AND MODIFICATION

110-2.1 Certain parts of the Standard Specifications are appropriate for inclusion in these Technical Specifications. Such parts are incorporated herein by reference to the proper section or paragraph number. The individual specification numbers noted herein may be different from those in the latest edition of the "Standard Specifications." The most current specification number shall apply. Each such referenced part shall be considered to be a part of these Contract Documents as though copied herein in full.

110-2.2 Certain referenced parts of the Standard Specifications are modified in the Specifications that follow. In case of conflict between the Standard Specifications and the Specifications that follow, the Specifications that follow shall govern.

110-2.3 Individual material test numbers change from time to time. Use the latest applicable test.

110-2.4 Reference in the Standard Specifications to the "Department" is herein changed to the "Owner".

END OF ITEM SS-110

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ITEM SS-120 CONSTRUCTION SAFETY AND SECURITY

DESCRIPTION

120-1.1 This item covers safety and security for construction of the proposed improvements.

The attention of the bidder is directed to the necessity for careful examination of the entire project site to determine, at the time of bid preparation, the full extent of work to be done under the item "Construction Safety and Security."

The item "Construction Safety and Security" shall include:

1. Lighted Barricades, Closed Taxiway Markers, and Lighted Runway Markers
2. Temporary Relocated Threshold
3. Temporary Signs
4. Airport Security Requirements
5. Airport Safety Requirements

CONSTRUCTION METHODS

120-2.1 LIGHTED BARRICADES, CLOSED TAXIWAY MARKERS, AND LIGHTED RUNWAY MARKERS. The Contractor shall furnish, install, maintain, and remove closed taxiway markers, lighted runway markers, and lighted barricades in accordance with details on the plans and as directed by the Engineer. The closed taxiway markers shall be aviation yellow, nylon-reinforced vinyl. The markers shall be secured to the pavement/ground as shown on the plans and as directed by the Engineer. The lighted runway markers and barricades shall be constructed and installed as shown on the plans. All lighted barricades, closed taxiway markers, and lighted runway markers shall be constructed in accordance with AC 150/5370-2G Operational Safety on Airports During Construction.

All work involved in the furnishing, installation, maintenance, fueling, and removal of lighted barricades, barrels, closed taxiway markers, and lighted runway markers will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.2 TEMPORARY RELOCATED THRESHOLD. Before commencing work within the air operations areas the Contractor shall temporarily relocate the Runway 18-36 thresholds as shown in the Plans. The Contractor shall furnish, install and maintain the temporary threshold in accordance with details on the Plans. The Contractor shall accomplish the relocation of the threshold within one 8-hour work shift. The Contractor shall remove the temporary threshold when work is complete within the safety area, and as directed by the sequence of construction in the Plans and by the Engineer.

Before relocating the threshold, the Contractor shall perform a Megger test from the regulator serving the runway in the presence of the Owner/Engineer. Data from the test shall be reported in writing to the Owner/Engineer. The Contractor shall determine the appropriate method of disabling the lights on the closed portion of the runway and shall verify the circuit prior to re-energizing. Strict adherence to OSHA Lockout/Tagout procedures is mandatory. The Contractor will be held responsible for any damage to the lighting system caused by his operations. Following restoration of the lighting system to its original/final configuration, the Megger test procedure shall be repeated by the Contractor in the presence of the Owner/Engineer, and the results of the test reported in writing to the Owner/Engineer.

All work involved in the furnishing, fabrication, installation, maintenance, and removal of the temporary relocated threshold, unless otherwise noted below, will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

Pavement markings for the temporary relocated threshold shall be paid for under P-620.

Temporary relocated threshold lights and any electrical connections required to maintain the temporary relocated threshold shall be considered part of SS-310 "Temporary Airfield Lighting."

120-2.3 TEMPORARY SIGNS. The Contractor shall furnish, install, maintain, and remove temporary signs in accordance with details on the plans and as directed by the Engineer. All temporary signs shall be constructed in accordance with AC 150/5370-2 Operational Safety on Airports During Construction, latest edition. All work involved in the furnishing, installation, maintenance, and removal of temporary signs will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.4 AIRPORT SECURITY REQUIREMENTS. The Contractor shall abide by the Airport Security requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). Any costs associated with the Airport Security requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.5 AIRPORT SAFETY REQUIREMENTS. The Contractor shall abide by the Airport Safety requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). All costs associated with the Airport Safety requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

MEASUREMENT AND PAYMENT

120-3.1 Construction safety and security will be measured as a lump sum complete item. Work completed and accepted under this item will be paid for at the contract lump sum price bid for "Construction Safety and Security", which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item SS-120-3.1 Construction Safety and Security - per Lump Sum

END OF ITEM SS-120

ITEM SS-130 TRENCH AND EXCAVATION SAFETY SYSTEMS

DESCRIPTION

130-1.1 This section covers trench and excavation safety system required for constructing improvements that necessitate open excavations on the project. All work under this item shall be in accordance with the current edition of the "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart "P", a copy of which may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

NOTIFICATIONS REQUIRED

130-2.1 The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.

The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b)(2) for the purpose of locating utilities and underground installations.

EXISTING STRUCTURES AND UTILITIES

130-3.1 Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.

The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the owner of the structure or utility and the Project Owner.

MEASUREMENT AND PAYMENT

130-4.1 The work required by this item will be paid for at the lump sum price bid for "Trench and Excavation Safety Systems", which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work. After award of the contract, the Contractor shall submit to the Engineer a breakdown of cost for work involved in the lump sum price bid for "Trench and Excavation Safety Systems" and shall, with each periodic payment request, submit a certification by the Contractor's "competent person" as defined in Subpart "P" 1926.650(b) that the Contractor has complied with the provisions of "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System", 29 CFR 1926 Subpart P for work for which payment is requested.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item SS-130-4.1 Trench and Excavation Safety Systems - per Lump Sum

END OF ITEM SS-130

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ITEM SS-300 BASIC ELECTRICAL REQUIREMENTS

DESCRIPTION

300-1.1 This item shall consist of furnishing and installing complete electrical systems as defined in the plans and in these specifications. The work includes the installation, connection and testing of new electrical systems, equipment, and all required appurtenances to construct and demonstrate proper operation of the completed electrical systems.

300-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

300-1.3 This work shall consist of lockout/tagout and constant current regulator calibration procedures at the airport electrical vault in accordance with the design and details shown in the plans and in compliance with these specification documents.

EQUIPMENT AND MATERIALS

300-2.1 STANDARDS.

a. Applicable National Fire Protection Association (NFPA) codes, including but not limited to:
   (1) NFPA 70 - National Electrical Code.
   (2) NFPA 70E - Standard for Electrical Safety in the Workplace.
   (3) NFPA 101 - Life Safety Code.
   (4) Internet Website: http://www.nfpa.org
b. Applicable Code of Federal Regulations (CFR) codes, including but not limited to:
   (1) 29 CFR 1910 - Occupational Safety and Health Standards (OSHA)
   (2) 29 CFR 1926 - Safety and Health Regulations for Construction.
   (3) Internet Website: http://www.gpoaccess.gov/cfr/index.html
c. ANSI/IEEE C2 - National Electrical Safety Code.
d. NECA 1 – Standard for Good Workmanship in Electrical Construction.
e. Applicable Federal, State and Local Electrical Codes.
f. Applicable Federal, State and Local Energy Codes.
g. Applicable Federal, State and Local Building Codes.
h. Applicable Federal, State and Local Fire Codes.
i. Applicable City Electrical Code.
j. Applicable City Ordinances pertaining to electrical work.
k. Applicable Federal, State and Local - Environmental, Health and Safety Laws and Regulations.

Contractor shall utilize the most current editions of standards, which are current at time of bid and as recognized by the Authority Having Jurisdiction for the respective standard.

300-2.2 GENERAL.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, current version on the date that the submittals are received by the RPR. When an equipment advisory circular is being updated and two equipment lists for the same specific equipment are listed in the current certified equipment AC 150/5345-53 addendum, only that equipment qualified to the latest advisory circular will be acceptable.

b. Airport lighting equipment and materials shall also meet the Buy American Preference requirements in 49 USC 50101 and the Aviation Safety and Capacity Expansion Act. The equipment shall be approved and listed on the FAA "Equipment Meeting Buy American Requirements" list located at *www.faa.gov/airports/aip/procurement/federal_contract_provisions/*, current version on the date that the submittals are received by the RPR, or the Contractor may submit a signed formal letter from the manufacturer that clearly lists the specific equipment, model number, location where it is manufactured, and statement certifying that the equipment and/or materials meet the Buy American Preference requirements.

c. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR. All equipment and materials shall be new and meet applicable manufacturer's standards. All electrical components and products shall be tested and listed by an OSHA accepted, nationally recognized testing laboratory (NRTL) to conform to the standards indicated in these contract documents and to the industry standards required in the NEC, NEMA, IEEE, UL, and applicable FAA advisory circulars.

d. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

e. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise, and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components or electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

f. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the Contract Documents plans and specifications. The RPR reserves the right to reject all equipment, materials, or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

g. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

(1) All LED light fixtures, except for obstruction lighting, shall be warranted by the manufacturer for a minimum of 4 years after date of installation, final acceptance testing by the RPR, and Owner's beneficial use of the equipment, inclusive of all electronics. Refer to FAA Engineering Brief No. 67D for additional requirements.

h. After approval of submitted equipment, the Contractor shall supply the following Operation and Maintenance Manual documentation to the Owner. Two (2) complete sets of documentation shall be supplied for each model of equipment. The documentation shall be securely bound in heavy-duty 3-ring binders. The information for each piece of equipment shall be indexed using typewritten label tabs. The spine of each binder shall have a typewritten label, which indicates the included equipment types. The documentation shall include:

(1) Approved Submittals and Shop Drawings
(2) Cable Splicer Qualifications, Type and Voltage
(3) State Contractors License with Electrical Classification
(4) Master, Journeyman and Apprentice Electrician Licenses and Certifications
(5) Lockout/Tagout Program
(6) Installation Manuals
(7) Operation Manuals
(8) Maintenance Manuals
(9) Parts Lists, including recommended spare parts. Recommended spare parts shall be furnished with the respective equipment.
(10) Ground Rod Impedance Test Reports
(11) Insulation Resistance Test Reports
(12) Regulator Load and Calibration Reports for testing, checking, and adjusting all regulators in the electrical vault

i. After approval of the O&M Manuals, the Contractor shall provide three (3) complete electronic copies of all documentation in Adobe PDF file format on CD-R (non-rewriteable) discs storage media. The electronic files shall contain searchable text and include a hyperlink index for ease in locating information with the PDF file.

j. All requirements herein Item SS-300 shall be applicable to all referenced sections in these contract documents and applicable to all sections, which reference Item SS-300.

k. The Contractor is the single source of responsibility for the installation and integration of the airport's lighting, power, and control systems. New airport lighting equipment and materials shall be fully compatible with all other new and existing airport lighting equipment and systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

300-2.3 OPERATION AND MAINTENANCE DATA.

Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment. Provide bound hard copies and electronic copies as noted in section 300-2.2.

a. Certificate of Substantial Completion, Release and Contractor's Affidavit, executed copies.

b. Final approved equipment submittals, including product data sheets and shop drawings, clearly labeled.

c. Installation manuals: Description of function, installation and calibration manuals, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.

d. Operations manuals: Manufacturer's printed operating instructions and procedures to include start-up, break-in, routine, and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; summer and winter operating instructions; and all programming and equipment settings.

e. Maintenance manuals: Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

f. Service manuals: Servicing instructions and lubrication charts and schedules, including the names and telephone numbers of personnel to contact for both routine periodic and warranty service for equipment and materials provided under this Specification.

g. Final test reports, clearly labeled, including but not limited to, insulation resistance test reports, ground rod impedance test reports, cable pulling tension values logs, and equipment certification tests.

h. Final certified calibration sheets for all equipment and instruments.

i. Preventive maintenance programs for the visual aid facilities and equipment installed in this project, including the applicable equipment sections within Chapter 5 "Preventive Maintenance" from AC 150/5340-26 (latest edition) "Maintenance of Airport Visual Aid Facilities".

300-2.4 WIRE.

Unless otherwise indicated, conductors No. 10 AWG and smaller shall be solid, and conductors No. 8 AWG and larger shall be stranded.

For electrical work of 600 volts or less, all conductors, terminations, terminal blocks, lugs, connectors, devices, and equipment shall be listed, marked, and rated 75 degrees C minimum unless otherwise noted.

Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway. Pull ropes and pull wires shall have sufficient tensile strength for the cable(s) to be pulled and installed. Damaged cable or raceway shall be replaced at no additional cost to the Owner. Calculate and do not exceed the maximum allowable pulling tension or maximum allowable sidewall bearing pressure for all conductors and cables.

Install pull wires in empty raceways. Use a polypropylene plastic line with not less than 200-pound tensile strength. Secure and leave at least 12 inches of slack at each end of pull wire to prevent it from slipping back into the conduit. Cap spare raceways with removable tapered plugs, designed for this purpose.

Colorable L-824 cable in solid non-fading colors shall not be used for permanent series circuit identification.

300-2.5 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal.

The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Copies of the National Electrical Code may be obtained from the National Fire Protection Associations, Inc., One Batterymarch Park, Quincy, Massachusetts 02269.

300-2.6 CONCRETE. Concrete shall conform to Item P-610, Concrete for Miscellaneous Structures, with a minimum 28-day compressive strength of 4000 PSI (unless otherwise noted) using 1-inch (25-mm) maximum size coarse aggregate, as determined by test cylinders made in accordance with ASTM C 31 and tested in accordance with ASTM C 39.

Flowable backfill material may only be used where specifically indicated in the Plan details.

CONSTRUCTION METHODS

300-3.1 LOCKOUT/TAGOUT PROGRAM. The Contractor shall provide a complete copy of an electrical energy source Lockout/Tagout Program to the Owner, with copy to the RPR. The document shall clearly

identify the on-site master electricians and their contact information, including office and mobile telephone numbers.

The Lockout/Tagout Program shall comply with Part 1910 – Occupational Safety and Health Standards (OSHA) Subpart S – Electrical, and meet the requirements of 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), including requirements listed in 1910.331 through 1910.335.

Implementation of the Lockout/Tagout Program and all other related safety requirements are the sole responsibility of the Contractor.

300-3.2 SAFETY PROGRAM. The Contractor shall implement an electrical safety program that complies with NFPA 70E and 29 CFR 1926.

Implementation of the Electrical Safety Program, determining and providing proper Personal Protective Equipment (PPE), training and enforcing personnel to wear the prescribed PPE, conducting work area safety inspections (including correcting deficiencies), and all other related safety requirements are the sole responsibility of the Contractor.

All work involved in the preparation and implementation of the safety program will not be measured for separate payment but will be considered subsidiary to the lockout/tagout bid item.

300-3.3 PRECONSTRUCTION MEETING.

A preconstruction meeting will be held with the Airport, FAA, RPR and Contractor, prior to any work. Complete submittals and shop drawings will be submitted at this time for review. An equipment procurement schedule will be provided by the Contractor with an anticipated field construction start date. The progress construction schedule will be submitted for review each week and shall outline all installation, testing and demolition work.

300-3.4 GENERAL.

The Contractor shall be responsible for coordinating all electrical work with the Utility. The Contractor shall provide temporary service conductors and raceway system. The Contractor shall then provide and connect permanent service conductors and raceway system after the completion.

All secondary conductors and controls, signaling and lighting shown in or on buildings are included in this project. Electrical service shall be extended from the service equipment as indicated.

In general, the various electrical equipment and material to be installed by the various trades under this specification shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards to complete the work in a neat and satisfactory manner. The following is a general outline concerning the running of various systems and is to be expected where the drawings or conditions at the buildings necessitate deviating from these standards.

The drawings and specifications are complementary; any work required by one, but not by the other, shall be performed as though required by both.

The Contractor shall maintain copies of all equipment installation manuals on site during construction.

All conduits shall be run exposed in the equipment rooms or run concealed as indicated.

The construction details of the building are illustrated on the drawings. Each Contractor shall thoroughly acquaint himself with the details before submitting his bid as no allowances will be made because of the Contractor's unfamiliarity with these details.

The electrical plans do not give exact locations, etc., and do not show all the offsets, control lines, junction boxes, and other installation details. Each Contractor shall carefully lay out his work at the site to conform to the job conditions, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide complete operating systems.

The electrical plans show diagrammatically the locations of the various electrical outlets and apparatus and the method of circulating and controlling them. Exact locations of these outlets and apparatus shall be determined by reference to the general plans and to all detail drawings, etc., by measurements at the buildings, and in cooperation with other crafts, and in all cases shall be subject to the approval of the RPR. The RPR reserves the right to make any reasonable change in location of any outlet or apparatus before installation, without additional cost to the Owner.

These Specifications and the accompanying Drawings are intended to cover systems which will not interfere with the structure of the buildings, which will fit into the several available spaces, and which will insure complete and satisfactory systems. Each bidder shall be responsible for the proper fitting of his material and apparatus into the buildings.

Should the particular equipment which any bidder proposes to install require other space conditions than those indicated on the Drawings, he shall arrange for such space with the RPR before submitting his bid. Should changes become necessary because of failure to comply with this clause, the Contractor shall make such changes at the Contractor's expense.

Should the particular equipment which any bidder proposes to install require other installation methods, such as larger light base junction structures, etc., he shall include all such equipment and appurtenances in his bid. Should changes become necessary because of failure to coordinate equipment requirements and comply with this clause, the Contractor shall make such changes at the Contractor's expense.

The Contractor shall be responsible to see that each party furnishes electrical equipment which meets the electrical requirements specified herein and that all systems work together to produce the specified operation.

Where two or more units of the same kind or class of equipment are required, these shall be products of a single manufacturer; however, the component parts need not be the products of one manufacturer.

Each Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these Specifications and Plans, which shall be checked by the RPR and approved before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

Electrical equipment, such as switchgear, switchboards, panelboards, load centers and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

All electrical equipment shall be securely mounted as indicated in the plans, as required by the contract specifications, as required by guidelines and codes, and as required by the manufacturer using hardware compliant with the environmental conditions.

Interior components of electrical enclosures shall be securely mounted using appropriate hardware within the enclosure. Adhesives or adhesive tapes/strips are not allowed and are prohibited.

Electrical components, including but not limited to, relays, circuit boards, electronics, etc., shall be installed within approved enclosures.

The Contractor shall keep ends of conduits, including those extending through roofs, equipment and fixtures covered or closed with caps or plugs to prevent foreign material from entering during construction.

Where portions of raceways are known to be subjected to different temperatures, where condensation is a problem, and where passing from interior to exterior of a building, the portion of raceway or sleeve shall be filled with an approved material to prevent the circulation of air, prevent condensation, and prevent moisture entry. Sealing of raceways shall not occur until after the conductors and cables have been installed, tested, and accepted by the RPR.

The Contractor shall install any temporary lines and connections required to maintain electric services and safely remove and dispose of them when complete.

All temporary wiring shall conform to OSHA standards. Remove temporary services when work is complete. Any damage to electrical equipment caused by the Contractor shall be repaired at no cost to the Owner.

All non-current carrying parts and neutrals shall be grounded as indicated on the Drawings or as required by the Codes.

White and/or gray outer finish conductors may only be used as grounded conductors or neutral conductors in accordance with NEC.

Install insulated green equipment grounding conductors with all feeder and branch circuits.

Provide separate insulated equipment grounding conductors from grounding system to each electrical equipment, telecommunication equipment, other special electrical system equipment, and appurtenance item location in accordance with NFPA 70 and other applicable standard requirements.

The bidder shall inspect the site, thoroughly acquaint himself with conditions to be met and work to be accomplished. Failure to comply with this shall not constitute grounds for any additional payments.

Where electrical equipment is installed that causes electrical noise interference with other systems either existing or installed under this contract, the offending equipment shall be equipped with isolating transformers, filters, reactors, shielding, or any other means as required for the satisfactory suppression of the interferences, as determined by the RPR.

All junction boxes, expansion joints, flexible connections, instruments and similar items requiring servicing or repairs shall be installed in an accessible location.

All salvage and equipment removed by the work shall remain the property of the Owner. Material removed from the project shall be stored on the project site where and as directed. Debris shall be removed from the job site and disposed of by the Contractor.

The Contractor shall always maintain his work area clean and orderly. Debris shall be removed promptly. The electrical system shall be thoroughly cleaned inside and outside of all enclosures to remove all metal shavings or other work debris, dust, concrete splatter, plaster, paint, and lint.

The Contractor shall do all excavating and backfilling made necessary by electrical work and shall remove all surplus or supply any earth required to establish the proper finished grade.

The Contractor shall do all cutting and patching made necessary by electrical work, but in no case shall he cut through or into any structural member without written permission of the RPR.

All steel conduits, supports, channels, fittings, nuts, bolts, etc. shall be galvanized, corrosion-resistant type unless otherwise noted.

An approved anti-seize compound shall be used on all threads to prevent equipment and thread damage.

Equipment shall be installed in accordance with manufacturer's recommendation. Make all final electrical connections and coordinate all items with other trades.

Correct unnecessary damage caused due to installation of work, brought about through carelessness or lack of coordination. All openings, sleeves, and holes to be properly sealed, fire proofed and waterproofed. Any water leaks arising from project construction will be immediately corrected to the satisfaction of the Owner and the RPR.

300-3.5 POWER SUPPLY EQUIPMENT. Electrical equipment, such as switchgear, switchboards, panelboards, load centers, and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

If shown in the plans, the power supply equipment shall be set on concrete housekeeping pads to provide a minimum space of 3-1/2 inches between the equipment and the floor. All equipment shall be secured to the floor or wall in accordance with the manufacturer's recommendations and these contract document requirements.

300-3.6 DUCT AND CONDUIT. Conduits shall be galvanized rigid steel unless otherwise indicated or specified. Refer to one-line diagram conduit notes for specific requirements.

Conduit runs shall be one trade size continuously with no reducers allowed. Changing of conduit size is only permitted at manholes, handholes, and boxes and conduit bodies used as outlet, device, junction, or pull boxes, including approved, listed fittings with removable covers.

Use an approved, listed adapter/coupling to convert to other types of conduit. Reducer couplings are not allowed.

For underground service entrance, feeder and branch circuit raceways, offsets and bends over 30 degrees and elbows in Schedule 40 PVC conduit runs shall be Schedule 80 PVC conduit. Underground service entrance PVC conduits shall be concrete encased unless otherwise noted. Underground PVC conduits shall be concrete encased under driveways, roadways, parking lots and other paved areas.

Non-encased conduits shall convert to concrete encased ducts under all paved areas and shall extend at least 3 feet beyond the edges of the pavement unless otherwise noted.

The Contractor shall provide a staked centerline or offset for the duct and manhole system - utilizing the drawings and a site inspection of the existing grounds, grades, and utility crossings. The Owner and RPR shall approve the staking plan that shall be indicated on a drawing submitted for approval before starting any excavation for the ducts. The staking plan shall indicate the proposed location, elevation, and dimensions of manholes and handholes. The RPR reserves the right to adjust duct, manhole and handhole locations and elevations before installation at no additional cost to the Owner.

The bottom surface of trenches shall be essentially smooth and free from coarse aggregate.

Install grounding-and-bonding type bushings and bonding jumpers on all service entrance conduits and on all feeder and branch circuit conduits.

Use conduit bushings at each conduit termination. Where No. 4 AWG or larger ungrounded wire is installed, use insulated bushings.

When EMT is allowed, utilize only steel compression fittings. Die-cast and set-screw fittings shall not be used.

Use double lock nuts at each conduit termination. Use weather tight hubs in damp and wet locations. Sealing lock nuts shall not be used.

Grounding continuity to rigid metal conduit shall be accomplished by grounding bushings/adapters with lugs for connection to grounding counterpoise and/or grounding electrode conductor as defined by NEC.

All exposed wiring shall be run in not less than 1/2 inch (12 mm) galvanized rigid steel conduit. All conduits shall be installed to provide for drainage. Conduit shall be attached to wooden structures with galvanized pipe straps and fastened with galvanized wood screws not less than No. 8 nor less than 1-1/4 inches (31 mm) long. There shall be at least two fastenings for each 10-foot (3 m) length.

Existing ducts may require clearing before use. It is the responsibility of the Contractor to locate the existing ducts, identify empty or partially empty conduits and clear the conduits as required. Where new cable is to be installed in existing duct, the full length of the duct shall be cleared of debris by mechanical means before the installation of the new cable. Acceptable methods of clearing existing ducts include "hydro-jetting" and "roto-rooting." All existing cables in each re-used duct shall be replaced for the length of the duct and properly spliced in a method approved by the RPR. Clearing of existing duct banks or conduits is incidental to the cable pay item.

Dedicated ground rods shall be installed and exothermically welded to the counterpoise wire at each end of a duct bank crossing under pavement.

For concrete markers, the impression of letters shall be done in a manner, approved by the RPR, to affect a neat, professional appearance. The letters shall be stenciled neatly. After placement, all markers shall be given one coat of high-visibility aviation orange paint, as approved by the RPR.

Existing concrete markers or survey pins for runway thresholds, duct/conduit/cable/splice markings, utility line markings, taxiway points of tangency markings, or other similar items shall be removed and reinstalled or replaced, depending on the project work requirements, as required by a registered professional surveyor to the satisfaction of the Owner and the RPR.

300-3.7 JUNCTION BOXES.

Junction cans shall have both internal and external ground lugs. Size (diameter) and depth shall be as specified in the plans.

Galvanized cans shall have an external ground lug for mechanical connection/bolting ground clamps bonding.

300-3.8 BACKFILL, COMPACTION, AND RESTORATION. Refer to the backfill, compaction and restoration requirements within Item P-152 where other compaction requirements are specified (under pavements, embankments, etc.)

Trenches shall be backfilled and compacted in 6" layers to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D6938.

Backfilling from two directions will not be allowed. No backfilling will be accomplished without the approval of the RPR or Construction Observer. The Contractor shall ensure all trenches are inspected prior to being covered and prior to encasement. Any uninspected trenches which are prematurely covered shall be exposed for inspection at the RPR and Owner's convenience at no additional cost to the Owner. The Construction Observer will coordinate with the Contractor for advance scheduling of trench inspection.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD) and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

All concrete/asphalt pavement removal and repair work shall be installed as separate pay items in accordance with Specification P-101 Preparation/Removal of Existing Pavements.

The subgrade below the removed pavement shall be compacted to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D2922. Subgrade preparation will not be measured for separate payment, but will be considered subsidiary to Specification P-101 Preparation/Removal of Existing Pavements.

300-3.9 CABLE AND UTILITY COORDINATION. The existing and the proposed locations of lighting cable are approximate. The Contractor shall be responsible for field locating and identifying the existing lighting circuits to determine their exact routing. The Contractor shall also be responsible for maintaining the lighting systems in a working condition until the new lighting circuits have been installed and tested. The Contractor shall proactively and expeditiously accomplish this cable identification work prior to performing any modifications to the lighting circuits. Coordinate identification work with the Owner and RPR and make all corrections, additions, etc. on the as-built drawings.

Underground cable and utilities exist within and adjacent to the limits of construction. An attempt has been made to locate these cables and utilities on the Plans. All existing cable and utilities may not be shown on the Plans and the location of the cables and utilities shown may vary from the location shown on the Plans. Prior to beginning of any type of excavation, the Contractor shall contact the utilities, the airport maintenance staff, FAA field personnel and other organizations as required and make arrangements for the location of the utilities on the ground. The Contractor shall maintain the cable and utility location markings until they are no longer required.

The Contractor shall replace or repair any underground cable or utility that has been damaged by the Contractor during excavation to the satisfaction of the owner of the cable or utility at no additional cost to the Owner.

The Contractor shall be responsible for all coordination work associated with existing and new utilities, their marking, their identification, proposed outages/shutoffs, connections, cutovers, etc.

300-3.10 WIRING. The Contractor shall furnish all labor and materials and shall make complete electrical connections in accordance with the wiring diagram furnished with the project plans. The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Provide color-coding for phase identification.

Colors for 240/120V Circuits:

a. Phase A: Black
b. Phase B: Red
c. Neutral: White

Colors for 208Y/120V Circuits:

a. Phase A: Black
b. Phase B: Red
c. Phase C: Blue
d. Neutral: White

Colors for 480Y/277V Circuits:

a. Phase A: Brown
b. Phase B: Orange
c. Phase C: Yellow
d. Neutral: Gray

All new electrical cable shall be marked using color-coded plastic electrical tape, which is specifically designed for application on polyethylene-jacketed cable. The tape shall be applied as detailed on the Plans. Marking tape shall be Scotch 35 Vinyl Plastic tape or approved equal.

300-3.11 MARKING AND LABELING. Properly identify all electrical equipment.

Wire/Cable Designation Tape Markers:

a. Indoor Dry Locations: UL Recognized Materials, vinyl or vinyl-cloth, self-adhesive, wraparound, self-laminating, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-427 with thermal transfer print type or approved equal.

b. Outdoor Locations and Indoor Wet and Damp Locations: White polyolefin, non-adhesive, full circle, heat-shrinkable sleeve, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-342 with thermal transfer print type or approved equal.

Properly identify all electrical equipment, including but not limited to the following:

a. Switchgear, switchboards, and control panels.
b. Main distribution panel and individual devices within it.
c. Panelboards and individual devices within it.
d. Safety switches and disconnects.
e. Contactors and lighting control center, including all branch circuits.
f. Individually mounted circuit breakers.
g. Starters and relays.
h. Transformers.
i. Generators and automatic transfer switches.

Use permanently attached black phenolic plates with 3/8" white engraved lettering on the face of each, attached with minimum two sheet metal screws. Starters and relays connected under this Specification shall be identified whether furnished under this Specification or under other Specifications of this contract. Plates shall be indoor or outdoor rated as required by installation location.

Panelboard identification plates shall indicate panel by identification name, voltage system, ampacity rating and type, AIC rating, and feeder source description.

Identify each receptacle, light switch, junction box, etc. with panelboard identification and circuit number. For all wiring device covers, use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

Identify fire alarm junction boxes with red covers and mechanical control junction boxes with blue covers.

Install all identification as required by current adopted editions of the NFPA 70 - National Electrical Code and NFPA 70E - Standard for Electrical Safety in the Workplace.

300-3.12 REMOVAL AND RELOCATION OF EXISTING EQUIPMENT. The Contractor shall carefully remove all salvageable equipment as indicated on the Plans. Any equipment which is damaged during the removal operation shall be subject to a reduction in payment for removal of the equipment. All equipment which is removed during this project shall be transported to a site on the Airfield or removed from the Airfield and properly disposed of as directed by the Owner and the RPR.

The Contractor shall carefully relocate existing equipment as indicated in the Plans. Any equipment that is damaged during the relocation operation shall be replaced at no additional cost to the Owner.

Any existing electrical equipment, conduit, cables, etc. that is damaged during construction shall be replaced at no additional cost to the Owner to the satisfaction of the Owner and the RPR.

300-3.13 5 kV AND UNDER 600V CABLE CONNECTIONS.

Cable splicing/terminating personnel shall be licensed electricians who have the minimum continuous experience in terminating/splicing medium voltage cable as listed in Item L-108. The qualifications for these airfield lighting cable splicers shall be submitted for review and approval by the RPR prior to any work. The RPR may request sample splices be performed in his presence by the proposed personnel to clearly demonstrate that they have the skill and experience to perform this work. Connector kits and cables shall be provided in sufficient quantity by the Contractor in demonstrating these qualifications at no additional cost to the Owner.

Field-attached plug-in splices using FAA certified L-823 plug and receptacle connector kits, properly sized to the cable being used, shall be installed as shown in the plans. This work shall include the taping and heat shrinking. Refer to Item L-108 for additional requirements.

As an option, the Contractor may utilize enhanced FAA certified L-823 connector kits, such as the Amerace 54Super Kit. These kits do not require taping or heat shrinking. These kits shall be installed in accordance with the manufacturer's installation requirements. Note that the mixing of connector kits is unacceptable. The Contractor shall clearly list and submit the connector kits he proposes to utilize on the project for approval prior to any field construction work, and he shall only install that type during construction unless otherwise noted by the RPR.

For under 600V cable connections of voltage powered circuits, splices whether direct buried or within an underground enclosure shall only utilize approved cast splices, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M Company, or an approved equivalent.

300-3.14 CERTIFICATION AND PERFORMANCE. Equipment and materials covered by FAA Advisory Circulars are referred to by item numbers and approved equipment is listed within the AC 150/5345-53 Airport Lighting Equipment Certification Program's monthly Addendum, which contains a complete and updated listing of the certified equipment and manufacturers and is listed in the FAA Buy American Preference equipment list, which is also updated monthly. The Contractor shall provide and install new certified equipment that works reliably and efficiently with the existing equipment to remain in service. The Contractor shall provide any additional accessories and/or appurtenances required to provide fully functional electrical systems to the satisfaction of the Owner and RPR, at no additional cost to the Owner.

The Contractor shall ascertain that all lighting system components furnished (including FAA certified and approved equipment) are compatible in all respects with each other and the remainder of the new and existing systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

300-3.15 AS-BUILT DRAWINGS. The Contractor shall keep one (1) full-sized set of prints for As-Built Drawings at the site, in good order, and annotated to show all changes made during the construction process.

The Contractor shall locate all underground and concealed work, identifying all equipment, conduit, circuit numbers, motors, feeders, breakers, switches, and starters. The Contractor will certify accuracy by endorsement. As-Built drawings shall be correct in every detail, so Owner can properly operate, maintain, and repair exposed and concealed work.

The As-Built drawings shall indicate all control system labeling and marking.

The Contractor shall store the As-Built drawings on the site. Drawings shall not be rolled. Make corrections, additions, etc., with pencil, with date and authorization of change.

As-Built drawings must be submitted to RPR before project will be accepted.

Minor deviations from the Plans and Specifications shall be as approved by the RPR.

Upon completion of the installation, the Contractor shall adjust the systems to the satisfaction of the RPR.

300-3.16 TESTING.

General Electrical Testing: Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification and certify compliance with test parameters. Tests shall be conducted in the presence of the RPR and shall be to his/her satisfaction. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest. Perform infrared scan tests and inspections of service and power distribution equipment at the respective buildings and provide reports. Electrical equipment will be considered defective if it does not pass tests and inspections. Reports shall include notations of deficiencies, remedial action taken and observations after remedial action.

System and Equipment Testing: All installations shall be fully tested by continuous operation for not less than 24 hours as completed systems prior to acceptance. These tests shall include the functioning of each control not less than 10 times.

Test equipment and instruments utilized by the Contractor shall have been calibrated following the manufacturer's recommended schedule to verify their accuracy prior to performing the testing work. The Contractor shall provide instrument calibration certificates on test equipment when requested by the RPR. Retesting work due to inaccurate or defective instruments shall be performed by the Contractor to the satisfaction of the RPR at no additional cost to the Owner.

a. Regulator Calibration:

The Contractor shall check and calibrate both new and existing regulators utilizing the enclosed "Constant Current Regulator Calibration Report". Refer to the material section on constant current regulators for additional requirements.

New regulators are calibrated at the factory prior to shipping, while existing regulators typically need checks and calibrations on a routine basis so that they do not get out of tolerance. The intent is to check and/or calibrate these regulators using a high accuracy meter prior to energizing and placing the airfield lighting system in service.

Utilize a high accuracy true RMS ammeter with high accuracy clamp-on current probe when making these measurements (use round type probes, accuracy + or – 2% required, sized per the cable diameter and circuit ampacity to achieve the best accuracy). Adjust regulators per manufacturer's instructions to meet the output currents on each brightness step as listed in Tables 5-2 and 5-3 in AC 150/5340-26.

b. Megger Testing:

The Contractor shall perform megger testing on each existing regulator circuit prior to any work on the electrical system. This information shall be recorded and documented by the Contractor and submitted to the RPR. The Contractor shall perform megger tests on each regulator circuit after the acceptance test period. This acceptance test information shall be recorded and documented by the Contractor and submitted to the RPR. Megger test shall be performed in accordance with the requirements of Item L-108.

The Contractor shall submit his initial megger test reports on the enclosed "Insulation-Resistance Test Report" form prior to any work on the electrical system. This report shall

If the ground rod's impedance exceeds 25 ohms, an additional rod shall be driven in a location suitable and approved by the RPR. However, the additional rod must satisfy the requirements of NEC 250.53 and not be less than 6 feet away from any other ground rod electrode. Additional ground rods shall not be measured for separate payment but shall be considered subsidiary to the counterpoise or respective equipment pay item.

The Contractor shall perform additional tests if required and requested by the RPR at no additional cost.

The Contractor shall coordinate with the resident RPR to approve tests daily before proceeding. The Contractor shall fill out a separate test report for each date. Test reports shall be submitted weekly to the RPR.

Airport lighting equipment and special systems shall be tested in accordance with applicable FAA Advisory Circular requirements and the manufacturer's installation instructions. These tests shall also include those system requirements listed within AC 150/5340-26 Maintenance of Airport Visual Aid Facilities.

300-3.17 INSPECTION FEES AND PERMITS. The Contractor shall obtain and pay for all necessary construction permits, licenses, government charges, and inspection fees necessary for prosecution of the Work. Unless otherwise noted, the Contractor shall pay all charges of utility owners for connections for providing permanent service to the Work, ready for subsequent utility account transfer to the Owner after final acceptance.

300-3.18 WORK SUPERVISION.

State of Texas: The electrical contractor (whether the general contractor or a subcontractor) shall be a licensed contractor in the state of Texas having an electrical classification suitable for performing the work required in these contract documents.

The Contractor shall designate in writing the qualified electrical supervisor who shall provide supervision to all electrical work on this project. The minimum qualifications for the electrical supervisor shall be a master electrician as defined by Texas Electrical Safety and Licensing Advisory Board. The supervisor or his appointed alternate possessing at least a journeyman electrician license shall be on site whenever electrical work is being performed. The qualifications of the electrical supervisor shall be subject to approval of the Owner and the RPR.

All master and journeyman electricians shall be licensed in accordance with Texas Board requirements. The website located at https://www.tdlr.texas.gov/electricians/elecIaw.htm publishes the text of this statutory requirement. No unlicensed electrical workers shall perform electrical work on this project. Apprentice electricians in a ratio of not more than one apprentice per journeyman electrician will be allowed if the apprentices are licensed and actively participating in an apprenticeship program recognized and approved by the Texas Electrical Safety and Licensing Advisory Board.

300-3.19 TRAINING. The training classes shall be coordinated with the Owner and RPR in advance of the final acceptance testing. Comprehensive operational and maintenance training materials shall be provided by the equipment manufacturer and the Contractor (see section 2.3 OPERATION AND MAINTENANCE DATA).

a. Operations and Maintenance:
   (1) One class, 4 hours in length.
   (2) Maximum of six (6) people.
   (3) Location at the discretion of Airport.
   (4) Equipment
      i. L-861T(L) Taxiway Edge Light

ii. L-858(L) Airfield Guidance Sign
iii. L-830 Isolation Transformer
(5) Provide training materials.
(6) Include hands on troubleshooting specifics.

b. Preventive Maintenance Program Recommendations
(1) Equipment
i. L-861T(L) Taxiway Edge Light
ii. L-858(L) Airfield Guidance Sign
iii. L-830 Isolation Transformer
(2) Go over failure scenarios and what to do.
(3) Provide technical assistance points of contact and phone numbers.

Schedule the training with the Owner at least 10 days in advance and notify the RPR.

Provide hands-on demonstrations and training of equipment components and functions, including adjusting, operating, and maintaining the lighting equipment and systems. Coordinate the training schedule with the Owner in advance, so that the Owner may record the training if desired. Provide 4 hours training for the operational personnel and 4-hours training for the maintenance personnel.

All training sessions shall be recorded, and documentation of training shall be turned over to the Owner as part of the O&M materials at project completion.

METHOD OF MEASUREMENT

300-4.1 The quantity of lockout/tagout and constant current regulator calibration procedures to be paid for shall consist of all lockout/tagout procedure work and all constant current regulator calibration work completed in place, accepted and ready for operation. This item does not include measurement for constant current regulator equipment.

BASIS OF PAYMENT

300-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-300-5.1	Lockout/Tagout and Constant Current Regulator Calibration Procedures – per Lump Sum

MATERIAL REQUIREMENTS

Commercial Item Description A-A-59544	Cable and Wire, Electrical (Power, Fixed Installation)
Fed. Spec. W-C-1094	Conduit and Conduit Fittings; Plastic, Rigid
Fed. Spec. W-P-115	Panel, Power Distribution
Fed. Std. 595	Colors

Underwriters Laboratories Standard 6	Rigid Metal Conduit
Underwriters Laboratories Standard 514	Fittings for Conduit and Outlet Boxes
Underwriters Laboratories Laboratories Standard 651	Schedule 40 and 80 Rigid PVC Conduit (for Direct Burial)
Underwriters Laboratories Standard 1242	Intermediate Metal Conduit
CFR 1910	Occupational Safety and Health Regulations
CFR 1926	Safety and Health Regulations for Construction
ANSI/IEEE C2	National Electrical Safety Code
NFPA 70	National Electrical Code (NEC)
NFPA 70E	Standard for Electrical Safety in the Workplace
NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems
29 CFR 1910	Occupational Safety and Health Standards (OSHA)
29 CFR 1926	Safety and Health Regulations for Construction
Jaquith Industries, Inc.	The Design, Installation, and Maintenance of In-Pavement Airport Lighting

FAA ADVISORY CIRCULARS

AC 150/5300-13	Airport Design
AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 for Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Base and Transformer

	Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Taxiway and Runway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Isolation Transformers for Airport Lighting Systems
AC 150/5345-53	Airport Lighting Equipment Certification Program

END OF ITEM SS-300

CONSTANT CURRENT REGULATOR CALIBRATION REPORT

Standard Requirements: FAA AC 150/5340-26 (latest edition) Maintenance of Airport Visual Aid Facilities

Owner / Sponsor:_____ Engineer: Garver, LLC_____

Airport: _____ Contractor: _____

Project Title: _____ Garver Project Number:_____

Vault ID / Location: _____ Date: _____

Weather / Site Conditions: _____ Last Two Weeks of Rain: _____inches

Constant Current Regulator #: _____ Serves: _____

	Completed	Comments
1. Check all control equipment for proper operation.	☐	_____
2. Perform short-circuit test. Record results and recalibrate if necessary.	☐	_____
3. Perform open-circuit test on regulators with open circuit protection. Open circuit protective device should de-energize the regulator. Record results.	☐	_____
4. Check and record regulator input voltage and current.	☐	_____
Input Voltage: _____ Input Current: _____		
5. Check and record regulator output load. (ONLY if regulator has monitoring package)	☐	_____
Volt-Amperes: _____		
6. Check and record output current on each brightness step. If output current is outside of the allowable range, adjust the regulator's on-board potentiometer to re-calibrate the output current within the allowable range. Re-record the new output current on this form.	☐	_____

3-Step CCR: B10: _____ B30: _____ B100: _____

5-Step CCR: 1: _____ 2: _____ 3: _____ 4: _____ 5: _____

Nominal:	4.8A	5.5A	6.6A	2.8A	3.4A	4.1A	5.2A	6.6A

Tested By: _____ (Signature and Date)

Test Equipment: _____ (Manufacturer and Model No.)

RPR Witness: _____ (Signature and Date)

Owner / Sponsor Witness: _____ (Signature and Date)

INSULATION RESISTANCE TEST REPORT

Owner / Sponsor:_____ Engineer: Garver, LLC_____

Airport:_____ Contractor: _____

Project Title: _____ Garver Project Number:_____

Vault ID / Location: _____ Date Initial / Final Tests: _____

Weather / Site Conditions (Initial Test): _____ Last Two Weeks of Rain:_____inches

Weather / Site Conditions (Final Test): _____ Last Two Weeks of Rain:_____inches

		Initial Test Results		Final Test Results	
	Circuit Designation and Color Code	Regulator Size (kW)	Megger Reading Before Field Work (Megohms)	Regulator Size (kW)	Megger Reading After Field Work (Megohms)
1					
2					
3					
4					
5					
6					
Tested By:					
Test Equipment:					
RPR Witness:					
Owner/Sponsor Witness:					

Provide signature/date and manufacturer/model no. as required in the fields above.

Initial Test Record – Owner Disposition

Owner / Sponsor: _____ (Signature and Date)

Check one only: ☐ Proceed with Installation ☐ Hold

GROUND ROD IMPEDANCE TEST REPORT

Owner / Sponsor: _____ Engineer: Garver, LLC _____

Airport: _____ Contractor: _____

Project Title: _____ Garver Project Number: _____

Date: _____ Weather / Site Conditions: _____

Fall-of-Potential Style Tester (F):
Manufacturer: _____ Model #: _____

Clamp-On Style Tester (C):
Manufacturer: _____ Model #: _____

Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)	Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)

Tested By:	
RPR Witness:	

Provide signature/date in the fields above.

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ITEM SS-301 ELECTRICAL DEMOLITION WORK

DESCRIPTION

301-1.1 This item shall consist of the removal and satisfactory disposal of existing runway and taxiway edge lights, in-pavement lights, guidance signs, markers, manholes, handholes, junction structures, racks, pads, equipment, poles, towers, shelters, and other incidentals, all of which are not designated or permitted to remain, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. This work shall include the removal of indicated equipment, materials, and incidentals necessary for a complete item removal, including all restoration work, as a completed unit to the satisfaction of the RPR.

301-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

MATERIALS

301-2.1 All backfill and repair materials used in electrical demolition, repair and restoration work shall comply with the referenced specifications and be approved by the RPR.

Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300 and Item L-125.

CONSTRUCTION METHODS

301-3.1 GENERAL. No demolition shall be started until the removal and/or relocation work has been laid out and approved by the RPR. All material shall be disposed of off-site. All hauling and disposal will be considered a necessary and incidental part of the work. Hauling cost shall be considered by the Contractor and included in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

Equipment removal shall typically include removing the equipment and its accessories, removing foundations/pads, removing existing conduits, conductors and appurtenances, removal of conduit to below grade, and removal of existing circuits back to source. The work shall include restoring the area to match existing, including filling and tamping all holes with earth, and clearing and leveling the site.

The Contractor shall remove all existing underground cable, which is unused or rendered unusable by this project, when such is exposed or made accessible during this work. All such wiring removed shall become property of the Contractor and shall be immediately removed from the project. Wiring in conduit shall be removed as indicated or if new wiring is shown to be installed in its place. Existing wiring shall not be reused or reinstalled.

Wiring not exposed shall be abandoned in place if a reasonable effort will not remove it. No measurement or payment will be made for this cable removal work. Damage to turf or other systems will not be permitted to salvage or retrieve existing cable.

Any damage to electrical equipment, systems, structures, conduits, cables, and accessories or other utilities, designated to remain in place, shall be repaired or replaced expeditiously at no additional cost to the Owner and to the satisfaction of the Owner and RPR.

Holes, ditches, or other abrupt changes in elevation caused by the removal operations that could obstruct drainage or be considered hazardous or unsightly shall be backfilled, compacted, and left in a workmanlike condition.

Trenches or voids resulting from the removal or demolition of existing electrical equipment or other structures shall be filled with approved material placed in layers in accordance with Item P-152.

Concrete foundations and pads to be removed shall be obliterated full depth.

301-3.2 REMOVAL AND/OR RELOCATION OF LIGHT FIXTURES AND EQUIPMENT. Light fixtures and other equipment which are to be removed shall be carefully excavated. All concrete bases and concrete anchors shall be removed by the Contractor. The removed lights, guidance signs, isolation transformers and wiring harnesses shall then be given to the Owner, or properly disposed of if so, directed by the Owner. The ground around the removed lighting equipment shall be backfilled and properly compacted. Light fixtures and equipment which are to be relocated shall be stored on site and reinstalled with new lamps, new transformers, and all other new required accessories as indicated in the plans.

301-3.3 REMOVAL OF EXISTING EQUIPMENT. The Contractor shall carefully remove all salvageable equipment as indicated in the plans. Any equipment that is damaged during the removal and/or relocation operation shall be subject to a reduction in payment for removal and/or relocation of the equipment. All equipment that is removed during this project shall be transported to a site on the Airfield or removed from the Airfield and properly disposed of as directed by the Owner and the RPR.

301-3.4 RELOCATION OF EXISTING EQUIPMENT. Existing equipment that is to be relocated shall be carefully disconnected from the existing electrical system. The equipment shall be stored on site in an enclosed area protected from the weather as directed by the Owner and RPR. The Contractor shall remove existing concrete bases and shall backfill and compact these areas to match existing. The electrical power circuit shall be field located and extended to the new installation location unless otherwise noted in the Plans. Coordinate the extension of the electrical service with the extension of the electrical duct serving the equipment and install duct, splice, and cable markers to mark the new complete route.

Refer to the plans for additional installation requirements concerning the relocation of existing lights, signs, systems, and incidentals.

Any equipment that is damaged during the relocation operation shall be subject to a reduction in payment for removal and/or relocation of the equipment.

Any equipment that is damaged during the relocation operation shall be repaired or replaced by the Contractor at his expense to the satisfaction of the Owner and RPR.

METHOD OF MEASUREMENT

301-4.1 The quantity of existing lights or guidance signs removed, to be measured under this item shall be the number of each complete unit removed and accepted by the RPR.

This item shall include removing and storing the existing equipment as directed by the RPR.

Where the light base and concrete structure are indicated to be removed or demolished, the item shall include restoring the area to match existing, including removing the complete concrete item, filling and tamping all holes with earth, and clearing and leveling the site.

BASIS OF PAYMENT

301-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-301-5.1	Existing Stake Mounted Edge Light, Removed -- per Each
Item SS-301-5.2	Existing Base Mounted Guidance Sign, Removed -- per Each
Item SS-301-5.3	Existing Abandoned Sign Base, Demolished – per Each

END OF ITEM SS-301

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ITEM SS-305 DIRECTIONAL BORING

DESCRIPTION

305-1.1 This item shall consist of furnishing and installing conduits via directional boring methods, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. The borings shall be installed at the locations and in accordance with the dimensions, design and details shown on the plans. It shall also include all trenching, backfilling, mandreling installation of drag wires and duct markers, capping, and the testing of the installation as a completed duct system ready for installation of conduit and/or cables, to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

305-2.1 GENERAL. Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300.

All equipment and materials covered by these specifications shall be new and meet applicable manufacturer's standards.

Polyethylene conduits shall conform to SDR 11 type. Innerduct conduits shall conform to SDR 13.5 type.

The Contractor shall submit a statement of qualifications including previous similar jobs experience in directional boring for the last three (3) years. Previous job description work shall include length, pipe type, pipe size(s) and soil type,

The Contractor shall submit complete shop drawings outlining his directional boring method (including drilling fluids, additives and mixtures), drill rod, bore size, materials, equipment and safety requirements to be utilized on this specific project, for review and approval by the RPR.

All materials shall be inspected at the job site for damage. Defective materials shall be removed from the job site and replaced with new materials prior to the work.

CONSTRUCTION METHODS

305-3.1 GENERAL. Boring shall be done by pilot hole method using fluid as a lubricant only and shall not undermine the surrounding ground. Jetting will not be permitted. The Contractor shall use a guidance system to assure knowledge of the bore location while making the bore. The Contractor will not be paid for unusable sections.

Locate and clearly mark all utilities prior to start of excavation or drilling. The Contractor will be responsible for damage to pavements, utilities, or other structures caused by his activity. The Contractor shall repair, at his own expense, any damaged pavement, utility, or other structure as directed by the RPR or the owner of the utility or structure. The Contractor shall not excavate to find a bored casing without specific approval and definitions of limits. No payments will be made for excavation and repair except as shown on drawings.

The Contractor shall inspect the locations where the encasement structures are to be installed and familiarize himself with the conditions under which the work will be performed and with all necessary details for orderly prosecution of the work. The omission of any details in the Plans and herein for the satisfactory installation of the easement in its entirety shall not relieve the Contractor of full responsibility for the installation.

Directional bores shall be a minimum 60" below the bottom of the new or existing pavement subbase unless otherwise noted in the plans.

For runway pavement, the runway's typical section shall be considered 42" in overall depth. Therefore, the overall depth of the directional boring under runways shall be a minimum 8'-6" below the surface of the pavement.

For taxiway pavement, the taxiway's typical section shall be considered 32" in overall depth. Therefore, the overall depth of the directional boring under runways shall be a minimum 7'-8" below the surface of the pavement.

Directional boring shall be a minimum 3'-0" below finished or final grade in earth areas unless otherwise noted in the plans.

The Contractor shall utilize a beacon or other depth-reading instrument to verify the depth below the runway, taxiway, or other paved surface.

The bore size shall be the minimum size for the work required. Upsizing the bore will not be allowed.

The Contractor shall perform all excavation required to complete the work regardless of the material encountered. Excavation from the access shafts (bore pits) more than the required to backfill the access shafts and open ditch portion of the line shall be disposed of by the Contractor off Airport Property.

Pits and trenches shall be constructed and maintained in accordance with the current edition of the OSHA Standard for Excavating and Trench Safety Systems. Restore ground to original conditions after work completion including seeding and topsoiling.

The access shafts (bore pits) for encasement installation shall be rectangular in plan view with the longest dimension being constructed with the direction of the pipe. The access shafts shall be constructed at a location shown on the plans.

Use a high-quality drilling fluid to ensure hole stability, cuttings transport, bit and electronics cooling, and hole lubrication to reduce drag on the drill pipe and the product pipe. Use only fluid with a composition that complies with all federal, state, and local environmental regulations. Mix the drilling fluid with potable water (of proper pH) to ensure no contamination is introduced into the soil during the drilling, reaming, or pipe installation process. The Contractor is responsible for any required pH adjustments.

Disposal of the drilling fluids is the responsibility of the Contractor. Conduct disposal in accordance with all relative environmental regulations and permit requirements. No excess drilling fluids shall remain in the bore access pit or receiving pit. Immediately clean up any drilling fluid spills or overflows from these pits. All excess drilling fluids and mud shall be disposed of off Airport Property daily. Bore pits and trenches shall be backfilled and compacted in 6" layers to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D6938.

Assemble the entire pipe to be installed via directional boring prior to starting pull back operations. Support the pipe to enable it to move freely and prevent damage. Install the pipe in one continuous pull. Maximum allowable tensile force imposed on the pull section is not to exceed 90 percent of the pipe manufacturer's safe pull strength. If multiple pipe sizes or materials, the lowest safe strength shall govern. Damaged pipes shall be replaced at no additional cost to the Owner.

Extend and connect pipes to junction structures as indicated. When pipe is used as a sleeve, install interior conduits as indicated and terminate the conduits with end bells as shown in the plans or as required.

Upon completion of the work, immediately remove all debris from the job site and restore the areas to original condition acceptable to the RPR.

In the event of failure to install the directional bore pipe or conduit, the Contractor shall remove the pipe or conduit from the bore and remove it from the job site. The bore hole shall be completely filled with a flowable fill conforming to Item P-153, Controlled Low Strength Material, to prevent future problems. If the pipe or conduit cannot be removed, then it shall be cut off minimum 3 feet below the ground and the pipe/conduit and surrounding space filled with flowable fill. This remedial work shall be performed at no additional cost to the Owner. Any failure event shall be immediately coordinated with the RPR and Owner prior to the Contractor taking remedial action.

The Contractor shall record and document all drilling logs that provide drill bit locations, both horizontally and vertically. The person holding the tracker shall be able to see these values on the display and help steer the bore. The bore depths shall be recorded and shown to be consistent; U-shaped bores are not allowed.

The logged data shall include both pitch and depth, time stamped, GPS location, and downhole fluid pressure. In addition, as-built drawings shall be marked showing bore depths where the bore crosses other facilities or obstacles, including but not limited to existing/new/future pavement edges, pavement crowns/centerlines, beneath ditch center lines, and at other utility crossings.

These records and as-builts shall be submitted to the RPR and included in the O&M manual for the project.

All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

METHOD OF MEASUREMENT

305-4.1 The quantity of directional boring to be paid for under this item shall be the number of linear feet of conduit and directional boring installed with backfill, compaction, turf restoration, and appurtenances, measured in place, completed and accepted to the satisfaction of the RPR.

Directional boring will be measured by the horizontal linear foot along the approximate centerline of the bore from junction box center to junction box center. No measurement will be made for vertical segments or elevation changes.

BASIS OF PAYMENT

305-5.1 Payment will be made at the contract unit price per linear foot for each type and size of directional boring completed by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-305-5.1	Directional Boring, 1-Way 2"C Polyethylene Conduit – per Linear Foot
Item SS-305-5.2	Directional Boring, 2-Way 2"C Polyethylene Conduit – per Linear Foot

END OF ITEM SS-305

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ITEM SS-310 AIRPORT LIGHTING SYSTEMS

DESCRIPTION

310-1.1 This item shall consist of furnishing and installing airport runway and taxiway edge lighting systems, retroreflective markers, guidance signs, runway centerline and touchdown zone lighting systems, other taxiway lighting systems, and other approach lighting aid systems, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. The system shall be installed at the locations and in accordance with the dimensions, design and details shown on the plans. This work shall include the furnishing of all equipment, materials, services, and incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

EQUIPMENT AND MATERIALS

310-2.1 GENERAL.

a. Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300 and the applicable Item L Series Specifications.

b. For pre-cast or prefabricated concrete encased light base installations, the Contractor shall submit and coordinate the construction of the proposed pre-cast units with the RPR onsite to review and approve the construction process. The Contractor shall submit his proposed installation process for review and approval by the RPR. The Contractor shall provide additional items and work if required and requested by the RPR for the construction and installation of the pre-cast units at no additional cost to the Owner.

Pre-cast or prefabricated concrete encased light bases may only be assembled at the Contactor's staging area at the airport to allow the RPR to check and approve all such construction items. Pre-cast bases assembled offsite will not be allowed.

310-2.2 LIGHT FIXTURES. Airfield lights shall be supplied with all features and accessories including isolation transformers, light bases, base covers, safety ground rods, concrete pads and incidentals required for a complete installation as defined in these Specifications and as shown on the plans.

310-2.3 LAMPS. Lamps for elevated edge lights shall be LED type as specified.

310-2.4 SPARE EQUIPMENT INCLUDING FIXTURES AND SPARE SIGN REPLACEMENT COMPONENTS. Provide 10 percent (rounded up to the next whole number) spare fixtures of each type installed for the taxiway and runway edge and runway threshold lights, add other types or new spare lamps as needed, minimum quantity of 2 required. Provide 10 percent (rounded up to the next whole number) spare sign replacement components of each type installed for signs, minimum quantity of 1 required. Spare fixtures and spare sign replacement components shall not be measured for separate payment but shall be considered subsidiary to the respective light fixture or sign pay items.

a. A spare elevated LED fixture unit shall be one complete, ready-to-install fixture, including the coupling, column, head housing assembly, cordset, LED power supply assembly, LED assembly, and lens assembly.
b. A spare elevated quartz fixture unit shall be one complete, ready-to-install fixture, including the

coupling, column, head housing assembly, cordset, lamp assembly, and lens assembly.

c. A spare in-pavement LED fixture unit shall be one complete, ready-to-install fixture, including the top cover assembly, bottom pan assembly, cordset, LED power supply assembly, and LED assembly.
d. A spare sign replacement component unit shall include the LED light tube assembly and LED power supply assembly.

Spare fixtures and sign replacement components shall be on-site and available for use by the Contractor prior to the final acceptance testing. Any fixtures or sign components installed new in this project and replaced as part of the final acceptance testing shall be shipped back to the manufacturer for repair or replacement, and then delivered back to the Owner at no additional cost.

The spare fixtures and spare sign replacement components shall be delivered and stored as directed by the Owner, with transmittal receipt signed by Owner's representative. A signed copy shall be forwarded to the RPR with an additional signed copy placed in the O&M manuals.

310-2.5 GUIDANCE SIGNS. Guidance signs shall be L-858(L), meeting the criteria set forth in AC 150/5345-44, Specification for Taxiway and Runway Signs, and suitable for base mounting. Each unit shall be furnished with the required panels, mounting assemblies, frangible couplings, transformer, intensity control, identification tag, metal tethers, fasteners, and safety ground rods.

Style 2 and Style 3 signs shall meet the luminance requirements in AC 150/5345-44 throughout the current ranges of the associated series circuit.

Guidance signs shall have an integral on/off switch for airport maintenance use.

Signs shall be furnished with permanent type nameplates that are both weather and sunlight resistant. Nameplates which are completed with ink markers or similar methods will not be accepted.

Refer to the guidance sign index in the Plans for information on each sign's size, style, class, and mode.

The complete sign installation shall be designed to withstand a 200-mph wind load.

310-2.6 VEHICULAR STOP SIGN. Vehicular stop signs shall be furnished and installed as indicated on the Plans. Sign verbiage shall comply with FAA AC 150/5340-18, Paragraph 11 for Roadway Signs, and associated Figure 14. Signs shall be retroreflective and comply with all applicable federal, state (AHTD), and local criteria for stop sign color, reflectivity, et. al.

310-2.7 ISOLATION TRANSFORMERS. New isolation transformers shall be Type L-830 and have a wattage rating suitable for the wattage of the fixture and sign lamps. The transformer shall be listed in FAA Circular AC 150/5345-47.

Provide 10 percent spare isolation transformers of each type installed for lights, signs, and other equipment. Spare transformers shall not be measured for separate payment but shall be considered subsidiary to the respective light fixture or sign pay items.

CONSTRUCTION METHODS

310-3.1 GENERAL. The installation and testing details for the lighting system shall be as specified in the applicable advisory circulars.

The Contractor is responsible for all surveying and measurement which is required to accurately position and aim airfield lighting systems and equipment.

Airfield lighting systems and equipment that are improperly installed shall be removed and re-installed correctly as directed by the RPR. No payment will be made for the removal and reinstallation of airfield lighting systems and equipment improperly installed. All remedial work shall be to the satisfaction of the RPR.

310-3.2 LIGHTING LAYOUT PLANS. The Contractor shall stake the airfield lighting systems, prior to installation of any trench, cable, or lighting apparatus. The intent is to stake the installation at the locations indicated, noting any deviation from plan dimensions to the RPR prior to installation. The Contractor shall obtain the services of an experienced and licensed surveyor to perform this work.

The RPR shall provide electronic CADD files to the Contractor for this staking work. The Contractor shall stake the items and his surveyor shall provide a CADD file submittal back to the RPR. Based upon this submittal, the RPR shall coordinate and provide directions on any adjustments necessary to meet existing field condition requirements and comply with FAA Advisory Circular requirements on the layout and spacing of equipment.

The Contractor and his surveyor shall then make any electronic CADD file spacing adjustments and/or field staking adjustments prior to installation at no additional cost to the Owner.

Refer to General Provisions Section 50 Control of Work for additional construction layout and staking requirements.

310-3.3 PLACING THE EQUIPMENT. The equipment shall be mounted on concrete pads as shown in the plans. Secure the equipment and make all final connections.

310-3.4 MOUNTING, LEVELING, AND AIMING. The concrete support to which the equipment is fastened shall be accurately leveled before mounting the equipment. The units shall be properly aimed, as recommended by the manufacturer of the supplied equipment. This adjustment shall be accomplished using factory-approved aiming devices and techniques.

310-3.5 PLACING LIGHTS. All equipment shall be installed at locations indicated in the plans. Lights shall be laid out by locating the two control points by station as indicated on the plans and measuring the indicated individual separation distances. Light bases shall be located within 1 inch +/- longitudinally and 0.5 inches +/- transversely of the location indicated unless deviation is approved by the RPR. Excavation for installation of light bases shall be backfilled with at least 4 inches of granular leveling course, as approved by the RPR. Fixture height shall be as indicated on the Drawings.

For pre-cast or prefabricated concrete encased light base installations, a leveling course of sand shall be placed in the bottom of the excavated hole, sufficient for accurately installing, leveling and placing the lights in accordance with the requirements in this specification and AC 150/5340-30. Concrete encased light bases shall be allowed to cure a minimum of 7 days prior to installation.

Utilize a bubble level device to level all light fixtures in the horizontal light plane during the day, and then check at night to ensure uniformity in light output.

Provide factory-approved alignment tools and aiming devices to properly level and align fixtures as required by the FAA Advisory Circulars and manufacturer's installation instructions. After all light fixture installations are completed and accepted by the RPR, these alignment tools and aiming devices shall become property of the Owner and shall be delivered and stored as directed by the Owner.

310-3.6 PLACING SIGNS. All signs shall be installed at the approximate location indicated in the plans. The specific requirements for sign location are specified in AC 150/5340-18, Standards for Airport Sign

Systems. Specific requirements of this AC are also shown on the Plans. Signs shall be located within 1 inch +/- longitudinally or 0.5 inches +/- transversely of the required location unless deviation is approved by the RPR. The locations for the signs shall be staked by the Contractor and approved by the RPR before installation begins.

Provide single module signs with one tether. Provide multiple module signs with a tether at both ends.

310-3.7 TRANSFORMER INSTALLATION. The transformer for base mounted fixtures shall be placed inside the base. The transformer for stake mounted fixtures shall be located uniformly as shown on the plans. The primary cable connections shall be made with L-823 connectors as described in Item L-108 and have 3 feet of slack cable. The secondary leads connected to the lamp leads by means of a disconnecting plug and receptacle provided with the unit, and this joint shall not be taped. The secondary joint shall be fastened with a holding ring provided for this purpose.

310-3.8 UNIT ASSEMBLY. All electrical equipment, including edge lights, guidance signs and other visual aid units shall be assembled in accordance with the manufacturer's installation procedures. Anti-seize compound shall be used on all screws, nuts, and threads, including frangible coupling threads. If coated bolts are used (ceramic metallic/fluoropolymer coating), then do not apply anti-seize compound.

Provide and install all spacers, shims, and gaskets as required, and verify they are in place before installing the light fixture on the base.

Bolts and washers for new and existing bases shall be new. Do not reuse existing hardware.

The minimum thread engagement into top flange of the base shall be 0.5 inches. For in-pavement light fixture assemblies, the bolt protrusion requirement shall be minimum 0.75 inch; maximum 1 inch.

310-3.9 IDENTIFICATION NUMBERS. An identifying number shall be assigned to each light and sign in accordance with the plans or as approved by the RPR and Owner. This number shall be imprinted with reflective black with 1/2" letters on a non-corrosive metal disc 2" minimum diameter and attached to the pavement side of the fixture with a metal screw.

310-3.10 TEMPORARY AIRFIELD LIGHTING. Refer to the Airfield Lighting Phasing Plans and Details for additional requirements. Existing lighting circuits shall remain operational by use of temporary circuits. New lighting circuits shall also be connected and remain operational by use of temporary circuits. This item shall include all work to maintain the existing and new lighting circuits during construction and allow all taxiways and runways in operation to remain lighted, including that portion through the construction area, as indicated in the Phasing Plans and as directed by the RPR.

The Contractor shall perform initial field work including location and verification of existing circuits and submit plans for the temporary airfield lighting required in each work phase, for review and approval by the RPR and Owner, prior to starting work of that phase. This work shall include megger testing of circuits and circuit segments before and after installation and connection of jumpers.

The Contractor shall install couplings and other required fittings/appurtenances in conduit systems at last pavement joint within each phase for connecting to conduit systems in the next phase, or for connecting to existing conduit systems to remain.

310-3.11 TESTING. The installation shall be tested in operation as a completed unit prior to acceptance. Tests shall include taking megger and voltage readings as outlined in Item SS-300 and Item L-108. Testing equipment shall be furnished by the Contractor. Refer to Item L-108 for additional test requirements.

Tests shall be conducted in the presence of the RPR and shall be to his/her satisfaction.

All installations shall be fully tested by continuous operation for not less than 24 hours as completed systems prior to acceptance. These tests shall include the functioning of each control not less than 10 times.

Equipment and materials covered by FAA Advisory Circulars are referred to by item numbers and approved equipment is listed within the AC 150/5345-53 Airport Lighting Equipment Certification Program's monthly Addendum, which contains a complete and updated listing of the certified equipment and manufacturers and is listed in the FAA Buy American Preference equipment list, which is also updated monthly. The Contractor shall provide and install new certified equipment that works reliably and efficiently with the existing equipment to remain in service. The Contractor shall provide any additional accessories and/or appurtenances required to provide fully functional electrical systems to the satisfaction of the Owner and RPR, at no additional cost to the Owner.

The Contractor shall ascertain that all lighting system components furnished (including FAA certified and approved equipment) are compatible in all respects with each other and the remainder of the new and existing systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

METHOD OF MEASUREMENT

310-4.1 Temporary airfield lighting shall be measured as a lump sum complete item per each respective phase work area, including all work completed in place and ready for operation, and including the installation, protection, and removal of all temporary cables, conduits, lighting, grounding, marking, and associated items and appurtenances, as indicated in the Drawings and as directed by the RPR.

BASIS OF PAYMENT

310-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

310-5.2 Payment will be made at the contract lump sum price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-310-5.1	Temporary Airfield Lighting (Phase 1) -- per Lump Sum
Item SS-310-5.2	Temporary Airfield Lighting (Phase 2A) -- per Lump Sum
Item SS-310-5.3	Temporary Airfield Lighting (Phase 2B) -- per Lump Sum

END OF ITEM SS-310

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ITEM C-100 CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction, *and may be held in conjunction with the preconstruction meeting.* The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

(3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning

to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description
(2) Compliance with approved submittals
(3) Proper storage of materials and equipment
(4) Proper operation of all equipment
(5) Adherence to plans and technical specifications
(6) Summary of any necessary corrective actions
(7) Safety inspection.
(8) Photographs and/or video

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description
(2) Test designation
(3) Location
(4) Date of test
(5) Control requirements
(6) Test results
(7) Causes for rejection
(8) Recommended remedial actions
(9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

a. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 20%.

d. When 75% or more of the original contract is earned, an additional 20%

e. After final inspection and acceptance of project, the final 10%.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-14.1 Contractor Quality Control Program (CQCP) – Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

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ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

102-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

102-1.2 *This item covers the application of Temporary Erosion Control items at locations shown on the Plans, as directed by the Engineer, and as required for permit compliance, and the requirement of the Contractor to produce, execute, and maintain a specific Storm Water Pollution Prevention Plan (SWPPP) for the project. The Contractor will also be required to request and obtain all necessary federal, state, and local permits. The temporary erosion control measures shown in the Plans do not represent the extent of work and coordination required by the Contractor under this item.*

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

~~**102-2.2 Mulches.** Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.~~

~~**102-2.3 Fertilizer.** Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.~~

~~**102-2.4 Slope drains.** Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.~~

102-2.5 Silt fence. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project. *In addition, all other materials shall meet commercial grade standards and be in accordance with SECTION 506 - TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS of the Standard Specifications, except as modified or augmented herein. Heavy Duty silt fencing (with welded wire in the fabric) may be required on steep slopes if the Engineer determines that the silt fence used by the Contractor is not performing satisfactory.*

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The ~~*RPR*~~ *Contractor* shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance and removal of silt fence. Silt fences shall extend a minimum of 16 inches and a maximum of 34 inches above the ground surface. Posts shall be set no more than 10 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 4 inches deep by 4 inches wide

on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

102-3.5 Construction Methods. *Providing the temporary erosion control items and devices shown on the Plans is intended to minimize the erosion of soils during construction. However, the items and devices shown are not intended to represent all of the necessary items or procedures required to be implemented by the Contractor. The plans and specifications show the Engineer's estimate of a minimum effort needed to maintain proper erosion control during construction. Additional effort and materials may be required by the Contractor to minimize the erosion of soils during construction. It shall be the Contractor's responsibility to install and maintain all the items shown in the Plans and to coordinate, submit, obtain, and comply with all necessary Federal, State, and local permits. The coordination with governing agencies shall include, but not limited to the following:*

- *Filing the Notice of Intent with the Texas Commission on of Environmental Quality (TCEQ),*
- *Producing and maintaining an approved Storm Water Pollution Prevention Plan,*
- *Coordinating and obtaining all local permits regarding grading operations for the proposed improvements, Contractor's staging area, spoil placement and any other grading operations related to the project as directed by the local governing agency.*

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured ~~as follows:~~ *as one complete item. This work includes obtaining all necessary federal, state, and local permits required to complete this project.*

~~a. Temporary seeding and mulching will be measured by the square yard.~~

~~b. Temporary slope drains will be measured by the linear foot.~~

~~c. Temporary benches, dikes, dams, and sediment basins will be measured by the cubic yard (cubic meter) of excavation performed, including necessary cleaning of sediment basins, and the cubic yard (cubic meter) of embankment placed as directed by the RPR.~~

~~d. All fertilizing will be measured by the ton (kg).~~

~~e. Installation and removal of silt fence will be measured by the [linear foot] [Lump sum].~~

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 *Temporary erosion control acceptably completed will be paid for at the contract lump sum price bid for "TEMPORARY EROSION CONTROL," which shall be full compensation for furnishing all materials, tools, equipment, labor, and incidentals necessary to complete the work. Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer. Payment for "TEMPORARY EROSION CONTROL" will also include obtaining and compliance with the SWPPP, which shall include compensation for drainage-way inspections, report preparation, housekeeping practices, cleaning and maintenance, and other actions outlined in the SWPPP prepared by the Contractor necessary to execute the Plan. This item consists of all erosion control items not listed as a separate pay item in the Unit Price Schedule. Any fines issued to the Owner as a result of the Contractor's insufficient execution of the SWPPP will be assessed to the Contractor. Such deductions shall not be limited to the lump sum price of this item. Payment will be made under:*

Item C-102-5.1 Temporary Erosion Control—per Lump Sum

~~**102-5.1** Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:~~

~~Item C-102-5.1a Temporary seeding and mulching - per square yard~~

~~Item C-102-5.1b Temporary slope drains - per linear foot~~

~~Item C-102-5.1c Temporary benches, dikes, dams and sediment basins - per cubic yard~~

~~Item C-102-5.1d Fertilizing - per ton~~

~~Item C-102-5.1e Installation and removal of silt fence [- per linear feet (meter) -] [- lump sum -]~~

~~Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.~~

~~Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, paragraph 90-05 Payment for Extra Work.~~

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

ITEM C-105 MOBILIZATION

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 5 percent of the total bid exclusive of mobilization.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4.1 Engineer/RPR field office. The building for the temporary field office shall be for the exclusive use by the Engineer as a field office and shall conform to the requirements listed below. The dimensions and other requirements specified herein are minimums and the building may be built by the Contractor for the specific purposes noted herein. It is not intended, however, to prohibit the use of commercially built trailers or prefabricated buildings which may deviate in minor dimension or detail from the requirements listed herein but may in some features exceed the listed requirements and in all major respects be entirely suitable for the purpose intended. The Engineer will determine the suitability of any building furnished. It shall be the responsibility of the Contractor to coordinate and obtain also necessary permits and install all required temporary facilities to provide a complete and usable temporary field office.

Minimum requirements for offices:

a. *The building may be portable or other suitable type with 7-ft minimum ceiling height; must be floored, weatherproof and reasonably dustproof; must have at least two glazed sliding windows provided with window latches; must have at least one door provided with a substantial lock and all keys placed in the possession of the Engineer. Doors and windows shall be screened. The building need not be new but the facility furnished under this item shall be neat, clean, sound and usable for the purpose intended.*

b. *The building shall be provided with electric lights and power outlets arranged as directed by the Engineer. The building shall be provided with equipment in good working order. In cold weather the building shall be provided with adequate vented space heating facilities and fuel for heating. In hot weather the building shall be equipped with adequate air conditioning units. Heating and cooling and telephone utility service will be furnished at no cost to the Owner or Engineer.*

c. *The building for the field office shall provide not less than 240 sq. ft. of floor space. At least two tables each suitable for desk and drafting table work shall be provided with approximate dimensions of 30" x 48". These tables may be movable, attached to a wall, or built-in. Each table will be provided with at least two drawers (minimum dimensions: 8" deep x 12" wide by 24" long) or equivalent cabinet or shelf space for storing field books and records.*

d. *The building shall be provided with internet access with a minimum download speed of 24 megabits per second. This service shall be provided for the length of the contract or construction project, whichever is greater.*

105-4.2 Contractor's access / haul routes. *The Contractor shall layout, construct, maintain, and repair all access/haul roads needed to construct the work. The existing access roads shown on the plans shall be repaired, as determined necessary by the Engineer, at the close of the project. All such work, including all materials and labor, involved in the layout, construction, maintenance, and repair of the Contractor's access/haul roads will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization." Temporary pipe culverts shall be installed and maintained as required and shall be of the size as directed by the Engineer. The type of pipe used for temporary pipe shall be at the option of the*

Contractor. Temporary pipe culverts will not be measured for separate payment, but will be considered subsidiary to the access/haul road. All temporary pipe culverts shall be removed by the Contractor and shall remain his property at the close of the project.

105-4.3 Contractor's Staging Area. *The areas designated in the plans or by the Engineer as the Contractor's staging area shall be cleared and graded by the Contractor as needed for use by the Contractor in constructing the work on this project. All areas used or otherwise occupied by the Contractor for his operations shall be cleaned, regraded, and seeded, as directed by the Engineer, prior to the final acceptance of the project by the Airport. All work involved in the preparation and restoration of areas used or occupied by the Contractor, including clearing, grubbing, regrading, seeding, and installing and removing fence, will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization."*

105-4.4 *Instrument Control.* *The Contractor will be furnished survey baselines and benchmarks to control the work as shown on the Plans. The Contractor shall be responsible for the additional instrument control necessary to layout and construct the work. The Contractor shall provide the instrument control as provided for in the General Requirements of the Standard Specifications. The Contractor's instrument control of the work shall not be measured for separate payment, but will be considered subsidiary to the bid item "Mobilization".*

105-4.5 *Clean-Up.* *From time to time, the Contractor shall clean up the site in order that the site presents a neat appearance and that the progress of work will not be impeded. One such clean up shall immediately precede final inspection.*

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials, the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1 Mobilization (Maximum 5% of Total Bid Exclusive Mobilization)– per Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

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ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

DESCRIPTION

101-1.1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

101-1.2 *Limits of pavement removal, pavement repair, joint and crack repair, paint and rubber removal, and cold milling are estimated in the plans. Actual limits of these items shall be coordinated with the Engineer prior to construction.*

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size of **2 inches**. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. If the material is to be wasted on the airport site, it shall be broken to a maximum size of 2 inches.

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

d. Disposal. *All existing pavement removed shall be disposed of off-site. All hauling will be considered a necessary and incidental part of the work. Its costs shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.*

~~**101-3.2 Preparation of joints and cracks prior to overlay/surface treatment.** Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch wide with a crack sealant [per ASTM D6690]. The crack sealant, preparation, and application~~

~~shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.~~

101-3.3 Removal of Foreign Substances/contaminates prior to remarking. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

For areas to be repainted, the existing painted surface shall be cleaned by high-pressure water blasting or sand blasting, as required, to remove all foreign material that would reduce the bond between the new paint and the old paint.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

~~**a. Repair of concrete spalls in areas to be overlaid with asphalt.** The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches in depth. This method of repair applies only to pavement to be overlaid.~~

~~**b. Asphalt pavement repair.** The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.~~

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed off Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The ~~RPR~~ *Contractor* shall layout the area to be milled with a straightedge in increments of 1-foot widths. *The Contractor's layout shall be approved by the RPR prior to beginning milling operations.* The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of [7] feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to [windrow the millings or cuttings] [remove the millings or cuttings from the pavement and load them into a truck]. All millings shall be removed and disposed of [off the airport] [in areas designated on the plans].

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

a. Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.

b. Repair joints and cracks in accordance with paragraph 101-3.2.

c. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.

d. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the joint and does not damage the joint.

101-3.8.1 Removal of Existing Joint Sealant. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.

101-3.8.2 Cleaning prior to sealing. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface-dry prior to installation of sealant.

101-3.8.3 Joint sealant. Joint material and installation will be in accordance with [Item P-605] [Item P-604].

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Widen crack with [router] [random crack saw] by removing a minimum of 1/16 inch from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

~~**101-3.9.2 Removal of Existing Crack Sealant.** Existing sealants will be removed by [routing] [random crack saw]. Following [routing] [sawing] any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.~~

~~**101-3.9.3 Crack Sealant.** Crack sealant material and installation will be in accordance with [Item P-605].~~

101-3.9.4 Removal of Pipe and other Buried Structures.

a. **Removal of Existing Pipe Material.** Not used.

b. **Removal of Inlets/Manholes.** Not used.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

~~**101-4.2 Joint and crack repair.** The unit of measurement for joint and crack repair shall be the linear foot of joint.~~

101-4.3 Removal of Foreign Substances/contaminates *(Pavement Marking Removal)*. The unit of measurement for foreign Substances/contaminates removal shall be the square foot.

~~**101-4.4 Spalled and failed asphalt pavement repair.** The unit of measure for failed asphalt pavement repair shall be square foot.~~

~~**101-4.5 Concrete Spall Repair.** The unit of measure for concrete spall repair shall be the number of square feet. The location and average depth of the patch shall be determined and agreed upon by the RPR and the Contractor.~~

~~**101-4.6 Cold milling.** The unit of measure for cold milling shall be [___] inches of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.]~~

101-4.7 Removal of Pipe and other Buried Structures. Not required.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P-101-5.1	Concrete Pavement Removal - per square yard
Item P-101-5.2	Pavement Marking Removal -- per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

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ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

b. Borrow excavation. Borrow excavation shall consist of approved material required for the construction of embankments or for other portions of the work in excess of the quantity of usable material available from required excavations. Borrow material shall be obtained from areas designated by the Resident Project Representative (RPR) within the limits of the airport property but outside the normal limits of necessary grading, or from areas outside the airport boundaries.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed *of off-site or as directed by the RPR.* ~~in designated waste areas as shown on the plans.~~ Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR. *Undercutting of material unsatisfactory for subgrade foundation, roads, shoulders, or areas intended for turfing shall be considered unsuitable excavation and shall be excavated to the depth specified by the Engineer below the subgrade.*

CONSTRUCTION METHODS

152-2.1 General. ~~Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.~~

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of *off site* ~~in waste areas as shown on the plans.~~ All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of

the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Volumetric quantities were calculated using design cross sections which were created for this project using the DTM files of the applicable design surfaces and generating End Area Volume Reports. Paper copies of design cross sections and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor *may* ~~shall~~ verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of *as described in paragraph 152-1.3* ~~shown on the plans~~.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When *the quality of material varies significantly* ~~selective grading is indicated on the plans~~, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be *disposed of as directed in paragraph 152-1.3.* This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable Excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a *necessary part of Unsuitable Excavation* ~~part of the embankment~~. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as Unsuitable Excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of *some* existing structures and utilities required to permit the orderly progress of work *may* ~~will~~ be accomplished by someone other than the Contractor. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans. *All work associated with the excavation, removal, backfill, disposal, and/or stockpiling of existing structures and culverts will not be measured for separate payment but will be considered subsidiary to "Unclassified Excavation".*

~~**152-2.3 Borrow excavation.** Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the RPR. All unsuitable material shall be disposed of by the Contractor as shown on the plans. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.~~

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 95% of maximum density for non-cohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been

accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The Contractor will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D 1557. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the Contractor for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for non-cohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D1557. Under all areas to be paved, the embankments shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 20 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 100 psi in the presence of the RPR. Apply a minimum of 50% coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D1557. Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. **Smoothness.** The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-footstraightedge for the full length of each line on a 50-foot grid.

b. **Grade.** The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the average end areas of design cross sections for computation of neat line design quantities. The end area is that bound by the original ground line established by *the design survey* ~~field cross-sections~~ and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

In cut sections, the additional cut required to construct the topsoil layer to the plan grade has not been measured and will not be measured for separate payment but will be subsidiary to "Unclassified Excavation". In fill sections, the additional fill required to replace the stripped material has not been measured and will not be measured for payment but will be subsidiary to "Unclassified Excavation".

No allowance has been made in the measurement for shrink/swell. The Contractor shall make his own determination as to the amount of shrink/swell involved in the construction of the embankment.

The Contractor shall make his/her own determination as to the suitability of the excavated material to be placed in embankments and the resulting additional off-site material required for the construction of the embankment. Additional off-site material required for the formation of embankment shall not be measured for separate payment but shall be considered subsidiary to "Unclassified Excavation".

Measurement of unclassified and borrow excavation shall be based on ***plan quantities****. These quantities are believed to be correct and shall be utilized for final payment not withstanding any adjustments to the project by written direction of the Engineer. Should the contractor find discrepancies and/or errors, he/she shall bring the discrepancy and/or error to the attention of the Engineer immediately and corrections shall be made to the quantity of excavation to be paid for by change order. It is expressly understood by the contractor that upon disturbance of the existing ground and no notification to the Engineer of possible errors, that the contractor accepts as final payment the quantities of excavation as detailed on the plans and laid out in the proposal.*

No adjustment has been made to the plan quantities for the construction or demolition of existing drainage structures. The Contractor shall make his/her own determination as to the amount of unsuitable excavated material which may be encountered and the resulting additional borrow material required for the construction of the embankment. There will be no adjustment for additional embankment required to construct the project if the excavated material is deemed unsuitable.

152-3.2 The quantity of unclassified excavation to be paid for shall be the number of cubic yards measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.3 The quantity of borrow excavation to be paid for shall be the number of cubic yards measured in its *final* ~~original~~ position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

~~**152-3.4** The quantity of embankment in place shall be the number of cubic yards measured in its final position.~~

152-3.5 Stockpiled material shall not be measured for payment in the stockpiled position.

152-3.6 *Unsuitable excavation shall be measured from the surface of the ground, after stripping has been accomplished, or from the bottom of the planned excavation, to the depth of the excavation as directed by the Engineer. Measurements will be taken by the Engineer, and the volume of excavation will be calculated by the average end area method. The necessary refilling of unsuitable areas will not be measured for separate payment but will be subsidiary to "Unsuitable Excavation". Only that amount of excavation directed by the Engineer will be measured for payment.*

BASIS OF PAYMENT

152-4.1 Unclassified excavation payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

~~**152-4.2** For embankment in place, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.~~

~~**152-4.3** Stockpiled material shall be paid for on the basis of the number of cubic yards measured in the stockpiled position.~~

152-4.4 *Unsuitable excavation shall be paid for at the contract unit price bid per cubic yard for "Unsuitable Excavation", which price shall be full compensation for all excavation; for disposal or placement of unsuitable material (in accordance with section 152-1.3), including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.*

Payment will be made under:

Item P-152-4.1	Unclassified Excavation – per cubic yard
Item P-152-4.2	Unsuitable Excavation – per cubic yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

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Material	Tolerance
Lime	+ 0.5%
Water	+ 2%, -0%

WEATHER LIMITATIONS

155-4.1 Weather limitation. Subgrade shall not be constructed when weather conditions detrimentally affect the quality of the materials. Lime shall not be applied unless the air temperature is at least 40°F and rising. Lime shall not be applied to soils that are frozen or contain frost. Protect completed lime-treated areas by approved methods against the detrimental effects of freezing if the air temperature falls below 35°F. Remove and replace any damaged portion of the completed soil-lime treated area with new soil-lime material in accordance with this specification.

EQUIPMENT

155-5.1 Equipment. All equipment necessary to grade, scarify, spread, mix and compact the material shall be provided. The Resident Project Representative (RPR) must approve the Contractor's proposed equipment prior to the start of the treatment.

CONSTRUCTION METHODS

155-6.1 General. This specification is to construct a subgrade consisting of a uniform lime mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth, and have a smooth surface suitable for placing subsequent lifts. The Contractor shall be responsible to meet the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The mixing equipment must give visible indication at all times that it is cutting, pulverizing and mixing the material uniformly to the proper depth over the full width of the cut.

155-6.2 Application. Lime shall be uniformly spread only over an area where the initial mixing operations can be completed during the same work day. Lime shall not be applied when wind conditions are detrimental to proper application. A motor grader shall not be used to spread the lime. Adequate moisture shall be added to the cement/soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

155-6.3 Mixing. The mixing procedure shall be as described below:

a. Preliminary mixing. The full depth of the treated subgrade shall be mixed with an approved mixing machine. Lime shall not be left exposed for more than six (6) hours. The mixing machine shall make two coverages. Water shall be added to the subgrade during mixing to provide a moisture content approximately 3% to 5% above the optimum moisture of the material and to ensure chemical reaction of the lime and subgrade. After mixing, the subgrade shall be lightly rolled to seal the surface and help prevent evaporation of moisture. The water content of the subgrade mixture shall be maintained at a moisture content above the optimum moisture content for a minimum of 4 to 24 hours or until the material becomes friable. During the mellowing period, the material shall be sprinkled as directed by the RPR.

b. Final mixing. After the required mellowing time, the material shall be uniformly mixed by approved methods. Any clods shall be reduced in size by blading, discing, harrowing, scarifying, or by the use of other approved pulverization methods. After curing, pulverize lime treated material until 100% of soil particles pass a one-inch (25.0 mm) sieve and 60% pass the No. 4 (4.75 mm) sieve when tested dry by laboratory sieves. If resultant mixture contains clods, reduce their size by scarifying, remixing, or pulverization to meet specified gradation.

155-6.4 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction

processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

155-6.5 Treatment Application and Depth Checks. The depth and amount of stabilization shall be measured by the Contractor with no less than 2 tests per day of material placed; test shall be witnessed by the RPR. Measurements shall be made in test holes excavated to show the full depth of mixing and the pH checked by spraying the side of the test hole with a pH indicator such as phenolphthalein. Phenolphthalein changes from clear to red between pH 8.3 and 10. The color change indicates the location of the bottom of the mixing zone. pH indicators other than phenolphthalein can be used to measure pH levels. If the pH is not at least 8.3 and/or if the depth of the treated subgrade is more than 1/2 inch deficient, additional lime treatment shall be added and the material remixed. The Contractor shall correct all such areas in a manner satisfactory to the RPR.

155-6.6 Compaction. Compaction of the mixture shall immediately follow the final mixing operation with the mixture compacted within 1 to 4 hours after final mixing. The material shall be at the moisture content specified in paragraph 155-3.2 during compaction. The field density of the compacted mixture shall be at least 93% of the maximum density as specified in paragraph 155-6.10. Perform in-place density test to determine degree of compaction between 24 and 72 hours after final compaction and the 24-hour moist cure period. If the material fails to meet the density requirements, it shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

155-6.7 Finishing and curing. After the final lift or course of lime-treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The completed section shall then be finished by rolling, as directed by the RPR, with a pneumatic or other suitable roller sufficiently light to prevent hairline cracking. The finished surface shall not vary more than 1/2-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor at the Contractor's expense in a manner satisfactory to the RPR.

The completed section shall be moist-cured for a minimum of seven (7) days before further courses are added or any traffic is permitted, unless otherwise directed by the RPR. The final lift should not be exposed for more than 14 days without protection or the placement of a base course material.

155-6.8 Maintenance. The Contractor shall protect and maintain the lime-treated subgrade from yielding until the lime-treated subgrade is covered by placement of the next lift. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The maintenance cost shall be incidental to this item.

155-6.9 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

155-6.10 Acceptance sampling and testing. The lime treated subgrade shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one compaction and thickness test per 1,000 square yards of lime treated subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. All testing shall be done by the Contractor's laboratory in the presence of the RPR and density test results shall be furnished upon completion to the RPR for acceptance determination.

The field density of the compacted mixture shall be at least 93% of the maximum density of laboratory specimens prepared from samples taken from the material in place. The specimens shall be compacted and tested in accordance with ASTM D698 to determine maximum density and optimum moisture content. The in-place field density shall be determined in accordance with ASTM D6938, Procedure A, direct transmission method. If the material fails to meet the density requirements, the area represented by the failed test shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. The thickness of the course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost The Contractor shall replace, at his expense, material where depth tests have been taken.

155-6.11 Handling and safety. The Contractor shall obtain and enforce the lime supplier's instructions for proper safety and handling of the lime to prevent physical eye or skin contact with lime during transport or application.

METHOD OF MEASUREMENT

155-7.1 Lime-treated subgrade shall be paid for by the square yard in the completed and accepted work.

155-7.2 Lime shall be paid by the number of tons of Hydrated Lime applied at the application rate specified in paragraph 155-3.1.

a. Hydrated lime delivered to the project in dry form will be measured according to the actual tonnage either spread on the subgrade or batched on site into a slurry, whichever is applicable.

b. Quicklime delivered to the project in dry form will be measured for payment on the basis of the tons of equivalent hydrated lime using the following formula:

$$\text{Equivalent Hydrated Lime } (Ca(OH)_2) = \text{Total Quicklime } (CaO) \times 1.32$$

c. Lime delivered to the project in slurry form will be measured for payment in tons, dry weight of hydrated lime or equivalent hydrated lime in accordance with paragraph b above.

BASIS OF PAYMENT

155-8.1 Payment shall be made at the contract unit price per square yard for the lime-treated subgrade at the thickness specified. The price shall be full compensation for furnishing all material, except the lime, and for all preparation, delivering, placing and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

155-8.2 Payment shall be made at the contract unit price per ton. This price shall be full compensation for furnishing, delivery, and placing this material.

Payment will be made under:

Item P-155-8.1	Lime-Treated Subgrade (12") - per square yard
Item P-155-8.2	Lime - per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C51	Standard Terminology Relating to Lime and Limestone (as used by the Industry)
ASTM C977	Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3)
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Software

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ITEM P-208 AGGREGATE BASE COURSE

DESCRIPTION

208-1.1 This item shall consist of a base course composed of course aggregate bonded with fine aggregate base. It shall be constructed on a prepared subgrade or subbase course per these specifications and shall conform to the dimensions and typical cross-section shown on the plans.

MATERIALS

208-2.1 Aggregate base. The aggregate base material shall consist of both fine and coarse aggregate. Material shall be clean, sound, durable particles and fragments of stone or gravel, crushed stone, or crushed gravel mixed or blended with sand, screenings, or other materials. Materials shall be handled and stored in accordance with all federal, state, and local requirements. The aggregate shall be free from clay lumps, organic matter, or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as nearly constant and uniform as practicable. The fine aggregate portion, defined as the portion passing the No. 4 (4.75 mm) sieve produced in crushing operations, shall be incorporated in the base material to the extent permitted by the gradation requirements. Aggregate base material requirements are listed in the following table.

AGGREGATE BASE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 50% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 60% by weight of particles with at least two fractured faces and 75% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

208-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. *The fraction of material passing the No. 200 (75 µm) sieve shall not exceed two-thirds the fraction passing the No. 40 (425 µm) sieve.*

Gradation of Aggregate Base

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances for Contractor's Final Gradation[1] Percent
2 inch (50 mm)	**100**		±0
1-1/2 inch (37.5 mm)	**70-100**		±5
1 inch (25.0 mm)	**55-85**		±8
3/4 inch (19.0 mm)	**50-80**		±8
No. 4 (4.75 mm)	**30-60**		±8
No. 40 (425 µm)	**10-30**		±5
No. 200 (75 µm)	**5-15**		±3

1 The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

208-2.3 Sampling and testing.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraphs 208-2.1 and 208-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least **two** aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 208-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

208-2.4 Separation Geotextile. Not used.

CONSTRUCTION METHODS

208-3.1 Control strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

208-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage,

the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

208-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 208-3.5, the approved material may be transported directly to the placement.

208-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course layer shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

208-3.5 Compaction. Immediately upon completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least **100%** of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D1557. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

208-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

208-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at their expense.

208-3.8 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

208-3.9 Acceptance sampling and testing. Aggregate base course shall be accepted for density and thickness on an area basis. Two tests will be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis per ASTM D3665.

a. **Density.** The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

208-4.1 The quantity of aggregate base course shall be measured by the number of square yards of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

208-5.1 Payment shall be made at the contract unit price per square yards for aggregate base course. This price shall be full compensation for furnishing all materials and for all operations, hauling, placing, and compacting of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-208-5.1	6" Aggregate Base Course - per square yards

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

American Association of State Highway and Transportation Officials (AASHTO)

M288	Standard Specification for Geosynthetic Specification for Highway Applications

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ITEM P-501 CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of cement concrete with reinforcement **or** without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross-sections shown on the plans. The terms cement concrete, hydraulic cement concrete, and concrete are interchangeable in this specification.

MATERIALS

501-2.1 Aggregates.

a. Reactivity. Fine and Coarse aggregates to be used in PCC on this project shall be tested and evaluated by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Tests must be representative of aggregate sources which will be providing material for production. ASTM C1260 and ASTM C1567 tests may be run concurrently.

(1) Coarse aggregate and fine aggregate shall be tested separately in accordance with ASTM C1260, however, the length of test shall be extended to 28 days (30 days from casting). Tests must have been completed within 6 months of the date of the concrete mix submittal.

(2) The combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

(3) If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) Concrete Research Division (CRD) C662 in lieu of ASTM C1567. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

b. Fine aggregate. Grading of the fine aggregate, as delivered to the mixer, shall conform to the requirements of ASTM C33 and the parameters identified in the fine aggregate material requirements below. Fine aggregate material requirements and deleterious limits are shown in the table below.

Fine Aggregate Material Requirements		
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Sand Equivalent	45 minimum	ASTM D2419
Fineness Modulus (FM)	2.50 ≤ FM ≤ 3.40	ASTM C136
Limits for Deleterious Substances in Fine Aggregate for Concrete		
Clay lumps and friable particles	1.0% maximum	ASTM C142
Coal and lignite	0.5% using a medium with a density of Sp. Gr. of 2.0	ASTM C123
Total Deleterious Material	1.0% maximum	

c. Coarse aggregate. The maximum size coarse aggregate shall be 1-1/2-inch.

Aggregates delivered to the mixer shall be clean, hard, uncoated aggregates consisting of crushed stone, crushed or uncrushed gravel, air-cooled iron blast furnace slag, crushed recycled concrete pavement, or a combination. The aggregates shall have no known history of detrimental pavement staining. Steel blast furnace slag shall not be permitted. Coarse aggregate material requirements and deleterious limits are shown in the table below; washing may be required to meet aggregate requirements.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 for any size group coarser than 3/8 (9.5 mm) sieve [1]	ASTM D4791
Bulk density of slag [2]	Weigh not less than 70 pounds per cubic foot (1.12 Mg/cubic meter)	ASTM C29
D-cracking (Freeze-Thaw)[3]	Durability factor ≥ 95	ASTM C666

[1] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

[2] Only required if slag is specified.

[3] Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification

and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

The amount of deleterious material in the coarse aggregate shall not exceed the following limits:

Limits for Deleterious Substances in Coarse Aggregate

Deleterious material	ASTM	Percentage by Mass
Clay Lumps and friable particles	ASTM C142	1.0
Material finer than No. 200 sieve (75 µm)	ASTM C117	1.0[1]
Lightweight particles	ASTM C123 using a medium with a density of Sp. Gr. of 2.0	0.5
Chert[2] (less than 2.40 Sp Gr.)	ASTM C123 using a medium with a density of Sp. Gr. of 2.40)	1.0
Total of all deleterious Material		3.0[1]

[1] The limit for material finer than 75-µm is allowed to be increased to 1.5% for crushed aggregates consisting of dust of fracture that is essentially free from clay or shale. Test results supporting acceptance of increasing limit to 1.5% with statement indicating material is dust of fracture must be submitted with Concrete mix. Acceptable techniques to characterizing these fines include methylene blue adsorption or X-ray diffraction analysis. The total of all deleterious materials increases up to 3.5%.

[2] Chert and aggregates with less than 2.4 specific gravity.

[3] The limit for chert may be limited to 0.1 percent by mass in areas subject to severe freeze and thaw.

d. Combined aggregate gradation. This specification is targeted for a combined aggregate gradation developed following the guidance presented in United States Air Force Engineering Technical Letter (ETL) 97-5: Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements. Base the aggregate grading upon a combination of all the aggregates (coarse and fine) to be used for the mixture proportioning. Three aggregate sizes may be required to achieve an optimized combined gradation that will produce a workable concrete mixture for its intended use. Use aggregate gradations that produce concrete mixtures with well-graded or optimized aggregate combinations. The Contractor shall submit complete mixture information necessary to calculate the volumetric components of the mixture. The combined aggregate grading shall meet the following requirements:

(1) The materials selected and the proportions used shall be such that when the Coarseness Factor (CF) and the Workability Factor (WF) are plotted on a diagram as described in paragraph 501-2.1d(4) below, the point thus determined shall fall within the parallelogram described therein.

(2) The CF shall be determined from the following equation:

CF = (cumulative percent retained on the 3/8 in. (9.5 mm) sieve)(100) / (cumulative percent retained on the No. 8 (2.36 mm) sieve)

(3) The WF is defined as the percent passing the No. 8 (2.36 mm) sieve based on the combined gradation. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds (42 kg) of cementitious material per cubic meter yard greater than 564 pounds per cubic yard (335 kg per cubic meter).

(4) A diagram shall be plotted using a rectangular scale with WF on the Y-axis with units from 20 (bottom) to 45 (top), and with CF on the X-axis with units from 80 (left side) to 30 (right side). On this diagram a parallelogram shall be plotted with corners at the following coordinates (CF-75, WF-28), (CF-75, WF-40), (CF-45, WF-32.5), and (CF-45, WF-44.5). If the point determined by the intersection of the computed CF and WF does not fall within the above parallelogram, the grading of each size of aggregate used and the proportions selected shall be changed as necessary. The point determined by the plotting of

the CF and WF may be adjusted during production ±3 WF and ±5 CF. Adjustments to gradation may not take the point outside of the parallelogram.

e. Contractors combined aggregate gradation. The Contractor shall submit their combined aggregate gradation using the following format:

Contractor's Combined Aggregate Gradation

Sieve Size	Contractor's Concrete mix Gradation (Percent passing by weight)
2 inch (50 mm)	*
1-1/2 inch (37.5 mm)	*
1 inch (25.0 mm)	*
3/4 inch (19.0 mm)	*
1/2 inch (12.5 mm)	*
3/8 inch (9.5 mm)	*
No. 4 (4.75 mm)	*
No. 8 (2.36 mm)	*
No. 16 (1.18 mm)	*
No. 30 (600 µm)	*
No. 50 (300 µm)	*
No. 100 (150 µm)	*

501-2.2 Cement. Cement shall conform to the requirements of ASTM **C150** Type **II**.

501-2.3 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total alkali content less than 3% per ASTM C311. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Resident Project Representative (RPR).

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

c. Raw or calcined natural pozzolan. Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

501-2.4 Joint seal. The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type specified in the plans.

501-2.5 Isolation joint filler. Premolded joint filler for isolation joints shall conform to the requirements of ~~*ASTM D1751 or*~~ ASTM D1752, *Type II* and shall be where shown on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified

Lithium Admixture

Constituent	Limit (Percent by Mass)
LiNO3 (Lithium Nitrate)	30 ±0.5
SO4 (Sulfate Ion)	0.1 (max)
Cl (Chloride Ion)	0.2 (max)
Na (Sodium Ion)	0.1 (max)
K (Potassium Ion)	0.1 (max)

The lithium nitrate admixture dispensing and mixing operations shall be verified and certified by the lithium manufacturer's representative.

501-2.11 Epoxy-resin. All epoxy-resin materials shall be two-component materials conforming to the requirements of ASTM C881, Class as appropriate for each application temperature to be encountered, except that in addition, the materials shall meet the following requirements:

a. Material for use for embedding dowels and anchor bolts shall be Type IV, Grade 3.

b. Material for use as patching materials for complete filling of spalls and other voids and for use in preparing epoxy resin mortar shall be Type III, Grade as approved.

c. Material for use for injecting cracks shall be Type IV, Grade 1.

d. Material for bonding freshly mixed Portland cement concrete or mortar or freshly mixed epoxy resin concrete or mortar to hardened concrete shall be Type V, Grade as approved.

501-2.12 Bond Breaker. Choke stone shall be an ASTM C33 Number 89 stone.

CONCRETE MIX

501-3.1. General. No concrete shall be placed until an acceptable concrete mix has been submitted to the RPR for review and the RPR has taken appropriate action. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

501-3.2 Concrete Mix Laboratory. The laboratory used to develop the concrete mix shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix must be included in the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the RPR prior to start of construction.

501-3.3 Concrete Mix Proportions. Develop the mix using the procedures contained in Portland Cement Association (PCA) publication, "Design and Control of Concrete Mixtures." Concrete shall be proportioned to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-6.6 for a flexural strength of **650** psi per ASTM C78.

The minimum cementitious material shall be adequate to ensure a workable, durable mix. The minimum cementitious material (cement plus fly ash, or slag cement) shall be **470** pounds per cubic yard. The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall be between 0.38 – 0.45 by weight.

Flexural strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM C78. At the start of the project, the Contractor shall determine an allowable slump as determined by ASTM C143 not to exceed 2 inches for slip-form placement. For fixed-form placement, the slump shall not exceed 3 inches. For hand placement, the slump shall not exceed 4 inches.

The results of the concrete mix shall include a statement giving the maximum nominal coarse aggregate size and the weights and volumes of each ingredient proportioned on a one cubic yard (meter) basis. Aggregate quantities shall be based on the mass in a saturated surface dry condition.

If a change in source(s) is made, or admixtures added or deleted from the mix, a new concrete mix must be submitted to the RPR for approval.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

501-3.4 Concrete Mix submittal. The concrete mix shall be submitted to the RPR at least 30 days prior to the start of operations. The submitted concrete mix shall not be more than 180 days old and must use the materials to be used for production for the project. Production shall not begin until the concrete mix is approved in writing by the RPR.

Each of the submitted concrete mixes (i.e, slip form, side form machine finish and side form hand finish) shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items and quantities as a minimum:

- Certified material test reports for aggregate in accordance with paragraph 501-2.1. Certified reports must include all tests required; reporting each test, test method, test result, and requirement specified (criteria).
- Combined aggregate gradations and analysis; and including plots of the fine aggregate fineness modulus.
- Reactivity Test Results.
- Coarse aggregate quality test results, including deleterious materials.
- Fine aggregate quality test results, including deleterious materials.
- Mill certificates for cement and supplemental cementitious materials.
- Certified test results for all admixtures, including Lithium Nitrate if applicable.
- Specified flexural strength, slump, and air content.
- Recommended proportions/volumes for proposed mixture and trial water-cementitious materials ratio, including actual slump and air content.
- Flexural and compressive strength summaries and plots, including all individual beam and cylinder breaks.
- Correlation ratios for acceptance testing and Contractor QC testing, when applicable.
- Historical record of test results documenting production standard deviation, when applicable.

501-3.5 Cementitious materials.

a. Fly ash. When fly ash is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If fly ash is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement may be used. The slag cement, or slag cement plus fly ash if both are used, may constitute between 25 to 55% of the total cementitious material by weight.

c. Raw or calcined natural pozzolan. Natural pozzolan may be used in the concrete mix. When pozzolan is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If pozzolan is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

501-3.6 Admixtures.

a. Air-entraining admixtures. Air-entraining admixture are to be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be **4.5%.** Air content shall be determined by testing in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag and other highly porous coarse aggregate.

b. Water-reducing admixtures. Water-reducing admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

c. Other admixtures. Set controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

d. Lithium nitrate. Lithium nitrate shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements in accordance with paragraph 501-2.10d.

CONSTRUCTION METHODS

501-4.1 Control Strip. The control strip(s) shall be to the next planned joint after the initial 250 feet of each type of pavement construction (slip-form pilot lane, slip-form fill-in lane, or fixed form). The Contractor shall demonstrate, in the presence of the RPR, that the materials, concrete mix, equipment, construction processes, and quality control processes meet the requirements of the specifications. The concrete mixture shall be extruded from the paver meeting the edge slump tolerance and with little or no finishing. Pilot, fill-in, and fixed-form control strips will be accepted separately. Minor adjustments to the mix design may be required to place an acceptable control strip. The production mix will be the adjusted mix design used to place the acceptable control strip. Upon acceptance of the control strip by the RPR, the Contractor must use the same equipment, materials, and construction methods for the remainder of concrete paving. Any adjustments to processes or materials must be approved in advance by the RPR. The acceptable control strip shall be paid for in accordance with paragraph 501-6.6.

501-4.2 Equipment. The Contractor is responsible for the proper operation and maintenance of all equipment necessary for handling materials and performing all parts of the work to meet this specification.

a. Plant and equipment. The plant and mixing equipment shall conform to the requirements of ASTM C94 and/or ASTM C685. Each truck mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades. The truck mixers shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

Equipment for transferring and spreading concrete from the transporting equipment to the paving lane in front of the finishing equipment shall be provided. The equipment shall be specially manufactured, self-propelled transfer equipment which will accept the concrete outside the paving lane and will spread it evenly across the paving lane in front of the paver and strike off the surface evenly to a depth which permits the paver to operate efficiently.

b. Finishing equipment.

(1) Slip-form. The standard method of constructing concrete pavements shall be with an approved slip-form paving equipment designed and operated to spread, consolidate, screed, and finish the freshly

placed concrete in one complete pass of the machine so that the end result is a dense and homogeneous pavement which is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements.

(2) Fixed-form. On projects requiring less than 10,000 cubic yard of concrete pavement or irregular areas at locations inaccessible to slip-form paving equipment, concrete pavement may be placed with equipment specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR. Hand screeding and float finishing may only be used on small irregular areas as allowed by the RPR.

c. Vibrators. Vibrator shall be the internal type. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation or voids. The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of American Concrete Institute (ACI) 309R, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The Contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the RPR.

Hand held vibrators may only be used in irregular areas and shall meet the recommendations of ACI 309R, Guide for Consolidation of Concrete.

d. Concrete saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

e. Fixed forms. Straight side fixed forms shall be made of steel and shall be furnished in sections not less than 10 feet in length. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the RPR. The top face of the form shall not vary from a true plane more than 1/8 inch in 10 feet, and the upstanding leg shall not vary more than 1/4 inch. The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the RPR. The forms shall extend the full depth of the pavement section.

501-4.3 Form setting. Forms shall be set to line and grade as shown on the plans, sufficiently in advance of the concrete placement, to ensure continuous paving operation. Forms shall be set to withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the concrete placement.

501-4.4 Base surface preparation prior to placement. Any damage to the prepared base, subbase, and subgrade shall be corrected full depth by the Contractor prior to concrete placement. The underlying surface shall be entirely free of frost when concrete is placed. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete.

501-4.5 Handling, measuring, and batching material. Aggregate stockpiles shall be constructed and managed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Store and maintain all aggregates at a uniform moisture content prior to use. A continuous supply of materials shall be provided to the work to ensure continuous placement.

501-4.6 Mixing concrete. The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time

all materials are placed into the drum until the drum is emptied into the truck. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C94 or ASTM C685.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is discharged from the truck should not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. In no case shall the temperature of the concrete when placed exceed 90°F. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified is not exceeded.

501-4.7 Weather Limitations on mixing and placing. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold weather. Unless authorized in writing by the RPR, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50°F at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150°F. The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

Curing during cold weather shall be in accordance with paragraph 501-4.13d.

b. Hot weather. During periods of hot weather when the maximum daily air temperature exceeds 85°F, the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90°F. The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The concrete placement shall be protected from exceeding an evaporation rate of 0.2 per hour. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. If the Contractor's measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

Curing during hot weather shall be in accordance with paragraph 501-4.13e.

c. Temperature management program. Prior to the start of paving operation for each day of paving, the Contractor shall provide the RPR with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. (Federal Highway Administration HIPERPAV 3 is one example of a temperature management program.) As a minimum, the program shall address the following items:

(1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

(2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity; and anticipated evaporation rate using Figure 19-9, PCA, Design and Control of Concrete Mixtures.

(3) Anticipated timing of initial sawing of joint.

(4) Anticipated number and type of saws to be used.

d. **Rain.** The Contractor shall have available materials for the protection of the concrete during inclement weather. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.8 Concrete Placement. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet. The finished concrete product must be dense and homogeneous, without segregation and conforming to the standards in this specification. Backhoes and grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used. All concrete shall be consolidated without voids or segregation, including under and around all load-transfer devices, joint assembly units, and other features embedded in the pavement. Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards concrete placed. The Contractor must determine that the above minimum strengths are adequate to protection the pavement from overloads due to the construction equipment proposed for the project.

The Contractor shall have available materials for the protection of the concrete during cold, hot and/or inclement weather in accordance with paragraph 501-4.7.

a. Slip-form construction. The concrete shall be distributed uniformly into final position by a self-propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well-defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms. The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 for slip form and at the end of the dowels for the fill-in lanes. The spacing of internal units shall be uniform and shall not exceed 18 inches.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without, segregation, voids, or vibrator trails and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one foot. The frequency of vibration or amplitude should be adjusted proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible and all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

Not more than 15% of the total free edge of each 500-foot segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch, and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch. (The total free edge of 500 feet of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet of paving lane originally constructed as a separate lane will have 1,000 feet of free edge, 500 feet of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches from the edge.

When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump will be removed the full width of the slip form lane and replaced at the expense of the Contractor as directed by the RPR.

b. Fixed-form construction. Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars / dowel bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and coated with a release agent each time they are used and before concrete is placed against them.

Concrete shall be spread, screed, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross-section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery. The equipment must be specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR.

Concrete for the full paving width shall be effectively consolidated by internal vibrators. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation, voids, or leaving vibrator trails.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

c. Consolidation. Concrete shall be consolidated with the specified type of lane-spanning, gang-mounted, mechanical, immersion type vibrating equipment mounted in front of the paver, supplemented, in rare instances as specified, by hand-operated vibrators. The vibrators shall be inserted into the concrete to a depth that will provide the best full-depth consolidation but not closer to the underlying material than 2 inches. Vibrators shall not be used to transport or spread the concrete. For each paving train, at least one additional vibrator spud, or sufficient parts for rapid replacement and repair of vibrators shall be maintained at the paving site at all times. Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) or over-consolidation (vibrator trails, segregation, or any other evidence) shall require the immediate stopping of the paving operation and adjustment of the equipment or procedures as approved by the RPR.

If a lack of consolidation of the hardened concrete is suspected by the RPR, referee testing may be required. Referee testing of hardened concrete will be performed by the RPR by cutting cores from the finished pavement after a minimum of 24 hours curing. The RPR shall visually examine the cores for evidence of lack of consolidation. Density determinations will be made by the RPR based on the water content of the core as taken. ASTM C642 shall be used for the determination of core density in the saturated-surface dry condition. When required, referee cores will be taken at the minimum rate of one for

each 500 cubic yards of pavement, or fraction. The Contractor shall be responsible for all referee testing cost if they fail to meet the required density.

The average density of the cores shall be at least 97% of the original concrete mix density, with no cores having a density of less than 96% of the original concrete mix density. Failure to meet the referee tests will be considered evidence that the minimum requirements for vibration are inadequate for the job conditions. Additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete conforms to the above requirements.

501-4.9 Strike-off of concrete and placement of reinforcement. Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the plans and to an elevation that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screed. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 Joints. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2-inch from their designated position and shall be true to line with not more than 1/4-inch variation in 10 feet. The surface across the joints shall be tested with a 12-foot straightedge as the joints are finished and any irregularities in excess of 1/4 inch shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch wide and to the depth shown on the plans.

c. Isolation (expansion). Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint. The filler shall be fastened uniformly along the hardened joint face with no buckling or debris between the filler and the concrete interface, including a temporary filler for the sealant reservoir at the top of the slab. The edges of the joint shall be finished and tooled while the concrete is still plastic

d. Dowels and Tie Bars for Joints

(1) Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth and within the tolerances in paragraph 501-4.10(f.). When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. Tie bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed.

(2) Dowel bars. Dowel bars shall be placed across joints in the proper horizontal and vertical alignment as shown on the plans. The dowels shall be coated with a bond-breaker or other lubricant recommended by the manufacturer and approved by the RPR. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

(3) Placing dowels and tie bars. Horizontal spacing of dowels shall be within a tolerance of ±3/4 inch. The vertical location on the face of the slab shall be within a tolerance of ±1/2 inch. The method used to install dowels shall ensure that the horizontal and vertical alignment will not be greater than 1/4 inch per feet, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge. The portion of each dowel intended to move within the concrete or expansion cap shall be wiped clean and coated with a thin, even film of lubricating oil or light grease before the concrete is placed. Dowels shall be installed as specified in the following subparagraphs.

(a) Contraction joints. Dowels and tie bars in longitudinal and transverse contraction joints within the paving lane shall be held securely in place by means of rigid metal frames or basket assemblies of an approved type. The basket assemblies shall be held securely in the proper location by means of suitable pins or anchors. Do not cut or crimp the dowel basket tie wires.

At the Contractor's option, dowels and tie bars in contraction joints may be installed by insertion into the plastic concrete using approved equipment and procedures per the paver manufacturer's design. Approval of installation methods will be based on the results of the control strip showing that the dowels and tie bars are installed within specified tolerances as verified by cores or non-destructive rebar location devices approved by the RPR.

(b) Construction joints. Install dowels and tie bars by the cast-in- place or the drill-and-dowel method. Installation by removing and replacing in preformed holes will not be permitted. Dowels and tie bars shall be prepared and placed across joints where indicated, correctly aligned, and securely held in the proper horizontal and vertical position during placing and finishing operations, by means of devices fastened to the forms.

(c) Joints in hardened concrete. Install dowels in hardened concrete by bonding the dowels into holes drilled into the concrete. The concrete shall have cured for seven (7) days or reached a minimum flexural strength of 450 psi before drilling begins. Holes 1/8 inch (3 mm) greater in diameter than the dowels shall be drilled into the hardened concrete using rotary-core drills. Rotary-percussion drills may be used, provided that excessive spalling does not occur. Spalling beyond the limits of the grout retention ring will require modification of the equipment and operation. Depth of dowel hole shall be within a tolerance of ±1/2 inch of the dimension shown on the drawings. On completion of the drilling operation, the dowel hole shall be blown out with oil-free, compressed air. Dowels shall be bonded in the drilled holes using epoxy resin. Epoxy resin shall be injected at the back of the hole before installing the dowel and extruded to the collar during insertion of the dowel so as to completely fill the void around the dowel. Application by buttering the dowel will not be permitted. The dowels shall be held in alignment at the collar of the hole by means of a suitable metal or plastic grout retention ring fitted around the dowel.

e. Sawing of joints. Sawing shall commence, without regard to day or night, as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs and shall continue without interruption until all joints have been sawn. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing. Curing compound or system shall be reapplied in the initial saw-cut and maintained for the remaining cure period.

Joints shall be cut in locations as shown on the plans. The initial joint cut shall be a minimum 1/8 inch wide and to the depth shown on the plans. Prior to placement of joint sealant or seals, the top of the joint shall be widened by sawing as shown on the plans.

501-4.11 Finishing. Finishing operations shall be a continuing part of placing operations starting immediately behind the strike-off of the paver. Initial finishing shall be provided by the transverse screed or extrusion plate. The sequence of operations shall be transverse finishing, longitudinal machine floating if used, straightedge finishing, edging of joints, and then texturing. Finishing shall be by the machine method. The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum. Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Compensation shall be made for surging behind the screeds or extrusion plate and settlement during hardening and care shall be taken to ensure that paving and finishing machines are properly adjusted so that the finished surface of the concrete (not just the cutting edges of the screeds) will be at the required line and grade. Finishing equipment and tools shall be maintained clean and in an approved condition. At no time shall water be added to the surface of the slab with the finishing equipment or tools, or in any other way. Fog (mist) sprays or other surface applied finishing aids specified to prevent plastic shrinkage cracking, approved by the RPR, may be used in accordance with the manufacturers requirements.

a. Machine finishing with slipform pavers. The slipform paver shall be operated so that only a very minimum of additional finishing work is required to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary. A self-propelled non-rotating pipe float may be used while the concrete is still plastic, to remove minor irregularities and score marks. Only one pass of the pipe float shall be allowed. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Remove excessive slurry from the surface with a cutting straightedge and wipe off the edge. Any slurry which does run down the vertical edges shall be immediately removed by hand, using stiff brushes or scrapers. No slurry, concrete or concrete mortar shall be used to build up along the edges of the pavement to compensate for excessive edge slump, either while the concrete is plastic or after it hardens.

b. Machine finishing with fixed forms. The machine shall be designed to straddle the forms and shall be operated to screed and consolidate the concrete. Machines that cause displacement of the forms shall be replaced. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operation shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary.

c. Other types of finishing equipment. Clary screeds, other rotating tube floats, or bridge deck finishers are not allowed on mainline paving, but may be allowed on irregular or odd-shaped slabs, and near buildings or trench drains, subject to the RPR's approval.

Bridge deck finishers shall have a minimum operating weight of 7500 pounds and shall have a transversely operating carriage containing a knock-down auger and a minimum of two immersion vibrators. Vibrating screeds or pans shall be used only for isolated slabs where hand finishing is permitted as specified, and only where specifically approved.

d. Hand finishing. Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade and (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical.

e. Straightedge testing and surface correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a 12-foot finishing straightedge swung from handles capable of spanning at least one-half the width of the slab. The straightedge shall be held in contact

with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross-section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

501-4.12 Surface texture. The surface of the pavement shall be finished as designated below for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. The texture shall be uniform in appearance and approximately 1/16 inch (2 mm) in depth. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the RPR.

a. Brush or broom finish. Shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface.

b. Burlap drag finish. Not used.

c. Artificial turf finish. Not used.

501-4.13 Curing. Immediately after finishing operations are completed and bleed water is gone from the surface, all exposed surfaces of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-saw-cut method is used to construct the contraction joint, the curing compound shall be applied to the saw-cut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious membrane method. Curing with liquid membrane compounds should not occur until bleed and surface moisture has evaporated. All exposed surfaces of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of one gallon to not more than 150 square feet. The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application, the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the RPR, a double application rate shall be used to ensure coverage. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. White burlap-polyethylene sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for seven (7) days after the concrete has been placed.

~~***c. Water method.*** *The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for seven (7) days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.*~~

d. Concrete protection for cold weather. Maintain the concrete at a temperature of at least 50°F for a period of 72 hours after placing and at a temperature above freezing for the remainder of the 7-day curing period. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather; and any concrete damaged shall be removed and replaced at the Contractor's expense.

e. Concrete protection for hot weather. Concrete should be continuous moisture cured for the entire curing period and shall commence as soon as the surfaces are finished and continue for at least 24 hours. However, if moisture curing is not practical beyond 24 hours, the concrete surface shall be protected from drying with application of a liquid membrane-forming curing compound while the surfaces are still damp. Other curing methods may be approved by the RPR.

501-4.14 Removing forms. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured in accordance with paragraph 501-4.13.

If honeycombed areas are evident when the forms are removed, materials, placement, and consolidation methods must be reviewed and appropriate adjustments made to assure adequate consolidation at the edges of future concrete placements. Honeycombed areas that extend into the slab less than approximately 1 inch, shall be repaired with an approved grout, as directed by the RPR. Honeycombed areas that extend into the slab greater than a depth of 1 inch shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-4.19.

501-4.15 Saw-cut grooving. If shown on the plans, grooved surfaces shall be provided in accordance with the requirements of Item P-621.

501-4.16 Sealing joints. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 Protection of pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents until accepted by the RPR. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

Aggregates, rubble, or other similar construction materials shall not be placed on airfield pavements. Traffic shall be excluded from the new pavement by erecting and maintaining barricades and signs until the concrete is at least seven (7) days old, or for a longer period if directed by the RPR.

In paving intermediate lanes between newly paved pilot lanes, operation of the hauling and paving equipment will be permitted on the new pavement after the pavement has been cured for seven (7) days, the joints are protected, the concrete has attained a minimum field cured flexural strength of 450 psi (3100 kPa), and the slab edge is protected.

All new and existing pavement carrying construction traffic or equipment shall be kept clean and spillage of concrete and other materials shall be cleaned up immediately.

Damaged pavements shall be removed and replaced at the Contractor's expense. Slabs shall be removed to the full depth, width, and length of the slab.

501-4.18 Opening to construction traffic. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a flexural strength of 450 pounds per square inch when tested in accordance with ASTM C78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion

of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion.

501-4.19 Repair, removal, or replacement of slabs. New pavement slabs that are broken or contain cracks or are otherwise defective or unacceptable as defined by acceptance criteria in paragraph 501-6.6 shall be removed and replaced or repaired, as directed by the RPR, at the Contractor's expense. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The RPR will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be have a diameter of 2 inches to 4 inches, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with a bonding agent, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the Owner. Repair of cracks as described in this section shall not be allowed if in the opinion of the RPR the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of cracks shall be allowed in any panel that demonstrates segregated aggregate with an absence of coarse aggregate in the upper 1/8 inch of the pavement surface.

a. Shrinkage cracks. Shrinkage cracks which do not exceed one-third of the pavement depth shall be cleaned and either high molecular weight methacrylate (HMWM) applied; or epoxy resin (Type IV, Grade 1) pressure injected using procedures recommended by the manufacturer and approved by the RPR. Sandblasting of the surface may be required following the application of HMWM to restore skid resistance. Care shall be taken to ensure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the RPR. Shrinkage cracks which exceed one-third the pavement depth shall be treated as full depth cracks in accordance with paragraphs 501-4.19b and 501-19c.

b. Slabs with cracks through interior areas. Interior area is defined as that area more than 6 inches (150 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the Owner, when there are any full depth cracks, or cracks greater than one-third the pavement depth, that extend into the interior area.

c. Cracks close to and parallel to joints. All full-depth cracks within 6 inches either side of the joint and essentially parallel to the original joints, shall be treated as follows.

(1) Full depth cracks and original joint not cracked. The full-depth crack shall be treated as the new joint and the original joint filled with an epoxy resin.

i. Full-depth crack. The joint sealant reservoir for the crack shall be formed by sawing to a depth of 3/4 inches, ±1/16 inch, and to a width of 5/8 inch, ±1/8 inch. The crack shall be sawed with equipment specially designed to follow random cracks. Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent raveling or spalling. The joint shall be sealed with sealant in accordance with P-605 or as directed by the RPR.

ii. Original joint. If the original joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures.

Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full depth cracks and original joint cracked. If there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced.

d. Removal and replacement of full slabs. Make a full depth cut perpendicular to the slab surface along all edges of the slab with a concrete saw cutting any dowels or tie-bars. Remove damaged slab

protecting adjacent pavement from damage. Damage to adjacent slabs may result in removal of additional slabs as directed by the RPR at the Contractor's expense.

The underlying material shall be repaired, re-compacted and shaped to grade.

Dowels of the size and spacing specified for other joints in similar pavement on the project shall be installed along all four (4) edges of the new slab in accordance with paragraph 501-4.10d.

Placement of concrete shall be as specified for original construction. The joints around the new slab shall be prepared and sealed as specified for original construction.

e. Spalls along joints.

(1) Spalls less than one inch wide and less than the depth of the joint sealant reservoir, shall be filled with joint sealant material.

(2) Spalls larger than one inch and/or deeper than the joint reservoir, but less than ½ the slab depth, and less than 25% of the length of the adjacent joint shall be repaired as follows:

i. Make a vertical saw cut at least one inch (25 mm) outside the spalled area and to a depth of at least 2 inches (50 mm). Saw cuts shall be straight lines forming rectangular areas surrounding the spalled area.

ii. Remove unsound concrete and at least 1/2 inch (12 mm) of visually sound concrete between the saw cut and the joint or crack with a light chipping hammer.

iii. Clean cavity with high-pressure water jets supplemented with compressed air as needed to remove all loose material.

iv. Apply a prime coat of epoxy resin, Type III, Grade I, to the dry, cleaned surface of all sides and bottom of the cavity, except any joint face.

v. Fill the cavity with low slump concrete or mortar or with epoxy resin concrete or mortar.

vi. An insert or other bond-breaking medium shall be used to prevent bond at all joint faces.

vii. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints.

(3) Spalls deeper than 1/2 of the slab depth or spalls longer than 25% of the adjacent joint require replacement of the entire slab.

f. Diamond grinding of Concrete surfaces. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding of the hardened concrete should not be performed until the concrete is at least 14 days old and has achieved full minimum strength. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. The depth of diamond grinding shall not exceed 1/2 inch and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified.

Diamond grinding shall be performed with a machine specifically designed for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with sufficient number of flush cut blades that create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The Contractor shall determine the number and type of blades based on the hardness of the aggregate. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces.

Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. All grinding shall be at the expense of the Contractor.

CONTRACTOR QUALITY CONTROL (CQC)

501-5.1 Quality control program. The Contractor shall develop a Quality Control Program in accordance with Item C-100. No partial payment will be made for materials that are subject to specific quality control requirements without an approved quality control program.

501-5.2 Contractor Quality Control (CQC). The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

501-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to this specification and as set forth in the CQCP. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content. A QC Testing Plan shall be developed and approved by the RPR as part of the CQCP.

The RPR may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

a. Fine aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C70 or ASTM C566.

(3) Deleterious substances. Fine aggregate as delivered to the mixer shall be tested for deleterious substances in fine aggregate for concrete as specified in paragraph 501-2.1b, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C566.

(3) Deleterious substances. Coarse aggregate as delivered to the mixer shall be tested for deleterious substances in coarse aggregate for concrete as specified in paragraph 501-2.1c, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

c. Slump. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

d. Air content. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

e. Unit weight and Yield. One test shall be made for each sublot. Unit weight and yield tests shall be in accordance with ASTM C138. The samples shall be taken in accordance with ASTM C172 and at the same time as the air content tests.

f. Temperatures. Temperatures shall be checked at least four times per lot at the job site in accordance with ASTM C1064.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot straightedge or a rolling inclinometer meeting the requirements of ASTM E2133. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer is used, the data may be evaluated using the FAA profile program, ProFAA, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 ft or greater.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 501-6.6.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade will be evaluated prior to and after placement of the concrete surface.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch (12 mm) vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR by the end of the following working day.

Areas with humps or depression that that exceed grade or smoothness and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the

thickness specified on the plans. If these areas cannot be corrected with grinding then the slabs that are retaining water must be removed and replaced in accordance with paragraph 501-4.19d. Grinding shall be in accordance with paragraph 501-4.19f. All corrections will be at the Contractors expense.

501-5.4 Control charts. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, slump, and air content. The Contractor shall also maintain a control chart plotting the coarseness factor/workability factor from the combined gradations in accordance with paragraph 501-2.1d.

Control charts shall be posted in a location satisfactory to the RPR and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the RPR may halt production or acceptance of the material.

a. Fine and coarse aggregate gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Superimposed on the control charts shall be the action and suspension limits. Gradation tests shall be performed by the Contractor per ASTM C136. The Contractor shall take at least two samples per lot to check the final gradation. Sampling shall be per ASTM D75 from the flowing aggregate stream or conveyor belt.

b. Slump and air content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

c. Combined gradation. The Contractor shall maintain a control chart plotting the coarseness factor and workability factor on a chart in accordance with paragraph 501-2.1d.

Control Chart Limits[1]

Control Parameter	Individual Measurements	
	Action Limit	Suspension Limit
Gradation[2]	*[3]	*[3]
Coarseness Factor (CF)	±3.5	±5
Workability Factor (WF)	±2	±3
Slump	+0.5 to -1 inch (+13 to -25 mm)	+1 to -1.5 inch (+25 to -38 mm)
Air Content	±1.5%	±2.0%

[1] Control charts shall developed and maintained for each control parameter indicated.

[2] Control charts shall be developed and maintained for each sieve size.

[3] Action and suspension limits shall be determined by the Contractor.

501-5.5 Corrective action at Suspension Limit. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of control. The CQCP shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and coarse aggregate gradation. When two consecutive averages of five tests are outside of the suspension limits, immediate steps, including a halt to production, shall be taken to correct the grading.

b. Coarseness and Workability factor. When the CF or WF reaches the applicable suspension limits, the Contractor, immediate steps, including a halt to production, shall be taken to correct the CF and WF.

c. Fine and coarse aggregate moisture content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher and water batcher shall be adjusted.

d. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

e. Air content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

MATERIAL ACCEPTANCE

501-6.1 Quality Assurance (QA) Acceptance sampling and testing. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the RPR. The Contractor shall provide adequate facilities for the initial curing of beams. The Contractor shall bear the cost of providing initial curing facilities and coring and filling operations, per paragraph 501-6.5b(1).

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60° to 80°F, and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

501-6.2 Quality Assurance (QA) testing laboratory. Quality assurance testing organizations performing these acceptance tests will be accredited in accordance with ASTM C1077. The quality assurance laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods will be submitted to the RPR prior to start of construction.

501-6.3 Lot size. Concrete will be accepted for strength and thickness on a lot basis. A lot will consist of a day's production not to exceed 6,000 square yards. Each lot will be divided into approximately equal sublots with individual sublots between 1000 to 1500 square yards. Where three sublots are produced, they will constitute a lot. Where one or two sublots are produced, they will be incorporated into the previous or next lot. Where more than one plant is simultaneously producing concrete for the job, the lot sizes will apply separately for each plant.

501-6.4 Partial lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot or for overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they will constitute a lot. Where one or two sublots have been produced, they will be incorporated into the next lot or the previous lot and the total number of sublots will be used in the acceptance criteria calculation, that is, n=5 or n=6.

501-6.5 Acceptance Sampling and Testing.

a. Strength.

(1) Sampling. One sample will be taken for each sublot from the concrete delivered to the job site. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. The concrete will be sampled in accordance with ASTM C172.

(2) Test Specimens. The RPR will be responsible for the casting, initial curing, transportation, and curing of specimens in accordance with ASTM C31. Two (2) specimens will be made from each sample and slump, air content, unit weight, and temperature tests will be conducted for each set of strength specimens. Within 24 to 48 hours, the samples will be transported from the field to the laboratory while in the molds. Samples will be cured in saturated lime water.

The strength of each specimen will be determined in accordance with ASTM C78. The strength for each sublot will be computed by averaging the results of the two test specimens representing that sublot.

(3) Acceptance. Acceptance of pavement for strength will be determined by the RPR in accordance with paragraph 501-6.6b(1). All individual strength tests within a lot will be checked for outliers in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded and the remaining test values will be used to determine acceptance in accordance with paragraph 501-6.5b.

b. Pavement thickness.

(1) Sampling. One core will be taken by the Contractor for each sublot in the presence of the RPR. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. Areas, such as thickened edges, with planned variable thickness, will be excluded from sample locations.

Cores shall be a minimum 4 inch in diameter neatly cut with a core drill. The Contractor will furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes will be filled by the Contractor with a non-shrink grout approved by the RPR within one day after sampling.

(2) Testing. The thickness of the cores will be determined by the RPR by the average caliper measurement in accordance with ASTM C174. Each core shall be photographed and the photograph included with the test report.

(3) Acceptance. Acceptance of pavement for thickness will be determined by the RPR in accordance with paragraph 501-6.6.

501-6.6 Acceptance criteria.

a. General. Acceptance will be based on the following characteristics of the completed pavement discussed in paragraph 501-6.5b:

(1) Strength
(2) Thickness
(3) Grade
(4) Profilograph smoothness
(5) Adjustments for repairs

Acceptance for strength, thickness, and grade, will be based on the criteria contained in accordance with paragraph 501-6.6b(1), 501-6.6b(2), and 501-6.6b(3), respectively. Acceptance for profilograph smoothness will be based on the criteria contained in paragraph 501-6.6b(4).

Production quality must achieve 90 PWL or higher to receive full payment.

Strength and thickness will be evaluated for acceptance on a lot basis using the method of estimating PWL. Production quality must achieve 90 PWL or higher to receive full pavement. The PWL will be determined in accordance with procedures specified in Item C-110.

The lower specification tolerance limit (L) for strength and thickness will be:

Lower Specification Tolerance Limit (L)

Strength	0.93 × strength specified in paragraph 501-3.3
Thickness	Lot Plan Thickness in inches, - 0.50 in

b. Acceptance criteria.

(1) Strength. If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(3) Grade. The final finished surface of the pavement of the completed project will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically or 0.1 feet laterally. The documentation, stamped and signed by a licensed surveyor shall be in accordance with paragraph 501-5.3h. Payment for sublots that do not meet grade for over 25% of the sublot shall reduced by 5% and not be more than 95%.

(4) Profilograph roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hrs of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline. Any areas that indicate "must grind" shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing full depth of surface course. as directed by the RPR. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

(5) Adjustments for repair. Sublots with spall repairs, crack repairs, or partial panel replacement, will be limited to no more than 95% payment.

(6) Adjustment for grinding. For sublots with grinding over 25% of a sublot, payment will be reduced 5%.

METHOD OF MEASUREMENT

501-7.1 Concrete pavement shall be measured by the number of square yards of **either** plain **or** reinforced pavement as specified in-place, completed and accepted.

BASIS OF PAYMENT

501-8.1 Payment. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-6.6. Acceptance Criteria shall be based on results of strength smoothness, and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness; 501-8.1b for repairs; 501-8.1c for grinding; and 501-8.1d for smoothness, subject to the limitation that:

The total project payment for concrete pavement shall not exceed **100** percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under the Price Adjustment Schedule table below).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings.

a. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with the Price Adjustment Schedule table below. A pay factor shall be calculated for both strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both strength and thickness are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either strength or thickness is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both strength and thickness are less than 100%.

Price Adjustment Schedule[1]

Percentage of Materials Within Specification Limits (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96 – 100	106
90 – 95	PWL + 10
75 – 90	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject[2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment in excess of 100% shall be subject to the total project payment limitation specified in paragraph 501-8.1.

[2] The lot shall be removed and replaced unless, after receipt of FAA concurrence, the Owner and Contractor agree in writing that the lot will remain; the lot paid at 50% of the contract unit price; and the total project payment limitation reduced by the amount withheld for that lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100% for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100%; except for rejected lots which remain in place and/or sublots with adjustments for repairs.

b. Adjusted payment for repairs. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots which contain repairs in accordance with paragraph 501-4.19 on more than 20% of the slabs within the sublot. Payment factors greater than 100 percent for the strength and thickness cannot be used to offset adjustments for repairs.

c. Adjusted payment for grinding. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots with grinding over 25% of a sublot.

d. Profilograph Roughness. The Contractor will receive full payment when the profilograph average profile index is in accordance with paragraph 501-6.6b(4). When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the contract unit price for the completed pavement.

e. Payment. Payment shall be made under:

Item P-501-8.1 11.5" Portland Cement Concrete Pavement – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A996	Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM A1035	Standard Specification for Deformed and Plain, Low-Carbon, Chromium, Steel Bars for Concrete Reinforcement
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM A1078	Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement
ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C70	Standard Test Method for Surface Moisture in Fine Aggregate
ASTM C78	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement

ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C881	Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064	Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber and Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Concrete Institute (ACI)

ACI 305R	Guide to Hot Weather Concreting
ACI 306R	Guide to Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

Federal Highway Administration (FHWA)

HIPERPAV 3, version 3.2

Portland Concrete Association (PCA)

PCA	Design and Control of Concrete Mixtures, 16th Edition

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD)

CRD C662	Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

United States Air Force Engineering Technical Letter (ETL)

ETL 97-5	Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements

END ITEM P-501

ITEM P-605 JOINT SEALANTS FOR PAVEMENTS

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of ASTM D5893 Type SL.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch wider than the nominal width of the joint and shall not bond to the joint sealant.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

Prior to beginning the sealing operation, the Contractor shall have the sealant supplier demonstrate, to the satisfaction of the Engineer, the cleaning and installation procedures for the joint sealant to be installed on the project.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 14 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. The Contractor must demonstrate sandblasting equipment including the air compressor, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.

d. Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with

paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications.

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by sandblasting as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

c. Backer Rod. When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a backer rod in accordance with paragraph 605-2.2 to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-separating tape breaker in accordance with paragraph 605-2.3 to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch ±1/16 inch below the top of

pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealing *shall not be measured for separate payment.* ~~material shall be measured by the [gallon] [pound] [linear foot] of sealant in place, completed, and accepted.~~

BASIS OF PAYMENT

605-5.1 *Joint sealing shall be considered subsidiary to the item in which it is contained.* ~~Payment for joint sealing material shall be made at the contract unit price per [gallon] [pound] [linear foot]. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D5893	Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids

END ITEM P-605

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ITEM P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

~~**a. Reactivity.** Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.~~

~~If the expansion is greater than 0.20% the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.~~

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
¾ inch (19 mm)	67
½ inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the

material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified in Item P-501.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 Type I.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751 or ASTM D1752.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615.

610-2.11 Materials for curing concrete. Curing materials shall conform to ASTM C171 (Waterproof paper) or ASTM C309 (White-pigmented liquid membrane-forming compound, Type 2, Class B).

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4,000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85°F, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY *CONTROL (QC)* ~~ASSURANCE (QA)~~

610-4.1 Quality *Control* ~~Assurance~~ sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The *Contractor* ~~RPR~~ will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The *QC* ~~QA~~ testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate payment shall be made. This shall be full compensation for furnishing all materials including reinforcement and embedded items and for all preparation, delivery, installation, and curing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
Waterborne Type II	White	37925	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Yellow	33538 or 33655	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Red	31136	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Black	37038	115 ft²/gal	N/A	N/A

[1] See paragraph 620-2.2a

[2] See paragraph 620-2.2b

a. Paint. Paint shall be waterborne and preformed thermoplastic *(where specified in the construction drawings)* in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

~~**Preformed Thermoplastic Airport Pavement Markings.** Markings must be composed of ester modified resins in conjunction with aggregates, pigments, and binders that have been factory produced as a finished product. The material must be impervious to degradation by aviation fuels, motor fuels, and lubricants.~~

(1) The markings must be able to be applied in temperatures as low as 35°F without any special storage, preheating, or treatment of the material before application.

(a) The markings must be supplied with an integral, non-reflectorized black border.

(2) Graded glass beads.

(a) The material must contain a minimum of 30% intermixed graded glass beads by weight. The intermixed beads shall conform to Federal Specification TT-B-1325D, Type I, gradation A and Federal Specification TT-B-1325D, Type IV.

(b) The material must have factory applied coated surface beads in addition to the intermixed beads at a rate of one (1) lb (±10%) per 10 square feet. These factory applied coated surface beads shall have a minimum of 90% true spheres, minimum refractive index of 1.50, and meet the following gradation.

Preformed Thermoplastic Bead Gradation

Size Gradation		Retained, %	Passing, %
U.S. Mesh	µm		
12	1700	0 – 2	98 – 100
14	1400	0 – 3.5	96.5 – 100
16	1180	2 – 25	75 – 98
18	1000	28 – 63	37 – 72
20	850	63 – 72	28 – 37
30	600	67 – 77	23 – 33
50	300	89 – 95	5 – 11
80	200	97 – 100	0 – 3

(3) Heating indicators. The material manufacturer shall provide a method to indicate that the material has achieved satisfactory adhesion and proper bead embedment during application and that the installation procedures have been followed.

(4) Pigments. Percent by weight.

(a) White:

Titanium Dioxide, ASTM D476, type II shall be 10% minimum.

(b) Yellow and Colors:

Titanium Dioxide, ASTM D476, type II shall be 1% minimum.

Organic yellow, other colors, and tinting as required to meet color standard.

(5) Prohibited materials. The manufacturer shall certify that the product does not contain mercury, lead, hexavalent chromium, halogenated solvents, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant federal regulations.

(6) Daylight directional reflectance.

(a) White: The daylight directional reflectance of the white paint shall not be less than 75% (relative to magnesium oxide), when tested in accordance with ASTM E2302.

(b) Yellow: The daylight directional reflectance of the yellow paint shall not be less than 45% (relative to magnesium oxide), when tested in accordance with ASTM E2302. The x and y values shall be consistent with the federal Hegman yellow color standard chart for traffic yellow standard 33538, or shall be consistent with the tolerance listed below:

~~x .462~~	~~x .479~~	~~x .479~~	~~x .501~~
~~y .438~~	~~y .455~~	~~y .428~~	~~y .452~~

~~(7) Skid resistance. The surface, with properly applied and embedded surface beads, must provide a minimum resistance value of 45 BPN when tested according to ASTM E303.~~

~~(8) Thickness. The material must be supplied at a nominal thickness of 65 mil.~~

~~(9) Environmental resistance. The material must be resistant to deterioration due to exposure to sunlight, water, salt, or adverse weather conditions and impervious to aviation fuels, gasoline, and oil.~~

~~(10) Retroreflectivity. The material, when applied in accordance with manufacturer's guidelines, must demonstrate a uniform level of nighttime retroreflection when tested in accordance to ASTM E1710.~~

~~(11) Packaging. Packaging shall protect the material from environmental conditions until installation.~~

~~(12) Preformed thermoplastic airport pavement marking requirements.~~

~~(a) The markings must be a resilient thermoplastic product with uniformly distributed glass beads throughout the entire cross-sectional area. The markings must be resistant to the detrimental effects of aviation fuels, motor fuels and lubricants, hydraulic fluids, deicers, anti-icers, protective coatings, etc. Lines, legends, and symbols must be capable of being affixed to asphalt and/or Portland cement concrete pavements by the use of a large radiant heater. Colors shall be available as required.~~

~~(b) The markings must be capable of conforming to pavement contours, breaks, and faults through the action of airport traffic at normal pavement temperatures. The markings must be capable of fully conforming to grooved pavements, including pavement grooving per advisory circular (AC) 150/5320-12, current version. The markings shall have resealing characteristics, such that it is capable of fusing with itself and previously applied thermoplastics when heated with a heat source per manufacturer's recommendation.~~

~~(c) Multicolored markings must consist of interconnected individual pieces of preformed thermoplastic pavement marking material, which through a variety of colors and patterns, make up the desired design. The individual pieces in each large marking segment (typically more than 20 feet long) must be factory assembled with a compatible material and interconnected so that in the field it is not necessary to assemble the individual pieces within a marking segment. Obtaining multicolored effect by overlaying materials of different colors is not acceptable due to resulting inconsistent marking thickness and inconsistent application temperature in the marking/substrate interface.~~

~~(d) The marking material must set up rapidly, permitting the access route to be re-opened to traffic after application.~~

~~(e) The marking material shall have an integral color throughout the thickness of the marking material.~~

b. Reflective media. Glass beads for white, yellow *and red* paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

Type III glass beads shall not be used in red and pink paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface

temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. ~~A period of 30 days shall elapse between placement of surface course or seal coat and application of the permanent paint markings~~. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

~~**620-3.6 Application--preformed thermoplastic airport pavement markings.**~~

~~To ensure minimum single-pass application time and optimum bond in the marking/substrate interface, the materials must be applied using a variable-speed self-propelled mobile heater with an effective heating width of no less than 16 feet and a free span between supporting wheels of no less than 18 feet. The heater must emit thermal radiation to the marking material in such a manner that the difference in temperature of 2 inches wide linear segments in the direction of heater travel must be within 5% of the overall average temperature of the heated thermoplastic material as it exits the heater. The material must be able to be applied at ambient and pavement temperatures down to 35°F without any preheating of the pavement to a specific temperature. The material must be able to be applied without the use of a thermometer. The pavement shall be clean, dry, and free of debris. A non-volatile organic content (non-VOC) sealer with a maximum applied viscosity of 250 centiPoise must be applied to the pavement shortly before the markings are applied. The supplier must enclose application instructions with each box/package.~~

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other. *The contractor shall be responsible for this test.*

Minimum Retro-Reflectance Values

Material	Retro-reflectance mcd/m²/lux		
	White	Yellow	Red
Initial Type I	300	175	35
Initial Type III	600	300	35
Initial Thermoplastic	225	100	35
All materials, remark when less than[1]	100	75	10

[1] 'Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

~~**620-4.1a** The quantity of surface preparation shall be measured by the number of square feet of surface preparation.~~

620-4.1b The quantity of markings shall be paid for shall be measured by the number of square feet of painting.

~~**620-4.1c** The quantity of reflective media shall be paid for by **[** the number of pounds **] [** lump sum **]** of reflective media.~~

~~**620-4.1d [** The quantity of temporary markings to be paid for shall be **[** the number of square feet of painting **] [** lump sum price **]** performed in accordance with the specifications and accepted by the RPR. Temporary marking includes surface preparation, application and complete removal of the temporary marking. **] [** Temporary markings not required. **]**~~

~~**620-4.1e** The quantity of preformed markings to be paid for shall be the number of square feet of preformed markings.~~

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.

~~**620-5.1a** Payment for surface preparation shall be made at the contract price for the number of square feet of surface preparation.~~

620-5.2b Payment for markings shall be made at the contract price for the number of square feet of painting.

~~**620-5.3c** Payment for reflective media shall be made at the contract unit price for **[** the number of pounds of reflective media **] [** lump sum **]**.~~

~~**620-5.4d** Payment for temporary markings shall be made at the contract price for [the number of square feet of painting] [lump sum price]. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item. [Temporary markings are not required.]~~

~~**620-5.5e** Payment for preformed markings shall be made at the contract price for the number of square feet of preformed markings.~~

Payment will be made under:

Item P-620-5.1a	Pavement Markings (White) with Reflective Media - per square foot
Item P-620-5.1b	Pavement Markings (Yellow) with Reflective Media – per square foot
Item P-620-5.1c	Pavement Markings (Red) with Reflective Media - per square foot
Item P-620-5.1d	Pavement Markings (Black) without Reflective Media - per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR	Part 60, Appendix A-7, Method 24 Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings

29 CFR Part 1910.1200 Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B	Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1	Standards for Airport Markings
AC 150/5320-12	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

ITEM D-701 PIPE FOR STORM DRAINS AND CULVERTS

DESCRIPTION

701-1.1 This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans. *All reinforced concrete pipe shall be Class III pipe unless otherwise denoted on the plans. No pick-eye holes will be allowed.*

MATERIALS

701-2.1 Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

701-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe

701-2.3 Concrete. Not used.

701-2.4 Rubber gaskets. Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the "RE" closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

701-2.5 Joint mortar. Not used.

701-2.6 Joint fillers. Not used.

701-2.7 Plastic gaskets. Not used.

701-2.8. Controlled low-strength material (CLSM). Not used.

701-2.9 Precast box culverts. Manufactured in accordance with and conforming to ASTM C1433.

701-2.10 Precast concrete pipe. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification program.

CONSTRUCTION METHODS

701-3.1 Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch or 1/2 inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

701-3.2 Bedding. The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

a. Rigid pipe. The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be *number 57 stone as defined in ASTM C 33 or approved equal.* ~~loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.~~

~~**b. Flexible pipe.** For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:~~

~~**Flexible Pipe Bedding**~~

~~Pipe Corrugation Depth~~		~~Minimum Bedding Depth~~	
~~inch~~	~~mm~~	~~inch~~	~~mm~~
~~1/2~~	~~12~~	~~1~~	~~25~~
~~1~~	~~25~~	~~2~~	~~50~~
~~2~~	~~50~~	~~3~~	~~75~~
~~2-1/2~~	~~60~~	~~3-1/2~~	~~90~~

~~**c. Other pipe materials.** For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of 3/4 inches. For pipes installed under paved areas, no more than 12% of the material shall pass the No. 200 (0.075 mm) sieve. For all other areas, no more than 50% of the material shall pass the No. 200 (0.075 mm) sieve. The bedding shall have a thickness of at least 6 inches below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.~~

701-3.3 Laying pipe. The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

701-3.4 Joining pipe. Joints shall be made with ~~(1) cement mortar, (2) cement grout~~, (3) rubber gaskets, ~~(4) plastic gaskets, (5) coupling bands~~

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

a. Concrete pipe. Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. Concrete pipe joints shall be sealed with rubber gaskets meeting ASTM C443 when leak resistant joints are required.

~~**b. Metal pipe.** Metal pipe shall be firmly joined by form-fitting bands conforming to the requirements of ASTM A760 for steel pipe and AASHTO M196 for aluminum pipe.~~

~~**c. PVC, Polyethylene, or Polypropylene pipe.** Joints for PVC, Polyethylene, or Polypropylene pipe shall conform to the requirements of ASTM D3212 when leak resistant joints are required. Joints for PVC and Polyethylene pipe shall conform to the requirements of AASHTO M304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252 or ASTM M294. Fittings for polypropylene pipe shall conform to ASTM F2881, ASTM F2736, or ASTM F2764.~~

~~**d. Fiberglass pipe.** Joints and fittings shall be as detailed on the plans and in accordance with the manufacturers recommendations. [Joints shall meet the requirements of ASTM D4161 for flexible elastomeric seals.] [Enter manufacturers joint installation requirements.]~~

701-3.5 Embedment and Overfill. Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

701-3.5-1 Embedment Material Requirements

a. Concrete Pipe. Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

~~**b. Plastic and fiberglass Pipe.** Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.~~

~~**c. Metal Pipe.** Embedment material shall be granular as specified in the contract document and specifications, and shall be free of organic material, rock fragments larger than 1.5 inches in the greatest dimension and frozen lumps. As a minimum, backfill materials shall meet the requirements of ASTM D3282, A-1, A-2, or A-3. Embedment material shall extend to 12 inches above the top of the pipe.~~

701-3.5-2 Placement of Embedment Material. The embedment material shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall be brought up one foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on each side of the pipe to one foot above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

701-3.6 Overfill. Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D1557. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

701-3.7 Inspection Requirements

An initial post installation inspection shall be performed by the RPR no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

The Contractor shall use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe interior. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

METHOD OF MEASUREMENT

701-4.1 The length of pipe shall be measured in linear feet of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. Each class, types and size of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

701-4.2 Not used.

701-4.3 Not used.

701-4.4 Not used.

701-4.5 *The volume of bedding will not be measured for separate payment but will be considered subsidiary to pipe installation.*

BASIS OF PAYMENT

701-5.0 These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

701-5.1 Payment will be made at the contract unit price per linear foot for Each class and size of pipe.

701-5.2 Not used.

701-5.3 Not used.

701-5.4 Not used.

Payment will be made under:

Item D-701-5.1	18" Reinforced Concrete Pipe, Class III - per linear foot
Item D-701-5.2	24" Reinforced Concrete Pipe, Class III - per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M167	Standard Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
AASHTO M190	Standard Specification for Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M196	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
AASHTO M219	Standard Specification for Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches
AASHTO M243	Standard Specification for Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches
AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
AASHTO M304	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO MP20	Standard Specification for Steel Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 900-mm (12- to 36-in.) Diameter

ASTM International (ASTM)

ASTM A760	Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A761	Standard Specification for Corrugated Steel Structural Plate, Zinc Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
ASTM A762	Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains
ASTM A849	Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe
ASTM B745	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
ASTM C14	Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C94	Standard Specification for Ready Mixed Concrete
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement

ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C507	Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe
ASTM C655	Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe
ASTM C990	Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM D1056	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber
ASTM D3034	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3262	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Sewer Pipe
ASTM D3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
ASTM D4161	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F667	Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings
ASTM F714	Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter
ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F894	Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F2435	Standard Specification for Steel Reinforced Polyethylene (PE) Corrugated Pipe
ASTM F2562	Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage

ASTM F2736	Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe
ASTM F2764	Standard Specification for 30 to 60 in. (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
ASTM F2881	Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

National Fire Protection Association (NFPA)

NFPA 415	Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways

END ITEM D-701

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ITEM D-751 MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

DESCRIPTION

751-1.1 This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

~~**751-2.1 Brick.** The brick shall conform to the requirements of ASTM C32, Grade MS.~~

~~**751-2.2 Mortar.** Mortar shall consist of one part Portland cement and two parts sand. The cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.~~

751-2.3 Concrete. Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

751-2.4 Precast concrete pipe manhole rings. Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches nor more than 48 inches. There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole. Gaskets shall conform to the requirements of ASTM C443.

751-2.5 Corrugated metal. Corrugated metal shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M36.

751-2.6 Frames, covers, and grates. The castings shall conform to one of the following requirements:

~~**a.** ASTM A48, Class 35B: Gray iron castings~~

~~**b.** ASTM A47: Malleable iron castings~~

~~**c.** ASTM A27: Steel castings~~

~~**d.** ASTM A283, Grade D: Structural steel for grates and frames~~

e. ASTM A536, Grade 65-45-12: Ductile iron castings

~~**f.** ASTM A897: Austempered ductile iron castings~~

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

751-2.7 Steps. The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of asphalt paint, when directed.

751-2.8 Precast inlet structures. Manufactured in accordance with and conforming to ASTM C913.

CONSTRUCTION METHODS

751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and footings to the lines and grades or elevations, shown on the plans, or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximately only; and the RPR may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage finished masonry. The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

~~**751-3.2 Brick structures.**~~

~~**a. Foundations.** A prepared foundation shall be placed for all brick structures after the foundation excavation is completed and accepted. Unless otherwise specified, the base shall consist of reinforced concrete mixed, prepared, and placed in accordance with the requirements of Item P-610.~~

~~**b. Laying brick.** All brick shall be clean and thoroughly wet before laying so that they will not absorb any appreciable amount of additional water at the time they are laid. All brick shall be laid in freshly made mortar. Mortar not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted. An ample layer of mortar shall be spread on the beds and a shallow furrow shall be made in it that can be readily closed by the laying of the brick. All bed and head joints shall be filled solid with mortar. End joints of stretchers and side or cross joints of headers shall be fully buttered with mortar and a shoved joint made to squeeze out mortar at the top of the joint. Any bricks that may be loosened after the mortar has taken its set, shall be removed, cleaned, and re-laid with fresh mortar. No broken or chipped brick shall be used in the face, and no spalls or bats shall be used except where necessary to shape around irregular openings or edges; in which case, full bricks shall be placed at ends or corners where possible, and the bats shall be used in the interior of the course. In making closures, no piece of brick shorter than the width of a whole brick shall be used; and wherever practicable, whole brick shall be used and laid as headers.~~

~~**c. Joints.** All joints shall be filled with mortar at every course Exterior faces shall be laid up in advance of backing. Exterior faces shall be plastered or parged with a coat of mortar not less than 3/8 inch thick before the backing is laid up. Prior to parging, all joints on the back of face courses shall be cut flush. Unless otherwise noted, joints shall be not less than 1/4 inch nor more than 1/2 inch wide and the selected joint width shall be maintained uniform throughout the work.~~

~~**d. Pointing.** Face joints shall be neatly struck, using the weather-struck joint. All joints shall be finished properly as the laying of the brick progresses. When nails or line pins are used, the holes shall be immediately plugged with mortar and pointed when the nail or pin is removed.~~

~~**e. Cleaning.** Upon completion of the work all exterior surfaces shall be thoroughly cleaned by scrubbing and washing with water. If necessary to produce satisfactory results, cleaning shall be done with a 5% solution of muriatic acid which shall then be rinsed off with liberal quantities of water.~~

~~**f. Curing and cold weather protection.** The brick masonry shall be protected and kept moist for at least 48 hours after laying the brick. Brick masonry work or pointing shall not be done when there is frost on the brick or when the air temperature is below 50°F unless the Contractor has, on the project ready to use, suitable covering and artificial heating devices necessary to keep the atmosphere surrounding the masonry at a temperature of not less than 60°F for the duration of the curing period.~~

751-3.3 Concrete structures. Concrete structures which are to be cast-in-place within the project boundaries shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

751-3.4 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program.

Precast concrete structures shall conform to ASTM C478. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall: (1) be smoothed to a uniform surface on both interior and exterior of the structure or (2) utilize a rubber gasket per ASTM C443. The top of the upper precast concrete section shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required. Provision shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal or metal encapsulated steps that are embedded or built into the side walls shall be aligned and placed in accordance to ASTM C478. When a metal ladder replaces the steps, it shall be securely fastened into position.

751-3.5 Corrugated metal structures. Corrugated metal structures shall be prefabricated. All standard or special fittings shall be furnished to provide pipe connections or branches with the correct dimensions and of sufficient length to accommodate connecting bands. The fittings shall be welded in place to the metal structures. The top of the metal structure shall be designed so that either a concrete slab or metal collar may be attached to allow the fastening of a standard metal frame and grate or cover. Steps or ladders shall be furnished as shown on the plans. Corrugated metal structures shall be constructed on prepared foundations, conforming to the dimensions and locations as shown on the plans. When indicated, the structures shall be placed on a reinforced concrete base.

751-3.6 Inlet and outlet pipes. Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete or brick structures, mortar shall be placed around these pipes to form a tight, neat connection.

751-3.7 Placement and treatment of castings, frames, and fittings. All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the RPR, and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the RPR. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

751-3.8 Installation of steps. The steps shall be installed as indicated on the plans or as directed by the RPR. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures they shall meet the requirements of ASTM C478. The steps shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

When steps are required with corrugated metal structures, they shall be welded into aligned position at a vertical spacing of 12 inches.

Instead of steps, prefabricated ladders may be installed. For brick or concrete structures, the ladder shall be held in place by grouting the supports in drilled holes. For metal structures, the ladder shall be secured by welding the top support to the structure and grouting the bottom support into drilled holes in the foundation or as directed by the RPR.

751-3.9 Backfilling.

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth, and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

b. Backfill shall not be placed against any structure until approved by the RPR. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

751-3.10 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

751-4.1 Manholes, catch basins, inlets, and inspection holes shall be measured by the unit, completed and accepted.

***751-4.2** Reinforcing steel shall not be measured for separate payment but shall be considered subsidiary to the structure in which it is contained.*

BASIS OF PAYMENT

751-5.1 The accepted quantities of manholes, catch basins, inlets, and inspection holes will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item D-751-5.1	5' x 5' Airfield Rated Grate Inlet - per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C913	Standard Specification for Precast Concrete Water and Wastewater Structures.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M36	Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains

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ITEM D-752 CONCRETE CULVERTS, HEADWALLS, AND MISCELLANEOUS DRAINAGE STRUCTURES

DESCRIPTION

752-1.1 This item shall consist of reinforced concrete culverts, headwalls, and miscellaneous drainage structures constructed in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

752-2.1 Concrete. Reinforced concrete shall meet the requirements of Item P-610.

752-2.2 END SECTIONS. *Concrete end sections shall be reinforced concrete conforming to the requirements of ASTM C76 and conform to the TxDOT Standard Drawings, Precast Safety End Treatment. Reinforced concrete curtain walls are required. Jointing and bedding for end sections will be as stated for other pipe.*

CONSTRUCTION METHODS

752-3.1 Unclassified excavation.

a. Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the RPR may approve, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing steel is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to perform and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for excavation.

d. All bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage the finished concrete. The cost of removal shall be included in the unit price bid for excavation.

e. After each excavation is completed, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

752-3.2 Backfilling.

a. After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill in horizontal layers not to exceed 8 inches in loose depth, and compacted. The field density of the compacted material shall be at least 90% of the maximum density for cohesive soils and 95% of the maximum density for noncohesive soils. The maximum density shall be determined in accordance with ASTM D698. The field density shall be determined in accordance with ASTM D1556.

b. No backfilling shall be placed against any structure until approved by the RPR. For concrete, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill or the placement methods.

c. Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

d. Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the *item which it is contained.* ~~contract unit price for "unclassified excavation for structures."~~

752-3.3 Weep holes. Weep holes shall be constructed as shown on the plans.

752-3.4 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankment, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

~~**752-4.1** The quantity of unclassified excavation for structures shall be the number of cubic yards measured in original position, of material excavated in accordance with the plans, or as approved by the RPR; but in no case shall any yardage be included in the measurement for payment which is outside of a volume bounded by vertical planes 18 inches outside of and parallel to the neat lines of the footings.~~

~~**752-4.2** Concrete shall be measured by the number of cubic yards of concrete, complete in place and accepted. In computing the yardage of concrete for payment, the dimensions used shall be those shown on the plans or approved by the RPR. No measurements or other allowances shall be made for forms, false work, cofferdams, pumping, bracing, expansion joints, or finishing of the concrete. No deductions in yardage shall be made for the volumes of reinforcing steel or embedded items.~~

~~**752-4.3** The quantity of reinforcing steel shall be the calculated theoretical number of pounds placed as shown on the plans, complete in place and accepted. The unit weight used for deformed bars shall be the weight of plain square or round bars, as the case may be, of equal nominal size.~~

752-4.4 *Concrete culverts, headwalls, and miscellaneous drainage structures shall be measured by the unit, completed in place and accepted.*

752-4.5 *Reinforcing steel shall not be measured for separate payment but shall be considered subsidiary to the structure in which it is contained.*

BASIS OF PAYMENT

~~**752-5.1** Payment will be made at the contract unit price per cubic yard for unclassified excavation for structures.~~

~~**752-5.2** Payment will be made at the contract unit price per cubic yard for concrete for the structures.~~

~~**752-5.3** Payment will be made at the contract unit price per pound for reinforcing steel.~~

752-5.4 *Payment will be made at the contract unit price per each for concrete culverts, headwalls, and miscellaneous drainage structures. These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and placing the materials, furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plan; and for all labor, equipment, tools, and incidentals necessary to complete the structure.*

Payment will be made under:

Item D-752-5.1	24" Reinforced Concrete Safety End Treatment — per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

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ITEM T-901 SEEDING

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding, fertilizing, and liming the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied *as specified in the TxDOT Standard Specification, Item 164 – Seeding for Erosion Control.* ~~follows:~~

~~**Seed Properties and Rate of Application**~~

~~Seed~~	~~Minimum Seed Purity (Percent)~~	~~Minimum Germination (Percent)~~	~~Rate of Application lb/acre (or lb/1,000 S.F.)~~
~~*~~	~~*~~	~~*~~	~~*~~
~~*~~	~~*~~	~~*~~	~~*~~

~~Seeding shall be performed during the period between [___] and [___] inclusive, unless otherwise approved by the RPR.~~

901-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate *specified by the tests furnished in T-905* ~~of [___]~~. All liming materials shall conform to the requirements of ASTM C602.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 10-20-10 commercial fertilizer and shall be spread at the rate of 600 lbs/acre. *Contractor may utilize another commercial fertilizer and apply at at rate equal to at least 60 lbs of nitrogen per acre.*

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods shall be broken and the top 3 inches of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Liming. Lime shall be applied separately and prior to the application of any fertilizer or seed and only on seedbeds that have previously been prepared as described above. The lime shall then be worked into the top 3 inches of soil after which the seedbed shall again be properly graded and dressed to a smooth finish.

b. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3.

c. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the

tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 lb / sq inches. The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime shall be added to and mixed with each 100 gallons of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches, after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of acres measured on the ground surface, completed and accepted. *Seeding shall be measured to the nearest tenth (0.1) of an acre. Lime and fertilizer will not be measured for separate payment but will be considered subsidiary to seeding.*

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per acre or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item T-901-5.1	Seeding - per acre

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Federal Specifications (FED SPEC)

FED SPEC	JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

ITEM T-904 SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

904-2.1 Sod. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the *TxDOT Standard Specifications, Item 162 – Sodding for Erosion Control* ~~special provisions~~, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the *TxDOT Standard Specifications, Item 162 – Sodding for Erosion Control.* ~~special provisions~~. *Type of sod shall be the type specified in the Standard Specifications, Item 162.*

904-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate *specified by the tests furnished in T-905* ~~of [ ]~~. All liming materials shall conform to the requirements of ASTM C602.

904-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 10-20-10 commercial fertilizer and shall be spread at the rate of 600 lbs/acre.

Contractor can utilize another commercial fertilizer and apply at a rate equal to at least 60 lbs of nitrogen per acre.

904-2.4 Water. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass.

904-2.5 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

904-3.1 General. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the RPR before the various operations are started. The Contractor shall demonstrate to the RPR before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 Preparing the ground surface. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 Applying fertilizer and ground limestone. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other suitable methods. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 Obtaining and delivering sod. After inspection and approval of the source of sod by the RPR, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 Laying sod. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the RPR, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch below the pavement edge. Where the flow will be over the

sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 sq inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 Watering. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 Establishing turf. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

904-3.8 Repairing. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the RPR, and shall then be sodded as specified in paragraph 904-3.5.

METHOD OF MEASUREMENT

904-4.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

BASIS OF PAYMENT

904-5.1 This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

Item T-904-5.1	Sodding - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-904

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ITEM T-905 TOPSOIL

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 µm) sieve as determined by the wash test in accordance with ASTM C117. *Topsoil testing shall be completed and paid for by the Contractor.*

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

ITEM L-108 UNDERGROUND POWER CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. ~~Conductors for use on 20 ampere primary airfield~~

~~lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 [Type B][Type C], 5,000 volts, non-shielded, with [ethylene propylene insulation][cross-linked polyethylene insulation].~~ L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be bare copper wire. ~~For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.~~

Ground rods shall be copper. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 10 feet long and 3/4 inch in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal *are* acceptable.

c. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. The taped or heat-shrink splice. Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

a. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches below finished grade per NEC Table 300.5, except as follows:

- When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches unless otherwise specified.
- Minimum cable depth when crossing under a railroad track, shall be 42 inches unless otherwise specified.

The Contractor shall excavate all cable trenches to a width not less than 6 inches. Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill material may alternatively be used. *The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under subsidiary to the respective trenching or conduit or duct bank pay item.*

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed, with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.

b. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables; be 3 deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. This layer shall not be compacted. The second layer shall be 5 inches deep, loose measurement, and shall contain no particles that would be retained on a one inch (25.0 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the RPR. If not shown on the plans, the warning tape shall be located 6 inches) above the direct-buried cable or the counterpoise wire if present. A 3-6 inch wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches minimum below finished grade.

c. Restoration. Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the sodding and seeding as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557. Restoration shall be considered incidental to the pay item of which it is a component part.

108-3.4 Cable markers for direct-buried cable. The location of direct buried circuits shall be marked by a concrete slab marker, 2 feet square and 4-6 inch thick, extending approximately one inch above the surface. Each cable run from a line of lights and signs to the equipment vault shall be marked at approximately every 200 feet along the cable run, with an additional marker at each change of direction of cable run. All other direct-buried cable shall be marked in the same manner. Cable markers shall be installed directly above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 4 inches high and 3 inches wide, with width of stroke 1/2 inch and 1/4 inch deep. Stencils shall be used for cable marker lettering; no hand lettering shall be permitted.

At the location of each underground cable connection/splice, except at lighting units, or isolation transformers, a concrete marker slab shall be installed to mark the location of the connection/splice. The

Contractor shall impress the word "SPLICE" on each slab. The Contractor also shall impress additional circuit identification symbols on each slab as directed by the RPR. All cable markers and splice markers shall be painted international orange. Paint shall be specifically manufactured for uncured exterior concrete. After placement, all cable or splice markers shall be given one coat of high-visibility aviation orange paint as approved by the RPR. Furnishing and installation of cable markers is incidental to the respective cable pay item.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean

all surfaces at least 1/4 inch beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid No. 6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

a. Equipotential. – The counterpoise size is shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components - are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches minimum or 12 inches maximum above the raceway or cable to be protected, except as permitted below:

(1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

(2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.

b. Isolation – Not used

c. Common Installation requirements. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

~~**d. Parallel Voltage Systems.** Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.~~

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise installation at existing duct banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter.

The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

d. That all affected circuits (existing and new) are free from unspecified grounds.

e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 500 megohms. Verify continuity of all series airfield lighting circuits prior to energization.

f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

h. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

i. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Trenching shall be measured by the linear feet of trench, including the excavation, backfill, and restoration, completed, measured as excavated, and accepted as satisfactory. When specified, separate measurement shall be made for trenches of various specified widths.

The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall include additional quantities required for slack.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit - per Linear Foot
Item L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed in Trench, Above the Duct Bank or Conduit, Including Connections/Terminations - per Linear Foot
Item L-108-5.3	Trenching for Direct-Buried Bare Counterpoise Wire, 8" Minimum Depth – per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive
MIL-P-21035	*Paint High Zinc Duct Content, Galvanizing Repair*

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E	Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

ITEM L-110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

~~**110-2.2 Steel conduit.** Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."~~

110-2.3 Plastic conduit. Plastic conduit and fittings shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

a. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II–Schedule 40 PVC suitable for either above ground or underground use.

c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.

d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

~~**110-2.4 Split conduit.** Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.~~

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

~~**110-2.8 Flowable backfill.** Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.~~

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches below the

subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet.

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill may alternatively be used. *The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under [Item P-152] [subsidiary to the respective trenching or conduit or duct bank pay item].*

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables) cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet beyond the edges of the pavement or 3 feet beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches apart measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the

plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches wide tape, 8 inches minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch wide tape only for single conduit runs. Utilize the 6-inch wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches nor more than 12 inches wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

110-3.4 Markers. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet square and 4 - 6 inches thick extending approximately one inch above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word "DUCT" or "CONDUIT" on each marker slab. Impression of letters shall be done in a manner, approved by the RPR, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high-visibility orange paint,

as approved by the RPR. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the RPR. The letters shall be 4 inches high and 3 inches wide with width of stroke 1/2 inch and 1/4 inch deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for conduits. For conduits, 8 inches of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include seeding as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. Jack Brooks Regional Airport shall have the first right of refusal for any copper cable removed from the airfield during the project.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1	Non-Encased Electrical Conduit, 1-Way 2-inch - per Linear Foot
Item L-110-5.2	Concrete Encased Electrical Duct Bank, 2-Way 2-inch – per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

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ITEM L-115 ELECTRICAL MANHOLES AND JUNCTION STRUCTURES

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. Cast-in-place concrete structures shall be as shown on the plans.

115-2.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand 100,000 lb. aircraft *wheel* loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in as shown on the plans.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch thickness for L-867 and 3/4-inch thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

115-2.7 Frames and covers. The frames shall conform to one of the following requirements:

a. ASTM A48 Gray iron castings

b. ASTM A47 Malleable iron castings

c. ASTM A27 Steel castings

d. ASTM A283, Grade D Structural steel for grates and frames

e. ASTM A536 Ductile iron castings

f. ASTM A897 Austempered ductile iron castings

All castings specified shall withstand a maximum tire pressure of 250 psi and maximum *aircraft* load of 100,000 lbs.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a "DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

~~**115-2.8 Ladders.** Ladders, if specified, shall be galvanized steel or as shown on the plans.~~

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

~~**115-2.11 Flowable backfill.** Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.~~

~~**115-2.12 Cable trays.** Cable trays shall be of [galvanized steel][plastic][aluminum]. Cable trays shall be located as shown on the plans.~~

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

~~**115-2.14 Conduit terminators.** Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.~~

~~**115-2.15 Pulling-in irons.** Pulling-in irons shall be manufactured with 7/8-inch diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2-inch diameter with an ultimate strength of 270,000 psi). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.~~

115-2.16 Ground rods. Ground rods shall be one piece, copper clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within one foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

~~**115-3.13 Manhole elevation adjustments.** The Contractor shall adjust the tops of existing manholes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise or lower the top of each manhole to the new elevations. The existing top elevation of each manhole to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.~~

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. The Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

~~**115-4.2 Manhole elevation adjustments** shall be measured by the completed unit installed, in place, completed, and accepted. Separate measurement shall not be made for the various types and sizes.~~

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

115-5.2 Payment shall be made at the contract unit price for manhole elevation adjustments. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary, including but not limited to, spacers, concrete, rebar, dewatering, excavating, backfill, topsoil, sodding and pavement restoration, where required, to complete this item as shown in the plans and to the satisfaction of the RPR.

Payment will be made under:

Item L-115-5.1	2-Can Junction Can Plaza - Per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

EB #83	In Pavement Light Fixture Bolts

Mil Spec

MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

END OF ITEM L-115

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ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not required.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861T(L)	2	1	N/A	4	L-867B	Blue	L-830-16	N/A

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858(L)	2	2	2	2	N/A

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet. ~~The circuit selector cabinet shall meet the requirements of AC 150/5345-5, Type L-847, [one][two][three][four] circuit control [as indicated], Class [A, indoor][B, outdoor], Rating [1, for 6.6 amperes][2, for 20 amperes].~~ *Not Required.*

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

See the Supplemental Specifications for additional equipment installation, mounting, and testing requirements.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system *lump sum* installed as a completed unit in place, ready for operation, and accepted by the RPR.

Precision Approach Path Indicator shall be measured by each system *lump sum* installed as a completed unit, in place, ready for operation, and accepted by the RPR. Abbreviated Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125-5.1	L-861T(L) Base Mounted Taxiway Edge Light, Installed -- per Each
Item L-125-5.2	L-858(L) Base Mounted, Size 2, 1-Module Guidance Sign, Installed -- per Each
Item L-125-5.3	L-858(L) Base Mounted, Size 2, 2-Module Guidance Sign, Installed -- per Each
Item L-125-5.4	L-858(L) Base Mounted, Size 2, 3-Module Guidance Sign, Installed -- per Each
Item L-125-5.5	Vehicular Stop Sign, Installed -- per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

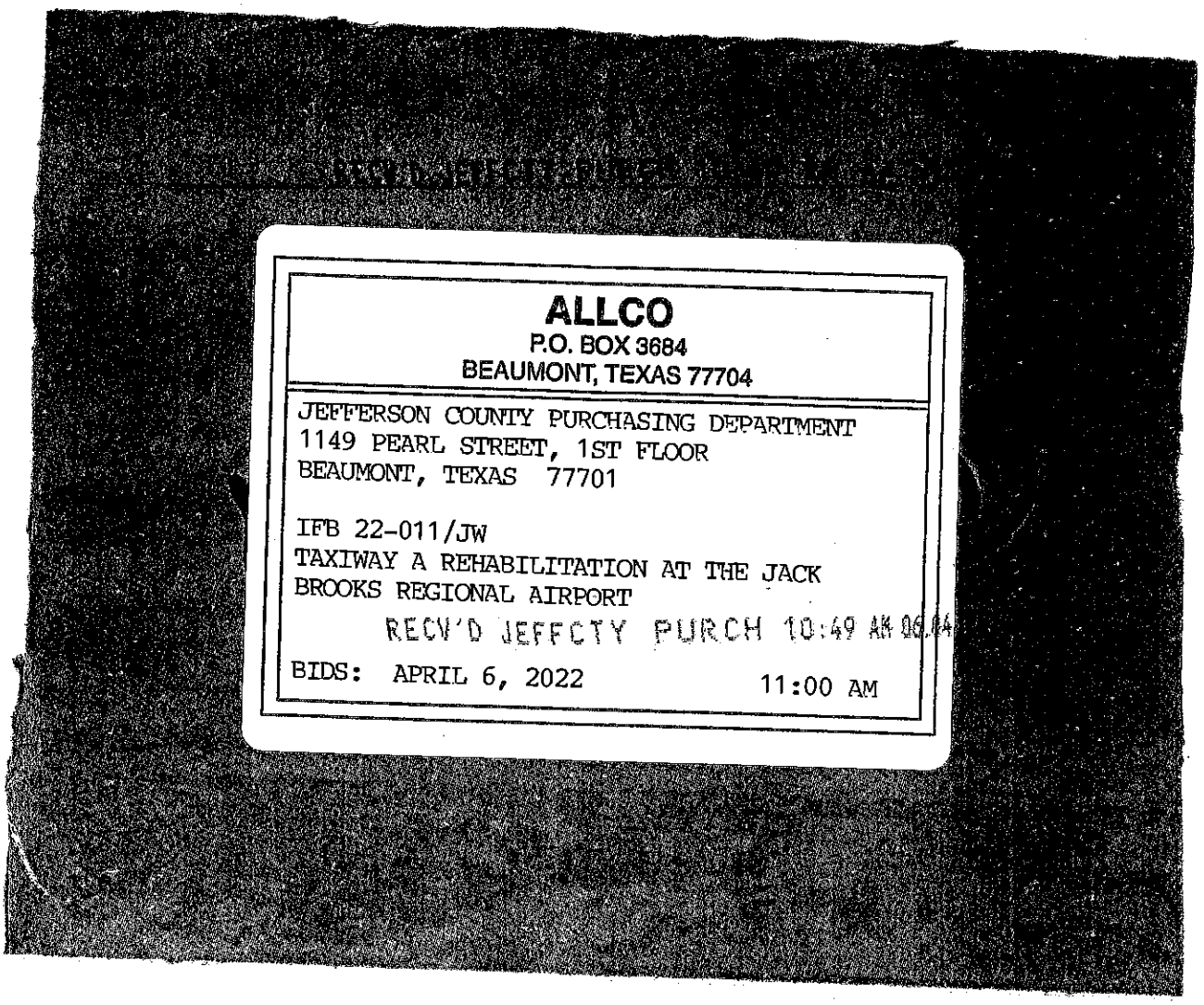
Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125



ALLCO
P.O. BOX 3684
BEAUMONT, TEXAS 77704

JEFFERSON COUNTY PURCHASING DEPARTMENT
1149 PEARL STREET, 1ST FLOOR
BEAUMONT, TEXAS 77701

IFB 22-011/JW
TAXIWAY A REHABILITATION AT THE JACK BROOKS REGIONAL AIRPORT

RECV'D JEFFCTY PURCH 10:49 AM 04

BIDS: APRIL 6, 2022 11:00 AM

ORIGINAL

JACK BROOKS REGIONAL AIRPORT
Taxiway A Rehabilitation
AIP NO. TBD

JEFFERSON COUNTY COMMISSIONERS COURT
JEFFERSON COUNTY, TEXAS
Jefferson County Project 22-011/JW

JACK BROOKS REGIONAL AIRPORT
(FORMERLY SOUTHEAST TEXAS REGIONAL AIRPORT)

GARVER

STATE OF TEXAS
JASON E. FRANK
87979
LICENSED PROFESSIONAL ENGINEER

TEXAS REGISTERED ENGINEERING FIRM F-5713

Garver Project Number 20A12501

March 2022

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1149 Pearl Street
1st Floor, Beaumont, TX 77701

OFFICE MAIN: (409) 835-8593
FAX: (409)835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

March 8, 2022

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for Invitation for Bid **(IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport.** Information for this project may be obtained from the Jefferson County Purchasing website at https://co.jefferson.tx.us/Purchasing/ or by calling 409-835-8593. Specifications, Plans, and Bidding Documents can be obtained from the CivCast website at https://www.civcastusa.com. **Project ID is BPT_22-011/JW.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope or box. Bidders shall forward an original and three (3) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Engineering Department Conference Room (5th Floor, Historic Courthouse) 1149 Pearl Street, Beaumont, Texas 77701, at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Taxiway A Rehabilitation at the Jack Brooks Regional Airport**
BID NUMBER:	**IFB 22-011/JW**
DUE BY TIME/DATE:	**11:00 AM CT, April 6, 2022**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1149 Pearl Street, 1st Floor** **Beaumont, Texas 77701**

There will be a Pre-Bid Conference and Walk-Through at 2:00 PM CT on Thursday, March 17, 2022, at the Airport Administration Conference Room located at 5000 Jerry Ware Blvd. Beaumont, Texas 77705. This conference will be the Bidder's only opportunity to view secured areas of the project.

The County shall require the bidder to furnish a bid security in the amount of five percent (5%) of the total contract cost. The bid bond must be executed with a surety company authorized to do business in the State of Texas. Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these bid requirements should be directed to Jamey West, Contract Specialist at 409-835-8793 or via email at: jwest@co.jefferson.tx.us

Jefferson County encourages Disadvantaged Business Enterprises (DBEs) and Historically Underutilized Businesses (HUBs) to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment, or the provisions of services. Individuals requiring special accommodations are requested to contact our office at least seven (7) days prior to the bid due date (at 409-835-8593) to make appropriate arrangements.

Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County. All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

Bidders are strongly encouraged to carefully read the entire invitation.

PUBLISH:
Beaumont Enterprise & Port Arthur News:
March 9, 2022 and March 16, 2022

Deborah Clark

Deborah L. Clark, Purchasing Agent
Jefferson County, Texas

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SECTION 1: GENERAL CONDITIONS OF BIDDING AND TERMS OF CONTRACT

By execution of this document, Bidder accepts all general and special conditions of the contract as outlined below and, in the specifications, and plans.

1. BIDDING

1.1 BIDS.
All bids must be submitted on the bid form furnished in this package.

1.2 AUTHORIZED SIGNATURES.
The bid must be executed personally by the Vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the Vendor shall accompany the bid to become a valid bid.

1.3 INTERPRETATION OF BID AN/OR CONTRACT DOCUMENTS
All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

1.4 LATE BIDS.
Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.5 WITHDRAWAL OF BID PRIOR TO OPENING.
A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the Bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.6 WITHDRAWAL OF BID AFTER OPENING.
Bidder agrees that its offer may not be withdrawn or cancelled by the Vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.7 BID AMOUNTS.
Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.8 EXCEPTIONS AND/OR SUBSTITUTIONS.
All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a Bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the Vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.9 ALTERNATES
The Invitation for Bid and/or specifications may expressly allow Bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.10 DESCRIPTIONS
Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.11 BID ALTERATIONS.
Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.12 TAX EXEMPT STATUS.
Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.13 QUANTITIES.
Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.14 BID AWARD.
Award of contract shall be made to the most responsible, responsive Bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended.

Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.15 SILENCE OF SPECIFICATIONS FOR COMPLETE UNITS.
All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.16 ADDENDA.
Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.17GENERAL BID BOND/SURETY REQUIREMENTS.
Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 GENERAL INSURANCE REQUIREMENTS
Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.19 RESPONSIVENESS.
A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered

non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.20 RESPONSIBLE STANDING OF BIDDER.

To be considered for award, Bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.21 CONFIDENTIAL/PROPRIETARY INFORMATION.

If any material in the bid submission is considered by Bidder to be confidential or proprietary information (including manufacturing and/or design processes exclusive to the Bidder), Bidder **must** clearly mark the applicable pages of Bidder's bid submission to indicate each claim of confidentiality. Additionally, Bidder must include a statement on company letterhead identifying all Bid Submission section(s) and page(s) that have been marked as confidential. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing open records acts. Merely making a blanket claim that the entire bid submission is protected from disclosure because it contains some proprietary information is not acceptable, and will make the entire bid submission subject to release under the Texas Public Information Act.

By submitting a bid, Bidder agrees to reproduction by Jefferson County, without cost or liability, of any copyrighted portions of Bidder's bid submission or other information submitted by Bidder.

1.22 PUBLIC BID OPENING.

Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. PERFORMANCE

2.1 DESIGN, STRENGTH, AND QUALITY.

Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 AGE AND MANUFACTURE.

All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 DELIVERY LOCATION

All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 DELIVERY SCHEDULE.

Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 DELIVERY CHARGES.

All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 INSTALLATION CHARGES.
All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 OPERATING INSTRUCTIONS AND TRAINING.
Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 STORAGE.
Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 COMPLIANCE WITH FEDERAL, STATE, COUNTY, AND LOCAL LAWS.
Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA.
The Bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful Bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful Bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 PATENTS AND COPYRIGHTS.
The successful Vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 SAMPLES, DEMONSTRATIONS, AND TESTING.
At Jefferson County's request and direction, Bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the Bidder/Vendor.

2.13 ACCEPTABILITY.
All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 MAINTENANCE.
Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 MATERIAL SAFETY DATA SHEETS.
Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a Bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the Bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 EVALUATION.
Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any Bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. PURCHASE ORDERS AND PAYMENT

3.1 PURCHASE ORDERS.
A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 INVOICES.
All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 PROMPT PAYMENT.
In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful Bidder(s) is required to pay subcontractors within ten (10) days after the successful Bidder receives payment from the County.

3.4 FUNDING.
Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. CONTRACT

4.1 CONTRACT DEFINITION.
The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful Bidder and Jefferson County.

4.2 CHANGE ORDER.
No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 PRICE RE-DETERIMINATION

A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The Bidder's past experience of honoring contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 TERMINATION.

Jefferson County reserves the right to terminate the contract for default if the Bidder breached any of the terms therein, including warranties of Bidder or if the Bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest Bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the Bidder in default.

4.5 CONFLICT OF INTEREST.

Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 INJURIES OR DAMAGES RESULTING FROM NEGLIGENCE.

Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 INTEREST BY PUBLIC OFFICIALS.

No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 WARRANTY

The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 UNIFORM COMMERCIAL CODE.

The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 VENUE.

This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 SALE, ASSIGNMENT, OR TRANSFER OF CONTRACT.

The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 SILENCE OF SPECIFICATIONS.
The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

5. REJECTION OR WITHDRAWAL.
Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive my informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within ~~120~~ 90 days after opening date.

6. EMERGENCY/DECLARED DISASTER REQUIREMENTS.
In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s).

Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

7. AWARD.
The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected.

Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected. In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

8. CONTRACT.
A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by

mutually agreed terms and conditions in the contract documents.

9. WAIVER OF SUBROGATION.
Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

10. FISCAL FUNDING.
A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

11. BID RESULTS
Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page at https://www.co.jefferson.tx.us/Purchasing/ as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

12. CHANGES AND ADDENDA TO BID DOCUMENTS
Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

13. SPECIFICATIONS
Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid.

Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

14. DELIVERY.
Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

15. CURRENCY.
Prices calculated by the bidder shall be stated in U.S. dollars.

16. PRICING.
Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

17. NOTICE TO PROCEED/PURCHASE ORDER
The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

18. CERTIFICATION

By signing the offer section of the Offer and Acceptance page, Bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.
- The Bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The Bidder hereby certifies that the individual signing the bid is an authorized agent for the Bidder and has the authority to bind the Bidder to the contract.

19. DEFINITIONS

"County" – Jefferson County, Texas.
Contractor" – The Bidder whose proposal is accepted by Jefferson County.

20. MINORITY-WOMEN BUSINESS ENTERPRISE PARTICIPATION

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS

The following requirements and instructions **supersede** General Requirements where applicable.

1. BID REQUIREMENT.
Each Bidder shall ensure that required parts of the bid are completed with accuracy and submitted as per the requirements within this specifications packet, including any addenda.

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1149 Pearl Street, 1st Floor
Beaumont, TX 77701

Bidder shall submit bid in a tightly sealed opaque envelope or box, plainly marked "SEALED BID." The outside of the envelope of box shall also include the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Bidder is responsible for submitting: One (1) original and three (3) bid copies; with all copies to include a completed copy of this specifications packet, in its entirety.

Additionally, Bidder shall monitor the Jefferson County Purchasing Department Website for any addenda, additional instructions, or bid updates. https://www.co.jefferson.tx.us/Purchasing/

Failure to return all required documentation could result in a response being declared as non-responsive.
Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB.

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court.

2. VENDOR REGISTRATION: SAM (System for Award Management).
Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

In instances where a vendor has either an "Inactive" SAM Registration or is not currently registered with the System for Award Management, the Purchasing Department may *initially* accept proof (printout from the SAM website) that the vendor has begun the registration process in order for the IFB/RFQ/RFP submission to be considered as "responsive" to the specifications for the project.

However, the SAM Registration must be completed (showing "active" status, with no exclusions) prior to the award and/or execution of an agreement or contract for the project.

3. FORM 1295 (Texas Ethics Commission).

FORM 1295 SUBMISSION REQUIREMENT/INSTRUCTIONS FOR BIDDERS:
ALL NON-EXEMPT BIDDERS ARE REQUIRED TO SUBMIT A COMPLETED FORM 1295 WITH BID SUBMISSION.

1. Submit a FORM 1295 online via the Texas Ethics Commission website link below.
Vendors must enter the required information on Form 1295, and print o copy of the completed form.
The form will include a certification of filing that will contain a unique certification number.

2. Submit a FORM 1295 hard copy (completed & signed by an Authorized Agent of the Awarded Vendor), to the Jefferson County Purchasing Department WITH BID SUBMISSION.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

SAMPLE: A sample of a completed FORM 1295 is included on page 14.

FORM 1295 Implementation Background:

In accordance with House Bill 1295 (passed January 1, 2016), Vendors entering into contracts and professional agreements with Jefferson County will be required to complete a Certificate of Interested Parties (FORM 1295), **unless contract is considered exempt as described below.**

In 2017, the Texas legislature amended the law to require Form 1295 to include an "unsworn declaration" which includes, among other things, the date of birth and address of the authorized representative signing the form. The unsworn declaration, including the date of birth and address of the signatory, replaces the notary requirement that applied to contracts entered into before January 1, 2018. The TEC filing application does not capture the date of birth or street address of the signatory and it will not appear on forms that are filed using the TEC filing application.

Changes to the law requiring certain businesses to file a Form 1295 are in effect for contracts entered into or amended on or after January 1, 2018. The changes exempt businesses from filing a Form 1295 for certain types of contracts and replace the need for a completed Form 1295 to be notarized. Instead, the person filing a 1295 needs to complete an "unsworn declaration."

FORM 1295 EXEMPTIONS:

What type of contracts are exempt from the Form 1295 filing requirement under the amended law?

The amended law adds to the list of types of contract exempt from the Form 1295 filing requirement.

A completed Form 1295 is not required for:

- a sponsored research contract of an institution of higher education
- an interagency contract of a state agency or an institution of higher education
- a contract related to health and human services if: the value of the contract cannot be determined at the time the contract is executed; and o any qualified vendor is eligible for the contract
- a contract with a publicly traded business entity, including a wholly owned subsidiary of the business entity
- a contract with an electric utility, as that term is defined by Section 31.002, Utilities Code
- a contract with a gas utility, as that term is defined by Section 121.001, Utilities Code

SAMPLE 1: FORM 1295

CERTIFICATE OF INTERESTED PARTIES — FORM 1295

[redacted]

OFFICE USE ONLY

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

[redacted]

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

[redacted]

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

[redacted]

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary
[redacted]			

5 **Check only if there is NO Interested Party.** ☐ [redacted]

6 **UNSWORN DECLARATION** [redacted]

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

[redacted]

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 12/22/2017

Must file online at www.ethics.state.tx.us/File

BIDDER: INSERT COMPLETED FORM 1295 BEHIND THIS PAGE.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 1

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2022-869377

Date Filed:
04/05/2022

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
Texas Materials Group, Inc., dba Gulf Coast a CRH Company
Beaumont, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
Jefferson County Texas

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
IFB 22-011/JW
IFB 22-011/JW; Taxiway A Rehabilitation at the Jack Brooks Regional Airport

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Texas Materials Group, Inc., dba Gulf Coast a CRH Company	Beaumont, TX United States		X

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is Scott Blanchard, and my date of birth is 12-23-79.

My address is 12907 US Highway 90, Beaumont, TX, 77713, USA.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Jefferson County, State of TX, on the 6th day of April, 2022.
(month) (year)

Scott Blanchard
Signature of authorized agent of contracting business entity
(Declarant)

SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS (CONTINUED)

4. MULTIPLE VENDOR AWARD

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. DELIVERY

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. PAYMENT

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to:
Jefferson County Auditing Department
Attention: Accounts Payable
1149 Pearl Street, 7th floor
Beaumont, TX 77701.

7. USAGE REPORTS

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. INSURANCE

The contractor (including any and all subcontractors as defined in Section 9.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents; a copy of the policy wording or endorsement is required.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured and will provide the actual policy wording or endorsement showing as such.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

MINIMUM INSURANCE REQUIREMENTS:

Public Liability, including Products & Completed Operations	$1,000,000
Excess Liability	$1,000,000

CONTINUED ON NEXT PAGE

PROPERTY INSURANCE (policy below that is applicable to this project):

Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation Statutory Coverage (See Section 9 Below)

9. WORKERS' COMPENSATION INSURANCE

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 8 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

BIDDER: INSERT COPY OF CERTIFICATE OF INSURANCE (COI) BEHIND THIS PAGE.

Note: For bid purposes, a general COI will suffice. However, a COI that includes the notation that "Jefferson County as an additional insured" will be required from Awarded Bidder(s) prior to the issuance of a Purchase Order.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/6/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER: Liberty Mutual Insurance Co. National Insurance East 2000 Westwood Dr. Wausau, WI 54401 www.LibertyMutual.com	CONTACT NAME: Valerie Reece PHONE (A/C, No, Ext): 513-867-3822 FAX (A/C, No): E-MAIL ADDRESS:
INSURED: Texas Materials Group, Inc. dba Gulf Coast a CRH Company (211-BEA) 12907 US Highway 90 Beaumont, TX 77713	INSURER(S) AFFORDING COVERAGE / NAIC # INSURER A : Liberty Mutual Fire Insurance Company 23035 INSURER B : Liberty Insurance Corporation 42404 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 63321237 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	✓ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☐ OCCUR ✓ Primary/Non-Contributory ✓ Separation of Insured GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ✓ PRO-JECT ☐ LOC ☐ OTHER:	✓	✓	TB2-C81-004095-111 XCU Coverage Included	9/1/2021	9/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$2,000,000 $300,000 $50,000 $2,000,000 $2,000,000 $2,000,000 $
A A	AUTOMOBILE LIABILITY ✓ ANY AUTO OWNED AUTOS ONLY ☐ SCHEDULED AUTOS HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY	✓	✓	AS2-C81-004095-121 AS2-C81-054502-521 Physical Damage only: Comprehensive Ded $10,000 Collision Ded $10,000	9/1/2021 9/1/2021	9/1/2022 9/1/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$2,000,000 $ $ $ $
	☐ UMBRELLA LIAB ☐ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☐ RETENTION $						EACH OCCURRENCE AGGREGATE $	$ $ $
B B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	☐	WA7-C8D-004095-021 All except OH, ND, WA, WY WC7-C81-004095-011 WI, MN	9/1/2021 9/1/2021	9/1/2022 9/1/2022	✓ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

SAMPLE
*
FOR BID PURPOSES

CERTIFICATE HOLDER

Jefferson County, Texas
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Valerie P. Reece
Valerie Reece

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Federal Mandated Contract Provisions

Some or all of the provisions in this section will be incorporated into a professional service agreement as a result of this solicitation.

Breach of Contract Terms / Remedies

Source: 2 CFR § 200 Appendix II (A)

Applicability: This provision requires Jefferson County, as the Airport Sponsor, to incorporate administrative, contractual, or legal remedies if contractor/consultant violate or breach contract terms. The sponsor must also include appropriate penalties and sanctions. Language acceptable to meet the intent of this requirement will be included in contractual documents.

This requirement applies to all FEMA grant and cooperative agreement programs

Contract Types: This provision is required for all contracts that exceed the simplified acquisition threshold as stated in 2 CFR § 200, Appendix II (A). This threshold is occasionally adjusted for inflation and is now equal to $150,000.

Termination of Contract (for Cause and Convenience)

Source: 2 CFR § 200 Appendix II (B)

FAA Advisory Circular 150/5370-10, Section 80-09

Applicability: This provision requires Jefferson County, as the Airport Sponsor, to incorporate in all contracts over $10,000, a provision that addresses termination for cause and termination for convenience, by the sponsor. The contractual provision must address the manner by which the sponsor's contract will be affected and the basis for settlement. Language acceptable to meet the intent of this requirement will be included in contractual documents.

This requirement applies to all FEMA grant and cooperative agreement programs.

Contract Types: This provision is required for all contracts that exceed $10,000.

Equal Employment Opportunity

Source: 2 CFR § 200 Appendix II (C) 41 CFR § 60-1.4

Executive Order 11246 41 CFR § 60-4.3

Applicability: The purpose of this provision is to provide equal opportunity for all persons, without regard to race, color, religion, sex, or national origin who are employed or seeking employment with contractors performing under a federally assisted construction contract. There are two provisions, a construction clause and a specification clause.

The equal opportunity contract clause must be included in any contract or subcontract when the amount exceeds $10,000. Once the equal opportunity clause is determined to be applicable, the contract or subcontract must include the clause for the remainder of the year, regardless of the amount of the contract.

This requirement applies to all FEMA grant and cooperative agreement programs.

Contract Types: This provision is required for all contracts that exceed $10,000.

Use of Provision: 41 CFR 60-1.4 provides the mandatory **contract** language. 41 CFR 60-4.3 provides the mandatory **specification** language. The sponsor will incorporate these clauses without modification.

Note: Any contracts resulting from this RFQ will have the requisite language as set forth in 2 CFR 200 App II, 41 CFR 60-1.4, 41 CFR 60-4.3, and Executive Order 11246.

Davis-Bacon Requirements

Source: 2 CFR § 200 Appendix II (D)

29 CFR Part 5

Applicability: The Davis-Bacon Act ensures that laborers and mechanics employed under the contract receive pay no less than the locally prevailing wages and fringe benefits as determined by the Department of Labor.

For Professional Services: The emergence of different project delivery methods has created situations where Professional Service Agreements (PSAs) includes tasks that meet the definition of construction, alteration, or repair as defined in 29 CFR Part 5. If such tasks result in work that qualifies as construction, alteration, or repair and it exceeds $2,000, the PSA must incorporate this clause.

Use of Provision: 29 CFR 5 establishes the specific language the sponsor must use without modification. A/E firms that employ laborers and mechanics on a task that meets the definition of construction, alteration, or repair are acting as a contractor. The sponsor may not substitute the term "Contractor" for "Consultant" in such instances.

Copeland Anti-Kickback

Source: 2 CFR § 200 Appendix II (D)

29 CFR Part 3 & Part 5

Applicability: The Copeland Act (18 USC 874 and 40 USC 3145) makes it unlawful to induce by force, intimidation, threat of dismissal from employment, or by any other manner, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment. The Copeland Act also requires each contractor and subcontractor to furnish weekly a statement of compliance with respect to the wages paid each employee during the preceding week.

It DOES NOT apply to the FEMA Public Assistance Program.

For Professional Services: The emergence of different project delivery methods has created situations where Professional Service Agreements (PSAs) includes tasks that meet the definition of construction, alteration, or repair as defined in 29 CFR Part 5. If such tasks result in work that qualifies as construction, alteration, or repair and it exceeds $2,000, the PSA must incorporate the Copeland Anti-kickback provision.

Use of Provision: 29 CFR 5 establishes the specific language the sponsor must use without modification. A/E firms that employ laborers and mechanics on a task that meets the definition of construction, alteration, or repair are acting as a contractor. The sponsor may not substitute the term "Contractor" for "Consultant" in such instances.

Contract Workhours and Safety Standards Act Requirements

Saurce: 2 CFR § 200 Appendix II (E) 29 CFR Part 5

40 U.S.C. § 3701-3708

Applicability: Contract Workhours and Safety Standards Act Requirements (CWHSSA) requires contractors and subcontractors on covered contracts to pay laborers and mechanics employed in the performance of the contracts one and one-half times their basic rate of pay for all hours worked over 40 in a workweek and prohibits unsanitary, hazardous, or dangerous working conditions on federally assisted projects. The Wage and Hour division (WHD) within the U.S. Department of Labor (DOL) enforces the compensation requirements of this Act, while DOL's Occupational Safety and Health Administration (OSHA) enforces the safety and health requirements.

Jefferson County urges all contractors, regardless of funding sources for projects, to follow all applicable Federal and State labor laws.

For Professional Services: This provision applies to professional service agreements that exceed $100,000 and employs laborers, mechanics, watchmen, and guards This includes members of survey crews and exploratory drilling operations.

Use of Provision: The following text will be included in applicable contracts without modification:

1. *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $27.00 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. *Withholding for unpaid wages and liquidated damages.* Jefferson County shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

Rights to Inventions

Source: 2 CFR § 200 Appendix II (F)

37 CFR § 401

Applicability: This provision applies to all contracts and subcontracts with small business forms or nonprofit organizations that include performance of *experimental, developmental, or research work*. This clause is not applicable to construction, equipment, or professional service contracts unless the contract includes *experimental, developmental, or research work*. This requirement applies to "funding agreements," but it DOES NOT apply to the Public Assistance, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA awards under these programs do not meet the definition of "funding agreement."

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Clean Air and Water Pollution Control

Source: 2 CFR § 200 Appendix II (G)

29 CFR Part 5

Applicability: This provision is required on all contracts and lower tier contracts that exceed $150,000.

Use of Provision: The following language will be included in applicable contracts:

1. Contractor agrees to comply with all applicable standards, orders, and regulations pursuant to the Clean Air Act (42 U.S.C. § 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251-13870). The contractor agrees to report any violation to the owner immediately upon discovery. The owner assumes responsibility for notifying the EPA and the FAA.

Debarment and Suspension

Source: 2 CFR Part 180 (Subpart C) 2 CFR Part 3000

2 CFR Part 1200 DOT Order 4200.5

Applicability: Required in all FEMA grant and cooperative agreement programs, regardless of amount. This requirement applies to covered transactions as defined in 2 CFR part 180. AIP funded contracts are non-procurement transactions as defined by §180.970. Covered transactions include any AIP-funded contract, regardless of tier, that is awarded by a contractor, subcontractor, supplier, consultant, or its agents or representative in any transaction, if the amount of the contract is expected to equal or exceed $25,000. Jefferson County must verify that the firm or individual that is entering into a contract with is not presently suspended, excluded, or debarred by any Federal department or agency from participating in federally assisted projects. This is accomplished by:

1. Checking SAM.gov to verify the firm's or individual's status;
2. Collecting a certification from the firm or individual that is not suspended, debarred, or excluded; and
3. Incorporating a clause into the contract that requires lower tier contracts to verify that no suspended, debarred, or excluded firm or individual is included in the project.

See **Error! Reference source not found.**, Paragraph **Error! Reference source not found.** above for more information on SAM.gov.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Lobbying and Influencing Federal Employees

Source: 2 CFR § 200 Appendix II (J) 31 USC § 1352 – Byrd Anti-Lobbying Amendment

49 CFR Part 20, Appendix A 44 CFR Part 18

Applicability: This requirement applies to all FEMA grant and cooperative agreement programs. Consultants and contractors that apply or bid an award of $100,000 or more must certify that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or another award covered by 31 USC 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200 Appendix (J) and 31 USC 1352.

If applicable, contractors ***must sign and submit*** to Jefferson County the **"Certification Regarding Lobbying"** Form included in this bid specification.

Procurement of Recovered Materials

Source: 2 CFR § 200 Appendix II (J) Solid Waste Disposal Act

40 CFR Part 247 2 CFR § 200.322

Applicability: Sponsors of AIP funded development and equipment projects must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. Section 6002 emphasizes maximizing energy and resource recovery through use of affirmative procurement actions for recovered materials identified in the EPA guidelines. When acquiring items designated in the guidelines, the sponsor must procure

items that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition.

This requirement applies to:

- All contracts awarded by a non-Federal entity under FEMA grant and cooperative agreement programs.
- All construction and equipment projects.
- Any contract, professional and property acquisition, that includes procurement of a product that exceeds $10,000.

Information about this requirement, along with the list of EPA designated items, is available at EPA's Comprehensive Procurement Guidelines website:

https://www.epa.gov/smm/comprehensiveprocurement-guideline-cpg-program.

The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act." The Uniform Rules authorize FEMA to require additional provisions for non-Federal entity contracts.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200.

Access to Records and Reports

Source: 2 CFR § 200.333 FAA Order 5100.38

2 CFR § 200.336

Applicability: 2 CFR § 200.333 requires a sponsor to retain records pertinent to a federal award for a period of three years from submission of final closure documents. 2 CFR § 200.336 establishes that sponsors must provide Federal entities the right to access records pertinent to the Federal award. FAA policy extends these requirements to the sponsor's contracts and subcontracts of AIP funded projects.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of Appendix II to 2 CFR part 200. The following will be in applicable contracts:

1. The contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the local/state/federal entity providing funding for this project, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
2. The contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters have been resolved.
3. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
4. The Contractor agrees to provide the FEMA Administrator or their representatives access to construction or other work sites pertaining to the work being completed under the contract.
5. In compliance with the Disaster Recovery Act of 2018, the County and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

Affirmative Action Requirement

Source: 41 CFR Part 60-4 FAA Order 5100.38

Executive Order 11246

Applicability: Sponsors are required to set goals for minority participation in AIP funded projects exceeding $10,000. The goals for minority participation derive from Economic Area (EA) and Standard Metropolitan Statistical Area (SMSA) as established in Volume 45 of the Federal Register dated 10/03/80. Page 65984 contains a table of all EAs and SMSAs and the associated minority participation goals.

Executive Order 11246 has set a goal of 6.9% nationally for female participation for all construction projects. This value remains constant for all counties and states.

Contract Types:

- Construction: The sponsor must incorporate this notice in all solicitations for bids or requests for proposals for AIP funded construction work contracts and subcontracts that exceed $10,000.
- Equipment: The sponsor must incorporate this notice in all solicitations for equipment project exceeding $10,000 that involves installation of equipment onsite (e.g. electrical vault equipment, generators). This provision does not apply to equipment acquisition projects where the manufacturer of the equipment takes place offsite at a manufacturer's plant (e.g. firefighting and vehicles).
- Professional Services: The sponsor must incorporate this notice in any professional service agreement if the agreement includes tasks that meet the definition of construction work, as defined by the DOL, and exceeds $10,000.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of 41 CFR Part 60-4. The following will be in applicable contracts:

Solicitation Clause:

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractors aggregate workforce in each trade on all construction work in the covered area, are as follows:
    a. Goals for minority participation for each trade: 1.95%
    b. Goals for female participation in each trade: 6.90%

These goals are applicable to all of the contractor's construction work, whether or not it is federal or federally assisted, performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with these goals will be measured against the total work hours performed.

The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of these subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

As used in this notice and in the contract resulting from this solicitation, the covered area is Texas, Jefferson County, Beaumont.

Buy American Preferences

Source: 49 USC § 50101

Applicability: the buy American preference requirement in 49 USC § 50101 requires that all still in manufactured goods used on AIP projects be produced in the United States. This statute gives the FAA the ability to issue a waiver to a sponsor to use non-domestic material on an AIP funded project subject to meeting certain conditions a sponsor may request that the FAA issue a waiver from the by American preference requirements if the FA finds that:

1. Applying the provision is not in the public interest;
2. The steel or manufactured goods are not available in sufficient quantity or quality in the United States;
3. The cost of components in subcomponents produced in the United States is more than 60% of the total components of a facility or equipment, and final assembly has taken place in the United States. Items that have an FAA standard specification item number, such as specific airport lighting equipment, are considered the equipment.
4. Applying this provision would increase the cost of the overall project by more than 25%.

For construction and equipment procurement projects, language, forms, and references to 49 USC § 50101 will be included in the solicitation.

Professional Service Agreements typically do not result in a deliverable that meets the definition of a manufactured product. If a PSA includes providing a manufactured good as a deliverable under the contract, the sponsor must include the Buy American Preference provision in the agreement.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of 49 USC § 50101.

Civil Rights

Source:	49 USC § 47123	Title VI of the Civil Rights Act of 1964
	FAA Order 1400.11	US DOT Order 1050.2

Applicability: Title VI of the Civil Rights Act of 1964, as amended, Title VI, prohibits discrimination on the grounds of race, color, or national origin under any program or activity receiving Federal financial assistance. Sponsors must include appropriate clauses from the Standard DOT Title VI Assurances in all contracts and solicitations.

The text of each individual clause comes from the U.S. DOT Order 1050.2 Standard Title VI Assurances and Nondiscrimination Provisions, effective 04/24/2013. These assurances require the sponsor insert the appropriate clauses in the form provided by the DOT. Where the clause refers to the applicable activity, project, or program, it means the AIP project.

TITLE VI SOLICITATION NOTICE

Jefferson County, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC § 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of any contract as a result of this bid, the Contractor, for itself, its assignees, and successors in interest, hereinafter referred to as the Contractor, agrees to comply with the following non-discrimination statutes and authorities, including but not limited to:

- Title VI of the Civil Rights Act of 1964
- 49 CFR part 21
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Section 504 of the Rehabilitation Act of 1973
- The Age Discrimination Act of 1975
- Airport and Airway Improvement Act of 1982
- The Civil Rights Restoration Act of 1987
- Titles II and III of the Americans with Disabilities Act of 1990
- The Federal Aviation Administration's Nondiscrimination Statute
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency
- Title IX of the Education Amendments of 1972

Disadvantaged Business Enterprise

Source: 49 CFR part 26

Applicability: A sponsor that anticipates awarding $250,000 or more in AIP funding prime contracts in a federal fiscal year must have an approved Disadvantaged Business Enterprise (DBE) program on file with the FAA Office of Civil Rights (§26.21). The approved DBE program will identify a 3-year overall program goal that the sponsor bases on the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on the project. (§26.45).

Sponsors with a DBE program on file with the FAA must include the three following provisions, if applicable:

- Clause in all solicitations for proposals for which a contract goal has been established;
- Clause in each prime contract, and;
- Clause in solicitations that are obtaining DBE participation through race/gender neutral means.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1. Names and addresses of the DBE firms that will participate in the contract;
2. A description of the work each DBE firm will perform;
3. Percentage/dollar amount of the participation of each DBE firm listed under 1.
4. Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal; and
5. If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in 49 CFR part 26 Appendix A

The requirements of 49 CFR part 26 apply to this contract. It is the policy of Jefferson County to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract.

Jefferson County encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

DBE Contract Assurances

Contracts as a result of this bid will include contract assurances per §26.13, if applicable:

The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 and the award and administration of Department of Transportation-assisted contracts. Failure by contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or such other remedy as the owner deems appropriate, which may include but is not limited to:

1. Withholding monthly progress payments;
2. Accessing sanctions;
3. Liquidated damages; and/or
4. Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29) – The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives from Jefferson County. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of Jefferson County. This clause applies to both DBE and non-DBE subcontractors.

Distracted Driving

Source: Executive Order 13513 2 CFR §200.67

DOT Order 3902.10

Applicability: The FAA encourages recipients of federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

Use of Provision: The following clause will be included in all Federally-assisted contracts regardless of amount:

In accordance with executive order 13513, federal leadership on reducing text messaging while driving, Andy OT order 3902.10, text messaging while driving, the FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, Jefferson County encourages the contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles Papa forming work activities associated with the project. The contractor must include the substance of this clause and other sub tier contracts exceeding $3,500 that involve driving a motor vehicle and performance of work activities associated with the project.

Compliance with Federal Law, Regulations, and Executive Orders

The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.

Applicability: FEMA recommends that all non-Federal entities place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

"This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives."

No Obligation by Federal Government

The FAA and or FEMA is not a party to any transaction between the recipient and its contractor. The FAA and or FEMA is not subject to any obligations or liable to any party for any matter relating to the contract.

Applicability: FEMA recommends that the non-Federal entity include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

"The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

Program Fraud and False or Fraudulent Statements or Related Acts

Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or fraudulent claims for payment to the federal government. See DHS Standard Terms and Conditions: Version 8.1 (2018); and 31 U.S.C. §§ 3801-3812, which details the administrative remedies for false claims and statements made. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

FEMA recommends that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

"The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."

BIDDER INFORMATION FORM

Instructions: Complete the form below. Please provide legible, accurate, and complete contact information. PLEASE PRINT.

Bid Number & Name: IFB 22-011/JW, TAXIWAY A REHABILITATION AT JACK BROOKS REGIONAL AIRPORT

Bidder's Company/Business Name: Gulf Coast a CRH Company

Bidder's TAX ID Number: 58-1401466

***If Applicable*: HUB Vendor No.** _____ **DBE Vendor No.** _____

Contact Person: Scott Blanchard **Title:** Assistant Secretary

Phone Number (with area code): 409-866-1444

Alternate Phone Number if available (with area code): _____

Fax Number (with area code): 409-866-1032

Email Address: scott.blanchard@gc-texas.com

Mailing Address (Please provide a physical address for bid bond return, if applicable):

12907 US Highway 90
Address

Beaumont, TX 77713
City, State, Zip Code

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder Gulf Coast a CRH Company.
2. Permanent main office address
   12907 US Highway 90, Beaumont, TX 77713
3. When organized 1945.
4. If a corporation, where incorporated Delaware.
5. How many years have been engaged in the contracting business under your present firm or trade name? 77
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion)
   See attached work history

General character of work performed by your company

7. Have you ever failed to complete any work awarded to you? No
8. Have you ever defaulted on a Contract? No
   If so, where and why?
9. Have you ever been fined or had your license suspended by a Contractor's Licensing Board? No
   If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed (attach to back of this document).
11. List your major equipment available for this Contract (attach to back of this document).
12. List your experience in construction work similar in scope and scale to this project (attach to back of this document).
13. Background and experience of the principal members of your organization, including the officers (attach to back of this document).
14. Credit available: $ Available Upon Request
15. Give Bank reference: [redacted]

16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner? Yes

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner, in verification of the recitals comprising this statement of Bidder's Qualifications.

The Bidder shall provide a brief description of any litigation or administrative proceeding of the following types, either pending or concluded within the proceeding year, to which the Bidder (and the ultimate controlling person, if different from the Bidder) or any of its directors or executive officers was a party or of which the property of any such person is or was the subject; the names of the parties and the court or agency in which such litigation or proceeding is or was pending shall be given:

(a) Administrative or judicial proceedings of any state federal agency or authority concerning environmental violations;

(b) Proceedings which may have a material effect upon the solvency of the ultimate holding company, including but not necessarily limited to, bankruptcy and receivership; and

(c) Criminal proceedings.

Dated at 9:30 a.m. this 6th day of April, 20 22.

Gulf Coast a CRH Company

(Name of Bidder)

By Scott Blanchard

Title Assistant Secretary

STATE OF Texas)

) §.

COUNTY OF Jefferson)

SCOTT BLANCHARD being duly sworn deposes and says that he is

ASST. SECRETARY of GULF COAST, A CRH COMPANY

(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

SUBSCRIBED AND SWORN TO BEFORE ME this 6th day of April, 20 22.

(Notary Public)

My Commission Expires:

May 9, 2025

PAULA HARRIS
Notary ID #1179575
My Commission Expires
May 9, 2025

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

CONFLICT OF INTEREST QUESTIONNAIRE

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

N/A

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

Signature of vendor doing business with the governmental entity

April 6, 2022

Date

Adopted 8/7/2015

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

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LOCAL GOVERNMENT OFFICER
CONFLICTS DISCLOSURE STATEMENT – OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20_____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

THIS FORM IS FOR OFFICE USE ONLY

GOOD FAITH EFFORT (GFE) DETERMINATION CHECKLIST

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
☑ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting **Disadvantaged Business Enterprises (DBE)s** for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of DBE Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting DBE Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .?

☑ Yes	☐ No	1.	To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum DBE Subcontractor participation?
☑ Yes	☐ No	2.	**Notify** in writing a reasonable number of DBEs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☑ Yes	☐ No	3.	**Provide** DBEs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☑ Yes	☐ No	4.	**Negotiate** in good faith with interested DBEs, and not reject bids from DBEs that qualify as lowest and responsive Bidders?
☑ Yes	☐ No	5.	**Document** reasons DBEs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected DBEs?
☐ Yes	☑ No	6.	If Prime Contractor/Consultant has zero (0) DBE participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

Scott Blanchard
Printed Name of Authorized Representative

Signature

Assistant Secretary
Title

April 6, 2022
Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

GULF COAST
A CRH COMPANY

P.O. Box 20779
Beaumont, TX 77720
Phone: (409) 866-1444

April 6, 2022

Jack Brooks Airport/ Garver Engineering

RE: Jack Brooks Airport Taxiway A Rehabilitation Project
DBE's Solicitation Package

To Whom It May Concern:

As required in the request for bid on the Jack Brooks Airport Taxiway A Rehab. Project, Gulf Coast solicited and invited multiple DBEs to help on the project. Gulf Coast provided a timely request to all DBEs with project scope, location, and project drawings/Docs (please see attached emails sent to all DBEs as evidence of good faith effort)

DBE's participation was not met, due to DBE's not responding, or not following up on their commitment to providing a quote.

Gulf Coast does have 3 DBEs subs that will be helping. If there's any information needed, feel free to contact me.

Kind regards,

Jose Loza
Estimator

Gulf Coast
A CRH COMPANY
P.O. Box 20779
Beaumont, TX 77720

T (409) 866 1444
C (409) 284 9798
F (409) 866 1032
E jose.loza@gc-texas.com

www.gc-texas.com

NOTICE OF INTENT (NOI) TO SUBCONTRACT WITH DISADVANTAGED BUSINESS ENTERPRISES (DBE)

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
☑ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each DBE Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: Gulf Coast a CRH Company DBE: ☐ Yes ☑ No

Address: 12907 US Highway 90 (Street) Beaumont (City) TX (State) 77713 (Zip)

Phone (with area code): 409-866-1444 Fax (with area code): 409-866-1032

Project Title & No.: Jack Brooks Regional Airport Taxiway A Rehabilitation

Prime Contract Amount: $

DBE Subcontractor Name:

DBE Status (Gender & Ethnicity):

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

Printed Name of Contractor Representative	Signature of Representative	Date
Scott Blanchard		April 6, 2022
Printed Name of DBE	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

PRE-APPROVAL FOR SUBCONTRACTOR SUBSTITUTIONS MUST BE OBTAINED FROM THE JEFFERSON COUNTY PURCHASING AGENT'S REPRESENTATIVE. THE "DBE SUBCONTRACTOR/SUBCONSULTANT CHANGE FORM" MUST BE COMPLETED AND FAXED TO 409-835-8456.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded).
☑ Yes ☐ No

Prime Contractor: Gulf Coast a CRH Company DBE: ☐ Yes ☑ No

DBE Status (Gender & Ethnicity): N/A

Address: 12907 US Highway 90 (Street) Beaumont (City) TX (State) 77713 (Zip)

Phone (with area code): 409-866-1444 Fax (with area code): 409-866-1032

Project Title & No.: Taxiway A Rehabilitation at the Jack Brooks Regional Airport IFB/RFP No.: IFB 22-011/JW

Total Contract: $ Total DBE Subcontract(s): $

Construction DBE Goals: 12.8% MBE:: % 12.6% WBE: %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR DBE OFFICE USE ONLY:

Verification date DBE Program Office reviewed and verified DBE Sub information Date: Initials:

PART I. DBE SUBCONTRACTOR DISCLOSURE

DBE Subcontractor Name: J & M Contracting Company

DBE Status (Gender & Ethnicity): DBE- Male

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: 1643 SH 75 N (Street) Huntsville (City) TX (State) 777320 (Zip)

Contact person: Jimmy Spivey Title: Owner

Phone (with area code): 936-291-1691 Fax (with area code): 936-291-7980

Proposed Subcontract Amount: $ 252,572.00 Percentage of Prime Contract: 3.83 %

Description of Subcontract Work to be Performed: Drainage, RCP, Inlets

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

DBE Subcontractor Disclosure

PART I: Continuation Sheet **(Duplicate as Needed)**

DBE Subcontractor Name: F & W Electric

DBE Status (Gender & Ethnicity): Non-DBE Materials Buy From A DBE

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: 6880 US Highway 181 N. Floresville TX 78114
Street City State Zip

Contact person: Mike Olguin Title: Project Manager

Phone (with area code): 830-251-2803 Fax (with area code): _____

Proposed Subcontract Amount: $ 150,000.00 Percentage of Prime Contract: 2.27 %

Description of Subcontract Work to be Performed: Electrical - Lights, Conduit, Signs

---

DBE Subcontractor Name: _____

DBE Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

All DBE Subcontractor Participation may be verified with the DBE Subcontractor(s) listed on Part I.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING DBE SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the DBE goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-DBEs." *(Complete Part III)*
- ☑ DBEs were solicited but did not respond.
- ☐ DBEs solicited were not competitive.
- ☐ DBEs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County DBE Office contacted for assistance in locating DBEs? ☑ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-DBE" SUBCONTRACTS

The Bidder shall use this area to provide a listing of all "Non-DBE" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-DBE" Subcontractors the Bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that Bidder is the apparent low Bidder. A list of those "Non-DBE" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: Antigo Construction

Address: 2520 Clermont Street (Street) Antigo, (City) Wisconsin (State) 54409 (Zip)

Contact person: Mark Reimer Title: Project Manager

Phone (with area code): 715-627-2222 Fax (with area code): _____

Proposed Subcontract Amount: $ 38,280.00 Percentage of Prime Contract: 0.58 %

Description of Subcontract Work to be Performed: Concrete Demo

---

Subcontractor Name: F & W Electrical

Address: 6880 US Highway 181 N (Street) Floresville, (City) TX (State) 78114 (Zip)

Contact person: Mike Olguin Title: Project Manager

Phone (with area code): 830-251-2803 Fax (with area code): _____

Proposed Subcontract Amount: $ 982,295.00 Percentage of Prime Contract: 14.99 %

Description of Subcontract Work to be Performed: Electrical Items

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DISADVANTAGED BUSINESS ENTERPRISES (DBE)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

Subcontractor Name: Hi-Lite

Address: 20128 NYS Route 597 (Street) Watertown, (City) NY (State) 13601 (Zip)

Contact person: Dennis Haefner Title: Project Manager

Phone (with area code): 315-583-6111 Fax (with area code): _____

Proposed Subcontract Amount: $30,982.00 Percentage of Prime Contract: 4.66 %

Description of Subcontract Work to be Performed: Pavement Striping

---

Subcontractor Name: _____

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *DBE Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required**. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Scott Blanchard

Title: Asst. Secretary

Signature: [signature]

Date: April 6, 2022

E-mail address: scott.blanchard@gc-texas.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Scott Blanchard

Title: Asst. Secretary

Date: April 6, 2022

E-mail address: scott.blanchard@gc-texas.com

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

RESIDENCE CERTIFICATION/TAX FORM

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Non-resident Bidder" refers to a person who is not a resident.

(4) "Resident Bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☑ I certify that Gulf Coast a CRH Company [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	58-1401466
Company Name submitting bid/proposal:	Gulf Coast a CRH Company
Mailing address:	12907 US Highway 90, Beaumont, TX 77713
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HOUSE BILL 89 VERIFICATION

I, Scott Blanchard, the undersigned representative of (company or business name) Gulf Coast a CRH Company (heretofore referred to as company) being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath that the company named above, under the provisions of Subtitle F, Title 10, Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.002, Texas Government Code:

1. "**Boycott Israel**" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made ordinary business purposes; and

2. "**Company**" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or an limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business association that exist to make a profit.

Signature of Company Representative

April 6, 2022
Date

On this 6th day of April, 2022, personally appeared

Scott Blanchard, the above-named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

Notary Seal

Notary Signature

April 6, 2022
Date

PAULA HARRIS
Notary ID #1179575
My Commission Expires
May 9, 2025

SENATE BILL 252 CERTIFICATION

On this day, I, Deborah L. Clark, Purchasing Agent for Jefferson County, Texas, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that I did review the website of the Comptroller of the State of Texas concerning the listing of companies that is identified under Section 806.051, Section 807.051, or Section 2253.253 and I have ascertained that the below named company is not contained on said listing of companies which do business with Iran, Sudan, or any Foreign Terrorist Organization.

Gulf Coast a CRH Company

Company Name

IFB 22-011/JW

IFB/RFP/RFQ number

Certification check performed by:

_____

Purchasing Representative

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID SURETY HERE

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual. SURETY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8207107-985881

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Angela Kvarme; Artie Tucker; Ben Wibbenmeyer; Brian Miller; Derek Angel; Jessica Aldrich; Jose Loza; Juan Hernandez; Kal A. Kincaid; Kevin Guy; Kirk Morris; Nicholas Schack; Scott Blanchard; Wayne Sweet

all of the city of Beaumont state of TX each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all bid bonds on behalf of Texas Materials Group, Inc., dba Gulf Coast A CRH COMPANY, and the execution of such bid bonds, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 11th day of January, 2022.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 11th day of January, 2022 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 6th day of April, 2022.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Liberty Mutual

Interchange Corporate Center
450 Plymouth Road, Suite 400
Plymouth Meeting, PA 19462-1644
PH. (610) 832-8240

BID BOND

Bond Number:

KNOW ALL MEN BY THESE PRESENTS, that we Texas Materials Group, Inc., dba Gulf Coast a CRH Company

as Principal, (the "Principal"), and LIBERTY MUTUAL INSURANCE COMPANY, a mutual company duly organized under the laws of the Commonwealth of Massachusetts as Surety, (the "Surety"), are held and firmly bound unto Jefferson County, Texas

as Obligee, (the "Obligee"), in the penal sum of Five Percent of Amount Bid

Dollars ($5% of Amount Bid),

for the payment of which sum well and truly to be made, the Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Jack Brooks Regional Airport Taxiway A Rehabilitation

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal within the period specified therein, or, if no period be specified, within sixty (60) days after opening, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or contract documents, or in the event of the failure of the Principal to enter into such contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference in money not to exceed the penal sum hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. In no event shall the liability hereunder exceed the penal sum hereof.

DATED as of this 6th day of April, 2022.

WITNESS/ATTEST:

Texas Materials Group, Inc., dba Gulf Coast a CRH Company (Seal)
Principal

By:

Name: Scott Blanchard
Title: Assistant Secretary

LIBERTY MUTUAL INSURANCE COMPANY (Seal)
Surety

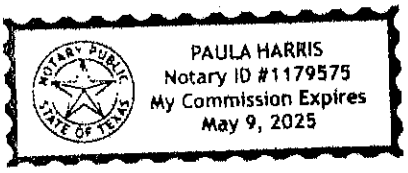
By:

José Loza, Attorney-in-Fact

SURETY ACKNOWLEDGMENT

STATE OF Texas }
COUNTY OF Jefferson } SS

On this 6th day of April, 2022, before me personally came Jose Loza to me known, who, being by me duly sworn, did depose and say that he is an Attorney-In-Fact of LIBERTY MUTUAL INSURANCE COMPANY the corporation described in and which executed the within instrument; that he knows the corporate seal of said corporation, that the seal affixed to the within instrument is such corporate seal, and that he signed the said instrument and affixed the said seal as Attorney-In-Fact of the Board of Directors of said corporation and by authority of this office under the Standing Resolutions thereof.



Notary Public

ACTION BY WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
OF
TEXAS MATERIALS GROUP, INC.

The undersigned, being all of the members of the Board of Directors of Texas Materials Group, Inc., a Delaware corporation (the "***Corporation***"), do hereby, pursuant to applicable Delaware statute, give this written consent to the taking of the following actions, such actions to have the same force and effect had a meeting been duly called and held:

I. ELECTION OF OFFICERS

RESOLVED, that effective January 10, 2022, all previous elections of officers are terminated, and the following persons be, and hereby are, elected to serve as officers of the Corporation (each individually, an ***"Officer"*** and collectively, the ***"Officers"***) in the capacities set forth opposite their respective names until such time as their successors shall be elected and qualified:

Aaron Price	President
Kristin Davis	Secretary/Treasurer
Kal A. Kincaid	Vice President/Assistant Secretary
David Young	Vice President/Assistant Secretary
John Shogren	Vice President/Assistant Secretary
Nicholas Schack	Vice President/Assistant Secretary
Mike Brown	Vice President/Assistant Secretary
Derek Angel	Vice President/Assistant Secretary
David M. Toolan	Admin. Vice President/Assistant Secretary
Robert Banks	Assistant Secretary

FURTHER RESOLVED, that the Officers be, and each of them hereby is, authorized to execute and deliver agreements, contracts, documents, certificates, and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business, including without limitation, selling products and securing construction work, and to take such other action, as they may deem necessary, advisable, convenient, or appropriate to carry out and fully perform duties incident to the office or offices so appointed, and such other duties as may be prescribed by the Board of Directors from time to time;

FURTHER RESOLVED, that the following persons are hereby designated Officers solely for the purpose of attesting signatures of other Officers signing on behalf of the Corporation, and for executing and attesting various corporate documents, tax returns, affidavits, and other instruments as may be necessary from time to time:

Jessica Aldrich	Assistant Secretary/Assistant Treasurer
Michael F. Deaton	Assistant Secretary
Rodney McCarn	Assistant Secretary
Gary P. Hickman	Assistant Secretary
William P. Jones	Assistant Secretary
David C. Lewis	Assistant Secretary

II. APPOINTMENT OF AUTHORIZED EMPLOYEES

RESOLVED, that effective August 10, 2021 all previous appointments of authorized employees are terminated, and that the following persons be and each of them hereby is appointed to serve as an authorized employee of the Corporation, which persons shall be authorized to execute and deliver such agreements, contracts, documents, certificates and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business including, without limitation, selling products and securing construction work:

Robert Brown	Kaylon Page
Wayne Sweet	Barry Egbert
James A. Connor	Ron Stinson
Dean Donnellan	Stephen Koonce
Lance Phillips	Artie Tucker
David Reese	Ben Liggett
Scott Blanchard	Brian Miller
Angela Kvarme	TJ Brown
Lisa Roberts	Robert Alvis
Derek Schluterman	Tom Hershberger
Sam Davis	Kelly Andrews
Kevin Guy	Phillip King
Kirk Morris	Ben Wibbenmeyer
Roger Haydon	Kyle Lewis
Keith Pierson	Jacob Trim
Chris Michael	Dean W. Buchanan

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, appoint other persons to serve as authorized employees, or remove any individuals from this capacity, and to direct those appointed to take such action, as he may deem necessary, advisable, convenient or appropriate to carry out and fully perform the duties incident to the office of President.

III. AUTHORIZATION OF TRADE NAMES

RESOLVED, that the activities and operations of the Corporation may be carried on in any of the following manners or styles as may from time-to-time be deemed necessary or appropriate:

Gulf Coast, A CRH company
Texas Bit, A CRH company
Texas Concrete, A CRH company
Texas Materials, A CRH company

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, authorize the use of additional trade names, and to deem unauthorized any trade name previously authorized, as he may deem necessary, advisable, convenient or appropriate.

IV. MISCELLANEOUS

RESOLVED, that all actions previously taken by any Officer of the Corporation appointed hereunder in his/her capacity as such Officer be, and each of them hereby is, adopted, ratified, confirmed and approved in all respects as the authorized acts and deeds of the Corporation;

FURTHER RESOLVED, that each undersigned agrees that electronic signatures, whether digital or encrypted, of the Board of Directors are intended to authenticate this consent and to have the same force and effect as manual signatures. As used in the previous sentence, the term "electronic signatures" means any electronic sound, symbol or process attached to or logically associated with this consent and executed and adopted by a member of the Board of Directors with the intent to sign such consent, including, but not limited to, e-mail electronic signatures executed through DocuSign Services; and

FURTHER RESOLVED, that this Consent, following execution by all of the members of the Board of Directors, be filed in appropriate order in the minute book of the Corporation.

DocuSigned by:
John Keating
8DBD0A4A9D404EA...
John J. Keating

DocuSigned by:
Aaron Price
F877D38C11274ED...
Aaron Price

CONTRACT

THIS AGREEMENT made this _____ day of _____, 2021, by and between

TBD, a Corporation organized and existing under the laws of the State of **Texas** hereinafter called the "Contractor",

and **JEFFERSON COUNTY, TEXAS**, hereinafter called the "Owner".

WITNESSETH:

That the Contractor and the Owner for the consideration stated herein mutually agree as follows:

ARTICLE 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, incidentals and services, including utility and transportation services and perform and complete all work required for the construction of **Taxiway A Rehabilitation** in strict accordance with the Contract Documents.

ARTICLE 2. The Contract Price. The Owner will pay the Contractor, because of his performance of the Contract, for the total quantities of work performed at the lump sum and unit prices stipulated in the Proposal for the **Base Bid, not to exceed a total contract value of: COST IN WORDS ($XXX,XXX.XX)** subject to additions, and deductions as provided in the Section entitled "CHANGES IN THE WORK" under GENERAL PROVISIONS.

ARTICLE 3. Contract Time. The Contractor agrees to begin work within ten (10) calendar days after issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within **Two Hundred and Ten (210)** consecutive calendar days thereafter (except as modified in accordance with the GENERAL PROVISIONS of these Contract Documents). If the Contractor shall fail to complete the work within the time specified, he and his Surety shall be liable for payment to the Owner, as liquidated damages ascertained and agreed, and not in the nature of a penalty, the amount specified in the PROPOSAL of these Contract Documents for each day of delay. To the extent sufficient in amount, liquidated damages shall be deducted from the payments to be made under this Contract.

ARTICLE 4. Contract. The executed Contract Documents shall consist of the following:

1. General Conditions of Bidding and Conditions Of Contract
2. Special Requirements/Bid Submission Instructions
3. Federal Mandated Contract Provisions
4. Title Vi Solicitation Notice
5. Bidder Information
6. Statement Of Bidder's Qualifications
7. Conflict Of Interest Questionnaire
8. Local Government Officer
9. Good Faith Effort (GFE) Determination Checklist
10. Notice Of Intent (NOI) To Subcontract with Disadvantaged Business Enterprises (DBE)
11. Disadvantaged Business Enterprises (DBE) Subcontracting Participation Declaration Form
12. Residence Certification/Tax Form
13. House Bill 89 Verification
14. Senate Bill 252 Certification
15. Bid Surety
16. Contract
17. Notice Of Award
18. Notice To Proceed
19. Performance And Payment Bonds
20. Offer And Acceptance Form
21. Bid Form and Proposal
22. Vendor References Form
23. Signature Page
24. Certification Regarding Lobbying
25. Bid Affidavit
26. Addenda
27. Wage Rates

SAMPLE

28. Change Order Form
29. General Provisions (FAA AC 150/5370-10H)
30. Special Provisions
31. Technical Specifications

This Agreement, together with other Documents enumerated in this Article 4, which said other Documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract between the parties hereto. In the event that any provisions in any component part of this Contract conflicts with any provision of any other component part, the conflict shall be resolved by the Engineer whose decision shall be final.

ARTICLE 5. Surety. The Surety on the Performance-Payment Bond shall be a surety company of financial resources satisfactory to the Owner, authorized to do business in the State of Texas, and shall comply with applicable Texas laws.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed in four (4) counterparts, each of which shall be considered an original on the day and year first above written.

SAMPLE

TBD
(Contractor)

ATTEST:_____ By_____

_____ Title_____
(Print the names underneath all signatures)

_____
(Street)

_____
(City)

JEFFERSON COUNTY, TEXAS,
(Owner)

ATTEST:_____ By _____

_____ Title:_____

(Print the names underneath all signatures)

NOTICE OF AWARD
DATED:_____ , 2021

TO: .

ADDRESS:

PROJECT OWNER: JEFFERSON COUNTY

FAA AIP GRANT No. X-XX-XXXX-XXX-XXXX

CONTRACT FOR: TAXIWAY A REHABILITATION

CONSTRUCTION OF: JACK BROOKS REGIONAL AIRPORT
****

You are notified that your Bid dated XXX, 2021 for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a contract for Base Bid.

The Contract Price of your contract is_____ dollars and no /100 ($XXXXXX).

You must comply with the following conditions precedent within FIFTEEN (15) days of the date of this *Notice of Award* that is by, XXXXX, 2021

1. You must deliver to the **OWNER 4** fully executed counterparts of the Agreement including all the Contract Documents.

2. You must deliver with the executed Agreement the Contract Security (Bonds) as specified in the Advertisement for Bids, General Conditions (Article 2), and Supplementary Conditions.

3. You must deliver to the **OWNER 4** original ***Certificates of Insurance,*** naming the Owner ***(Jefferson County)*** and Engineer ***(Garver, LLC.)*** and their respective agents and employees, to be expressly named as additional insured's, in accordance with the General Conditions.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid in default, to annul this Notice of Award, and to declare your Bid Security forfeited.

Within ten (10) days after you comply with the above conditions, OWNER will return to you one (1) fully signed counterpart of the Agreement with the Contract Documents attached.

Sincerely,
GARVER, LLC

Jason Frank, PE
Senior Project Manager

ACCEPTANCE OF AWARD:
CONTRACTOR:

_____
BY:_____
TITLE:_____
DATE:_____

XXXXXXX, 2021

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Re: Jack Brooks Regional Airport
Taxiway A Rehabilitation; Jefferson County Contract 22-011/JW
AIP No. X-XX-XXXX-XXX-XXXX
Notice to Proceed

Dear Mr. _____:

Please consider this letter as your Notice to Proceed with construction on the above referenced project, effective XXXXXXX, 2021.

Under the terms of the Contract, contract time will start when construction begins or ten (10) days after the effective date of this Notice to Proceed, whichever comes first. Work must be completed within 210 calendar days of the start of contract time, and construction phase 2 must be completed within 60 calendar days. Before you start work at the site, Special Provisions Section C-01 requires that you must deliver to the Engineer and Owner Certificates of Insurance which you are required to purchase and maintain in accordance with the Contract. As stipulated in the Contract Proposal, failure to complete the work within the contract time (including phase 2) shall result in the assessment of liquidated damages. The damages are therein set in the amount of $1,500.00 per calendar day.

Please call me if you have any questions.

Sincerely,

GARVER, LLC

Jason Frank, P.E.
Sr. Project Manager

CC: Alex Rupp, Jack Brooks Regional Airport (via email)

PERFORMANCE AND PAYMENT BONDS HERE

OFFER AND ACCEPTANCE FORM
OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer.

We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): No. 1, No. 2, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Gulf Coast a CRH Company
Company Name

12907 US Highway 90
Address

Beaumont Texas 77713
City State Zip

Signature of Person Authorized to Sign

Scott Blanchard
Printed Name

Assistant Secretary
Title

For clarification of this offer, contact:

Scott Blanchard, Assistant Secretary
Name & Title

409-866-1444 409-866-1032
Phone Fax

scott.blanchard@gc-texas.com
E-mail

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

ACCEPTANCE OF OFFER

The Offer is hereby accepted for the following items: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as **Contract No. 22-011/JW, Taxiway A Rehabilitation at the Jack Brooks Regional Airport**. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

COUNTERSIGNED:

Jerf R. Branick
Jefferson County Judge

Date

ATTEST:

Laurie Leister
Interim Jefferson County Clerk

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID FORM AND PROPOSAL

Place Jefferson County, Texas

Date April 6, 2022

Proposal of Gulf Coast a CRH Company,

a corporation organized and existing under the laws of the State of Delaware,

or

Proposal of _____,

a partnership consisting of _____

or

Proposal of _____,

an individual doing business as _____,

To: Jack Brooks Regional Airport

This bid results from your advertisement for bids for the construction of the **Taxiway A Rehabilitation.**

The undersigned Bidder, having visited the site of the work, having examined the Plans, Specifications, and other Contract Documents including all Addenda, and being familiar with all of the conditions relating to the construction of the proposed project, hereby agrees to comply with all other conditions or requirements set forth in the Plans, Specifications, and other Contract Documents, and further proposes to; furnish all material, supplies, equipment, and appliances; to furnish all labor, tools, equipment and incidentals to complete the work in accordance with the Plans, Specifications, and other Contract Documents at and for the unit prices proposed in the attached Bid Form(s).

The undersigned Bidder agrees to begin work within ten (10) calendar days after the issuance by, or on behalf of, the Owner of a "Work Order" or "Notice to Proceed" (except as modified in accordance with the GENERAL FAA PROVISIONS of these Contract Documents). Should the work fail to be completed within the time herein stated, the Contractor shall pay to the Owner, as fixed and agreed liquidated damages, and not as a penalty, the sum, for each day of delay until the work is completed and accepted, as stipulated in GENERAL FAA PROVISIONS of these Contract Documents. It is understood that additional time for the completion of the project is to be allowed only for delays as stipulated in GENERAL FAA PROVISIONS of these Contract Documents.

List of Plans

Sheet Number	Drawing Number	Sheet Title
		GENERAL
1	GI-001	COVER SHEET
2	GI-002	SHEET INDEX AND SUMMARY OF QUANTITIES
3	GI-101	PROJECT LAYOUT AND SURVEY CONTROL PLAN
4	GC-001	CONSTRUCTION SAFETY & PHASING NOTES 1
5	GC-002	CONSTRUCTION SAFETY & PHASING NOTES 2
6	GC-101	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1
7	GC-102	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2A
8	GC-103	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2B
9	GC-201	CONSTRUCTION SAFETY DETAILS 1
10	GC-202	CONSTRUCTION SAFETY DETAILS 2
11	GC-203	CONSTRUCTION SAFETY DETAILS 3
12	GC-204	CONSTRUCTION SAFTEY DETAILS 4
		CIVIL
13	CV-101	EXISTING CONDITIONS AND DEMOLITION PLAN
14	CE-101	EROSION CONTROL PLAN
15	CE-201	EROSION CONTROL DETAILS
16	CC-101	GRADING AND DRAINAGE PLAN 1
17	CC-102	GRADING AND DRAINAGE PLAN 2
18	CC-103	GRADING AND DRAINAGE PLAN 3
19	CC-104	GRADING AND DRAINAGE PROFILES
20	CC-201	GRADING AND DRAINAGE DETAILS 1
21	CC-202	GRADING AND DRAINAGE DETAILS 2
22	CH-101	PRE-DEVELOPMENT DRAINAGE AREA MAP
23	CH-102	POST-DEVELOPMENT DRAINAGE AREA MAP
24	CP-001	TYPICAL SECTIONS
25	CP-101	PLAN AND PROFILE 1
26	CP-102	PLAN AND PROFILE 2
27	CP-103	PLAN AND PROFILE 3
28	CJ-201	JOINT LAYOUT PLAN 1
29	CJ-202	JOINT LAYOUT PLAN 2
30	CJ-203	JOINT LAYOUT PLAN 3
31	CJ-301	JOINT DETAILS
		MARKINGS
32	CM-101	TAXIWAY MARKING PLAN 1
33	CM-102	TAXIWAY MARKING PLAN 2
34	CM-103	TAXIWAY MARKING PLAN 3
35	CM-104	RUNWAY MARKING PLAN 1
36	CM-105	RUNWAY MARKING PLAN 2

37	CM-201	TAXIWAY MARKING DETAILS 1
38	CM-202	TAXIWAY MARKING DETAILS 2
39	CM-203	RUNWAY MARKING DETAILS
		ELECTRICAL
40	EN-001	LIGHTING LEGEND AND GENERAL NOTES
41	EN-002	LIGHTING KEYED NOTES
42	ED-101	LIGHTING REMOVAL PLAN 1
43	ED-102	LIGHTING REMOVAL PLAN 2
44	ED-103	LIGHTING REMOVAL PLAN 3
45	ED-104	LIGHTING REMOVAL PLAN 4
46	ED-105	LIGHTING REMOVAL PLAN 5
47	ED-106	LIGHTING REMOVAL PLAN 6
48	EL-101	LIGHTING INSTALLATION PLAN 1
49	EL-102	LIGHTING INSTALLATION PLAN 2
50	EL-103	LIGHTING INSTALLATION PLAN 3
51	EL-104	LIGHTING INSTALLATION PLAN 4
52	EL-105	LIGHTING INSTALLATION PLAN 5
53	EL-106	LIGHTING INSTALLATION PLAN 6
54	EL-501	LIGHTING REMOVAL DETAILS
55	EL-502	LIGHTING INSTALLATION DETAILS 1
56	EL-503	LIGHTING INSTALLATION DETAILS 2
57	EL-504	LIGHTING INSTALLATION DETAILS 3
58	EL-505	LIGHTING INSTALLATION DETAILS 4
59	EL-506	LIGHTING INSTALLATION DETAILS 5
60	EL-507	LIGHTING INSTALLATION DETAILS 6
61	EL-508	LIGHTING INSTALLATION DETAILS 7
62	EL-509	LIGHTING INSTALLATION DETAILS 8
63	EL-510	LIGHTING INSTALLATION DETAILS 9
64	EL-511	LIGHTING INSTALLATION DETAILS 10
		CROSS SECTIONS
65	XS-101	TAXIWAY A EAST CROSS SECTIONS 1
66	XS-102	TAXIWAY A EAST CROSS SECTIONS 2
67	XS-103	TAXIWAY A EAST CROSS SECTIONS 3
68	XS-104	TAXIWAY A EAST CROSS SECTIONS 4
69	XS-201	TAXIWAY A WEST CROSS SECTIONS 1
70	XS-202	TAXIWAY A WEST CROSS SECTIONS 2
71	XS-203	TAXIWAY A WEST CROSS SECTIONS 3
72	XS-204	TAXIWAY A WEST CROSS SECTIONS 4
73	XS-205	TAXIWAY A WEST CROSS SECTIONS 5
74	XS-206	TAXIWAY A WEST CROSS SECTIONS 6

List of Technical Specifications

Specification Item No.	Description
SS-101	Safety Plan Compliance Document (SPCD)
SS-110	Standard Specifications
SS-120	Construction Safety and Security
SS-130	Trench and Excavation Safety Systems
SS-300	Basic Electrical Requirements
SS-301	Electrical Demolition Work
SS-305	Directional Boring
SS-310	Airport Lighting Systems
C-100	Contractor Quality Control Program (CQCP)
C-102	Temporary Air and Water Pollution, Soil Erosion, and Siltation Control
C-105	Mobilization
P-101	Preparation/Removal of Existing Pavements
P-152	Excavation, Subgrade, and Embankment
P-155	Lime-Treated Subgrade
P-208	Aggregate Base Course
P-501	Cement Concrete Pavement
P-605	Joint Sealants for Pavements
P-610	Concrete for Miscellaneous Structures
P-620	Runway and Taxiway Marking
D-701	Pipe for Storm Drains and Culverts
D-751	Manholes, Catch Basins, Inlets and Inspection Holes
D-752	Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures
T-901	Seeding
T-904	Sodding
T-905	Topsoil
L-108	Underground Power Cable for Airports
L-110	Airport Underground Electrical Duct Banks and Conduits
L-115	Electrical Manholes and Junction Structures
L-125	Installation of Airport Lighting Systems

Bidder acknowledges receipt of the following addendum (addenda):

Addendum No. 1 dated March 8, 2022

Addendum No. 2 dated March 29, 2022

Addendum No. _____ dated _____

The undersigned Bidder agrees that this bid shall be good and shall not be withdrawn for a period of ninety (90) calendar days after the opening thereof. If written notice of the acceptance of this Proposal is mailed, telegraphed, or delivered to the undersigned within ninety (90) days after the opening thereof, or at any time thereafter before this Proposal is withdrawn, the undersigned agrees to execute and deliver an Agreement (Contract) in the prescribed form, and furnish the required Performance and Payment Bond, within ten (10) days after the Agreement is presented to him for signature.

It is understood by the undersigned Bidder that the Owner reserves the right to reject any or all bids.

The following provisions are also included by reference:

- Davis Bacon Act (29 CFR Part 5.5)
- EEO Compliance Reports (41 CFR Part 60-1.7)
- Trade Restriction Certification (49 CFR Part 30)
- Buy American Preferences (Title 49 United States Code, Chapter 501)
- Certification of Non-Segregated Facilities (41 CFR Part 60-1.8)
- Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion (49 CFR Part 29)

Accompanying this Proposal as bid security is a ~~certified check~~/bid bond (*strike one*)

in the amount of Five Percent of Total Bid Amount Dollars

($ 5% of Total Bid), being not less than five percent (5%) of the total amount of the bid for the base bid. If the undersigned Bidder is the successful Bidder, but fails or refuses to execute the contract and furnish the required bond within the prescribed ten (10) days of the notification of award, then this bid security is to become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused by such failure or refusal.

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

BASE BID

BID ITEM	DESCRIPTION	UNITS	ESTIMATED QUANTITY	UNIT PRICE	BID AMOUNT
SS-120-3.1	CONSTRUCTION SAFETY AND SECURITY	L.S.	1	$ 192,000.00	$ 192,000.00
	Unit price in words: One Hundred Ninety Two Thousand dollars and Zero /100				
SS-130-4.1	TRENCH AND EXCAVATION SAFETY SYSTEMS	L.S.	1	$ 20,000.00	$ 20,000.00
	Unit price in words: Twenty Thousand dollars and Zero /100				
C-100-14.1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	L.S.	1	$ 50,000.00	$ 50,000.00
	Unit price in words: Fifty Thousand dollars and Zero /100				
C-102-5.1	TEMPORARY EROSION CONTROL	L.S.	1	$ 30,000.00	$ 30,000.00
	Unit price in words: Thirty Thousand dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

C-105-6.1	MOBILIZATION (MAXIMUM 5% OF TOTAL BID EXCLUSIVE MOBILIZATION)	L.S.	1	$ 329,000.00	$ 329,000.00
	Unit price in words: Three Hundred Twenty Nine Thousand dollars and Zero /100				
P-101-5.1	CONCRETE PAVEMENT REMOVAL	S.Y.	26400	$ 20.00	$ 528,000.00
	Unit price in words: Twenty dollars and Zero /100				
P-101-5.2	PAVEMENT MARKING REMOVAL	S.F.	7387	$ 10.50	$ 77,563.50
	Unit price in words: Ten dollars and Fifty /100				
P-152-4.1	UNCLASSIFIED EXCAVATION	C.Y.	10695	$ 33.00	$ 352,935.00
	Unit price in words: Thirty Three dollars and zero /100				
P-152-4.2	UNSUITABLE EXCAVATION	C.Y.	500	$ 40.00	$ 20,000.00
	Unit price in words: Forty dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-155-8.1	LIME-TREATED SUBGRADE (12")	S.Y.	18480	$ 22.00	$ 406,560.00
	Unit price in words: Twenty Two dollars and Zero /100				
P-155-8.2	LIME	TON	880	$ 275.00	$242,000.00
	Unit price in words: Two Hundred Seventy Five dollars and ZERO /100				
P-208-5.1	6" AGGREGATE BASE COURSE	S.Y.	17550	$ 40.00	$ 702,000.00
	Unit price in words: Forty dollars and Zero /100				
P-501-8.1	11.5" PORTLAND CEMENT CONCRETE PAVEMENT	S.Y.	16610	$ 120.00	$ 1,993,200.00
	Unit price in words: One Hundred Twenty dollars and Zero /100				
P-620-5.1a	PAVEMENT MARKINGS (WHITE) WITH REFLECTIVE MEDIA	S.F.	27676	$ 2.10	$ 58,119.60
	Unit price in words: Two dollars and Ten /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

P-620-5.1b	PAVEMENT MARKINGS (YELLOW) WITH REFLECTIVE MEDIA	S.F.	13552	$ 5.20	$ 70,470.40
	Unit price in words: Five dollars and Twenty /100				
P-620-5.1c	PAVEMENT MARKINGS (RED) WITH REFLECTIVE MEDIA	S.F.	450	$ 8.00	$ 3,600.00
	Unit price in words: Eight dollars and Zero /100				
P-620-5.1d	PAVEMENT MARKINGS (BLACK) WITHOUT REFLECTIVE MEDIA	S.F.	60500	$ 1.50	$ 90,750.00
	Unit price in words: One dollars and Fifty /100				
D-701-5.1	18" REINFORCED CONCRETE PIPE, CLASS III	L.F.	427	$ 84.00	$ 35,868.00
	Unit price in words: Eighty Four dollars and Zero /100				
D-701-5.2	24" REINFORCED CONCRETE PIPE, CLASS III	L.F.	684	$ 175.00	$ 119,700.00
	Unit price in words: One Hunded Seventy Five dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

D-751-5.1	5' X 5' AIRFIELD RATED GRATE INLET	EACH	7	$ 10,000.00	$ 70,000.00
	Unit price in words: Ten Thousand dollars and Zero /100				
D-752-5.1	24" REINFORCED CONCRETE SAFETY END TREATMENT	EACH	1	$ 2,700.00	$ 2,700.00
	Unit price in words: Two Thousand Seven Hundred dollars and Zero /100				
T-901-5.1	SEEDING	ACRE	4.3	$ 6,200.00	$ 26,660.00
	Unit price in words: Six Thousand Two Hundred dollars and Zero /100				
T-904-5.1	SODDING	S.Y.	6000	$ 4.00	$ 24,000.00
	Unit price in words: Four dollars and Zero /100				
T-905-5.1	TOPSOIL (OBTAINED ON-SITE OR OFF-SITE 4" THICKNESS)	S.Y.	25430	$ 4.00	$ 101,720.00
	Unit price in words: Four dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-300-5.1	LOCKOUT/TAGOUT AND CONSTANT CURRENT REGULATOR CALIBRATION PROCEDURES	L.S.	1	$ 6,300.00	$6,300.00
	Unit price in words: Six Thousand Three Hundred dollars and Zero /100				
SS-301-5.1	EXISTING STAKE MOUNTED EDGE LIGHT, REMOVED	EACH	124	$ 211.00	$ 26,140.00
	Unit price in words: Two Hundred Ten dollars and Zero /100				
SS-301-5.2	EXISTING BASE MOUNTED GUIDANCE SIGN, REMOVED	EACH	24	$ 315.00	$ 7,560.00
	Unit price in words: Three Hundred Fifteen dollars and Zero /100				
SS-301-5.3	EXISTING ABANDONED SIGN BASE, DEMOLISHED	EACH	6	$ 5,700.00	$ 34,200.00
	Unit price in words: Five Thousand Seven Hundred dollars and Zero /100				
SS-305-5.1	DIRECTIONAL BORING, 1-WAY 2"C POLYETHYLENE CONDUIT	L.F.	25	$ 53.00	$ 1,325.00
	Unit price in words: Fifty Three dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

SS-305-5.2	DIRECTIONAL BORING, 2-WAY 2"C POLYETHYLENE CONDUIT	L.F.	1400	$ 70.00	$ 98,000.00
	Unit price in words: Seventy dollars and Zero /100				
SS-310-5.1	TEMPORARY AIRFIELD LIGHTING (PHASE 1)	L.S.	1	$ 4,200.00	$ 4,200.00
	Unit price in words: Four Thousand Two Hundred dollars and Zero /100				
SS-310-5.2	TEMPORARY AIRFIELD LIGHTING (PHASE 2A)	L.S.	1	$ 15,000.00	$ 15,000.00
	Unit price in words: Fifteen Thousand dollars and Zero /100				
SS-310-5.3	TEMPORARY AIRFIELD LIGHTING (PHASE 2B)	L.S.	1	$ 2,700.00	$ 2,700.00
	Unit price in words: Two Thousand Seven Hundred dollars and Zero /100				
L-108-5.1	NO. 8 AWG, 5 KV, L-824, TYPE C CABLE, INSTALLED IN TRENCH, DUCT BANK OR CONDUIT	L.F.	15000	$ 1.60	$ 24,000.00
	Unit price in words: One dollars and Sixty /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-108-5.2	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE, INSTALLED IN TRENCH, ABOVE THE DUCT BANK OR CONDUIT, INCLUDING CONNECTIONS/TERMINATIONS	L.F.	11000	$ 1.60	$ 17,600.00
	Unit price in words: One dollars and Sixty /100				
L-108-5.3	TRENCHING FOR DIRECT-BURIED BARE COUNTERPOISE WIRE, 8" MINIMUM DEPTH	L.F.	8500	$ 3.50	$ 29,750.00
	Unit price in words: Three dollars and Fifty /100				
L-110-5.1	NON-ENCASED ELECTRICAL CONDUIT, 1-WAY 2-INCH	L.F.	11000	$ 16.00	$ 176,000.00
	Unit price in words: Sixteen dollars and Zero /100				
L-110-5.2	CONCRETE ENCASED ELECTRICAL DUCT BANK, 2-WAY 2-INCH	L.F.	600	$ 74.00	$ 44,400.00
	Unit price in words: Seventy Four dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-115-5.1	2-CAN JUNCTION CAN PLAZA	EACH	22	$ 4,200.00	$ 92,400.00
	Unit price in words: Four Thousand Two Hundred dollars and Zero /100				
L-125-5.1	L-861T(L) BASE MOUNTED TAXIWAY EDGE LIGHT, INSTALLED	EACH	169	$ 1,800.00	$ 304,200.00
	Unit price in words: One Thousand Eight Hundred dollars and Zero /100				
L-125-5.2	L-858(L) BASE MOUNTED, SIZE 2, 1-MODULE GUIDANCE SIGN, INSTALLED	EACH	7	$ 5,100.00	$ 35,700.00
	Unit price in words: Five Thousand One Hundred dollars and Zero /100				
L-125-5.3	L-858(L) BASE MOUNTED, SIZE 2, 2-MODULE GUIDANCE SIGN, INSTALLED	EACH	5	$ 6,300.00	$ 31,500.00
	Unit price in words: Six Thousand Three Hundred dollars and Zero /100				
L-125-5.4	L-858(L) BASE MOUNTED, SIZE 2, 3-MODULE GUIDANCE SIGN, INSTALLED	EACH	13	$ 7,200.00	$ 93,600.00
	Unit price in words: Seven Thousand Two Hundred dollars and Zero /100				

JACK BROOKS REGIONAL AIRPORT
TAXIWAY A REHABILITATION
BID FORM

L-125-5.5	VEHICULAR STOP SIGN, INSTALLED	EACH	2	$ 800.00	$ 1,600.00
	Unit price in words: Eight Hundred dollars and Zero /100				

TOTAL (BASE BID) $ 6,592,921.50

Total price in words: Six Million Five Hundred Ninety Two dollars and /100
Thousand Nine Hundred Twenty One
and Fifty cents.

BID TOTALS

Biditem	Description	Status - Rnd	Quantity	Units	Unit Price	Bid Total
10	CONSTRUCTION SAFETY AND SECURITY	U	1.000	LSU	192,000.00	192,000.00
20	TRENCH AND EXCAVATION SAFETY SYSTEMS	U	1.000	LSU	20,000.00	20,000.00
30	CONTRACTOR QUALITY CONTROL PROGRAM	U	1.000	LSU	50,000.00	50,000.00
40	TEMPORARY EROSION CONTROL	U	1.000	LSU	30,000.00	30,000.00
50	MOBILIZATION (NOT TO EXC. 5%)	U	1.000	LSU	329,000.00	329,000.00
60	CONCRETE PAVEMENT REMOVAL	U	26,400.000	SY	20.00	528,000.00
70	PAVEMENT MARKING REMOVAL		7,387.000	SF	10.50	77,563.50
80	UNCLASSIFIED EXCAVATION	U	10,695.000	CY	33.00	352,935.00
90	UNSUITABLE EXCAVATION	U	500.000	CY	40.00	20,000.00
100	LIME TREATED SUBGRADE (12")	U	18,480.000	SY	22.00	406,560.00
110	LIME	U	880.000	TON	275.00	242,000.00
120	6" AGGREGATE BASE COURSE	U	17,550.000	SY	40.00	702,000.00
130	11.5 " PORTLAND CEMENT CONCRETE PAV.	U	16,610.000	SY	120.00	1,993,200.00
140	PAVEMENT MARKINGS (WHITE) WITH REFLECTIVE MEDIA		27,676.000	SF	2.10	58,119.60
150	PAVEMENT MARKINGS (YELLOW) WITH REFLECTIVE MEDIA	U	13,552.000	SF	5.20	70,470.40
160	PAVEMENT MARKINGS (RED) WITH REFLECTIVE MEDIA	U	450.000	SF	8.00	3,600.00
170	PAVEMENT MARKINGS (BLACK) WITH REFLECTIVE MEDIA	U	60,500.000	SF	1.50	90,750.00
180	18" REINFORCED CONCRETE PIPE		427.000	LF	84.00	35,868.00
190	24" REINFORCED CONCRETE PIPE	U	684.000	LF	175.00	119,700.00
200	5'X5' AIRFIELD RATED GRATE INLET	U	7.000	EA	10,000.00	70,000.00
210	24" REINFORCED CONCRETE SAFETY END TREAT,EMT	U	1.000	EA	2,700.00	2,700.00
220	SEEDING	U	4.300	AC	6,200.00	26,660.00
230	SODDING	U	6,000.000	SY	4.00	24,000.00
240	TOPSOIL (OBTAINED ON-SITE OR OFF-SITE) 4"	U	25,430.000	SY	4.00	101,720.00
250	LOCKOUT/TAGOUT AND CONSTANT CURRENT REGULATOR CALI		1.000	LSU	6,300.00	6,300.00
260	EXISTING STAKE MOUNTED EDGE LIGHT, REMOVED		124.000	EA	210.00	26,040.00
270	EXISTING BASE MOUNTED GUIDANCE SIGN, REMOVED		24.000	EA	315.00	7,560.00
280	EXISTING ABANDONED SIGN BASE DEMOLISHED	U	6.000	EA	5,700.00	34,200.00
290	DIRECTIONAL BORING (1 WAY 2" C POLY)	U	25.000	LF	53.00	1,325.00
300	DIRECTIONAL BORING 2 WAY 2"C POLY	U	1,400.000	LF	70.00	98,000.00
310	TEMPORARY AIRFIELD LIGHITNG PHASE 1		1.000	LS	4,200.00	4,200.00
320	TEMPORARY AIRFILED LIGHTING PHASE 2A	U	1.000	LSU	15,000.00	15,000.00
330	TEMPORARY AIRFILED LIGHTING PHASE 2B	U	1.000	LSU	2,700.00	2,700.00
340	NO. 8AWG 5KV L-824 TYPE C CABLE INSTALLED IN TRENC	U	15,000.000	LF	1.60	24,000.00
350	NO.6 AWG SOLID BARE COPPER COUNTERPOISE WIRE INSTA	U	11,000.000	LF	1.60	17,600.00
360	TRENCHING FOR DIRECT BURIED BARE	U	8,500.000	LF	3.50	29,750.00
370	NON-ENCASED ELECTRICAL CONDUIT 1-WAY	U	11,000.000	LF	16.00	176,000.00
380	CONCRETE ENCASED ELECTRICAL 2 WAY	U	600.000	LF	74.00	44,400.00
390	2-CAN JUNCTION CAN PLAZA	U	22.000	EA	4,200.00	92,400.00

BID TOTALS

Biditem	Description	Status - Rnd	Quantity	Units	Unit Price	Bid Total
400	L-861T BASE MOUNTED TXIWAY EDGE LIGHT	U	169.000	EA	1,800.00	304,200.00
410	L-858(L) BASE MOUNTED,SIZE 2 1-MODULE SIGN	U	7.000	EA	5,100.00	35,700.00
420	L-858(L) BASE MOUNTED,SIZE 2,2 MODULE SIGN		5.000	EA	6,300.00	31,500.00
430	L-858(L) BASE MOUNTED, SIZE 2, 3-MODULE SIGN	U	13.000	EA	7,200.00	93,600.00
440	VEHICULAR STOP SIGN	U	2.000	EA	800.00	1,600.00
			Bid Total	========>		$6,592,921.50

It is understood the quantities of work to be done at unit prices are approximate and are intended for bidding purposes only. Amounts are to be shown in both words and figures. In case of discrepancy the amount shown in words shall govern.

Contract Award will be based on the lowest qualified bidder, depending on the availability of funds.

Bidders understand the Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to State and local laws and ordinances pertaining to the letting of construction contracts. Funding availability will be considered in selecting the bid award. The bidder agrees this bid shall be honored and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" and to fully complete the project within:

- **210 Calendar Days** thereafter.
    - Construction Phase 2 shall be completed within 60 **Calendar Days** thereafter.

Bidder further agrees to pay as liquidated damages the sum of **one thousand five hundred dollars ($1500.00)** for each calendar day to complete the work beyond the allotted time (including Phase 2) or as extended by an approved Change Order or Supplemental Agreement.

VENDOR REFERENCES FORM

Bidder: Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

REFERENCE ONE

Government/Company Name: Texas Department of Transportation

Address: 8450 Eastex Freeway, Beaumont, TX 77708

Contact Person and Title: Kenneth Wiemers, Area Engineer

Phone: 409-924-6521 Fax:

Email Address: kenneth.wiemers@txdot.gov Contract Period:

Scope of Work:

REFERENCE TWO

Government/Company Name: Schaumburg & Polk, Inc.

Address: 8865 College St., Suite 100, Beaumont, TX 77707

Contact Person and Title: Ricky Bourque, P.E.

Phone: 409-866-0341 Fax: 409-866-0337

Email Address: rbourque@spi-eng.com Contract Period:

Scope of Work:

REFERENCE THREE

Government/Company Name: American Remediation Options, Inc.

Address: P.O. Box 8028, Lumberton, TX 77657

Contact Person and Title: Doug Wall, President

Phone: 409-899-4744 Fax: 409-963-2249

Email Address: dwall@gt.rr.com Contract Period:

Scope of Work:

SIGNATURE PAGE

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would Bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions?.....**Yes** ☑ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other Bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other Bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the Bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Gulf Coast a CRH Company	
Bidder (Entity Name)	Signature
12907 US Highway 90	Scott Blanchard
Street & Mailing Address	Print Name
Beaumont, Texas 77713	April 6, 2022
City, State & Zip	Date Signed
409-866-1444	409-866-1032
Telephone Number	Fax Number
scott.blanchard@gc-texas.com	
E-mail Address	

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

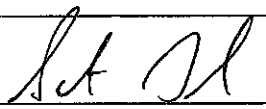
1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

Scott Blanchard, Assistant Secretary

Name and Title of Contractor's Authorized Official *(Please Print)*

April 6, 2022

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

BID AFFIDAVIT

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Scott Blanchard (name), who

after being by me duly sworn, did depose and say:

"I, Scott Blanchard (name) am a duly authorized officer of/agent

for Gulf Coast a CRH Company (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Gulf Coast a CRH Company (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other Bidder or other person or persons engaged in the same line of business prior to the official opening of this bio. Further, I certify that the Bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of Bidder: Gulf Coast a CRH Company
12907 US Highway 90, Beaumont, Texas 77713

Fax: 409-866-1032 Telephone# 409-866-1444

by: Scott Blanchard (print name) Title: Assistant Secretary

Signature: [signature]

SUBSCRIBED AND SWORN to before me by the above-named
Scott Blanchard on

this the 6th day of April, 2022.

[signature]
Notary Public in and for
the State of Texas

PAULA HARRIS
Notary ID #1179575
My Commission Expires
May 9, 2025

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

INSERT ADDENDA HERE

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number: IFB 22-011/JW

IFB Title: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

IFB Due: **11:00 am CT, Wednesday, April 6, 2022**

Addendum No.: 1

Issued (Date): March 8, 2022

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this Addendum: Clarification of Bid Due Date and Time

Bids for this IFB are due by 11:00 am CT, Wednesday, April 6, 2022

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Witness

Witness

Approved by ____ Date: _____

Authorized Signature (Bidder) Scott Blanchard

Assistant Secretary
Title of Person Signing Above

Gulf Coast a CRH Company
Typed Name of Business or Individual

12907 US Highway 90, Beaumont, TX 77713
Address

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT
1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number: IFB 22-011/JW

IFB Title: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

IFB Due: **11:00 am CT, Wednesday, April 6, 2022**

Addendum No.: 2

Issued (Date): March 29, 2022

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this Addendum:

- **Included Pre-Bid Sign in Sheet**
- **Answering prospective bidder questions:**

Q	**Please clarify that you want the 1 original and all 3 copies to be returned with each in a complete spec book, thus making us return 4 complete spec books. That is how it is being said on SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS Page 12, 1. BID REQUIREMENT, 4th paragraph.**
A	**That is correct.**
Q	**Can you provide the engineer's estimate?**
A	**Engineer's estimate will not be provided.**
Q	**Can you confirm we are to submit bidder qualifications as described in Section 20-Proposal Requirements Conditions?**
A	**Per section 20 contractor is required to submit bidder's qualifications.**
Q	**Can you confirm this project has Buy American requirements?**
A	**That is correct, this project is subject to Buy American Requirements.**
Q	**Can we get a copy of the Pre-Bid Meeting sign-in sheet?**

A	Sign in sheet will be posted here and on Jefferson County Procurement website. https://co.jefferson.tx.us/Purchasing/NoticesForBid/View/ADD/163
Q	The contract time already includes a large amount of assumed "normal" weather related events as described in Section C-06 of the Terms Conditions. Given the already tight timeframe, we request that the time of completion be revised to 300 calendar days since we essentially will not be provided any relief for weather delays.
A	We will review request however the statement is incorrect. Should average weather days in any given month exceed those listed in Section C-06 of the specifications, and work cannot take place, those days would be reviewed and added to the contract time if warranted.
Q	As discussed at the pre-bid meeting, will the contractor be allowed to access Phase 2 through the first Phase area? or is the back road that leads to Phase Two entrance is the only way?
A	Alternative staging areas and access routes have been provided. See drawing sheets GC-100 to GC-103.
Q	If the prime contractor makes a ligament intent to request DBE/HUB participation but due to uncontrol circumstances DBE/HUB vendors do not provide a proposal would the prime contractor not be at fault if the DBE goal is not met?
A	The prime contractor should make a good-faith effort to meet the DBE requirement of 10.73% and CLEARLY document the good-faith efforts taken to meet the requirements. We encourage the prime contractor to submit documentation showing the efforts to obtain DBE subcontractor(s). At a minimum documentation should include all emails/letters sent to proposed DBE subs and their responses and reasons why they are unable to perform work. Should the contractor not be able to meet the DBE requirements, the documentation provided will be reviewed for good-faith effort and possible reduction of the DBE requirement.
Q	Can you clarify the difference between the areas designated as concrete pavement and reinforced concrete pavement?
A	The pavement designated as reinforced contains #4 Bars @12" O.C. This is noted in details 3-7 on Sheet 31, Drawing Number CJ-301
Q	As discussed in the pre-bid meeting, the total days to complete the job are 210 calendar days. To add on to the previous question asked, rain days are built in the 210 total? Also, if we have 17 rain days in August and the AVG rain days for August are 16 we are only being credited 1 day? Let me know I have the correct understanding.
A	That is correct. Should average weather days in any given month exceed those listed in Section C-06 of the specifications, and work cannot take place, those days would be reviewed and added to the contract time if warranted.
Q	To confirm work hours, no night work is expected?
A	Correct, night work will not be required.
Q	Sheet 69 in the bid documents, Vendor Reference Sheet. Is the sheet only for selected material vendors or also for subcontractors?
A	This sheet is for the prime contractor /bidder to fill out.

Updated Specifications:

- **Updated minority and female participation goals on page 25**
- **Updated Construction Contract Time on page 46**
- **Updated Construction Contract Time on page 49**
- **Removed footer annotation on page 52**
- **Updated Construction Contract Time on page 68**
- **Updated cement requirements on specification P-501 sheet 4**

Updated Drawings:

- **Added sheet GC-100 "CONSTRUCTION SAFETY AND PHASING PLAN – OVERALL" laying out primary and secondary construction staging areas.**
- **Updated Construction Safety and Phasing notes on sheets GC-001 and GC-002**
- **Updated Construction Contract Time on sheets GC-101, GC-102, and GC-103**
- **Removed the need for night work on sheet GC-101**
- **Updated Reinforcement Requirements on sheet CJ-301**

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Witness

Witness

Approved by ____ Date: _____

Authorized Signature (Bidder) Scott Blanchard

Assistant Secretary
Title of Person Signing Above

Gulf Coast a CRH Company
Typed Name of Business or Individual

12907 US Highway 90, Beaumont, TX 77713
Address

JEFFERSON COUNTY PURCHASING DEPARTMENT

Sign-In Sheet

Pre-Bid Conference & Walk-Through

Invitation for Bid (IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport
2:00 pm CT, Thursday, March 17, 2022 / Location: Jack Brooks Regional Airport (Administration Conference Room)

Please Print.

NAME	COMPANY/FIRM	ADDRESS	OFFICE/CELL # (s)	EMAIL
Todd Jackson	Brizo Construction	9100 Cannuff Houston	801-554-3753	Todd.Jackson@Brizoconstruction.com
Frederick Sunderman	S&B Infrastructure	1550 Memorial Drive Houston TX 77079	713-845-4633	FSUNDERMANN@SBINFRA.COM
Cynthia Straughan	VRX Inc.	24624 I-45 N #200	713-724-3341	Cynthia.Straughan@VRXglobal.com
Darren Smith	T and L Industries	260 CR 3003 Newton TX 75966	936-590-0772	DSmith@TandL.net
Matt Clendenny	Tolunay Wong Engineers	3355 Weed Cardinal Drive Beaumont TX 77705	409-781-9706	gclendenny@tweinc.com
Wayne Holman	Sp. Aviation Concrete	5120 Old Ferry Rd Port Arthur, TX 77642	4099608537	Wayne.Holman@Texas.com
Aaron Hatcher	Airport		409 454-1604	ahatcher@co.Jefferson.tx.us
		422 CR 888 Bona, TX 77612		
Jason Frank	Garver	12141 Wickchester Ln Suite 200 Houston, TX	713-395-4262	JFrank@Garverusa.com

JEFFERSON COUNTY PURCHASING DEPARTMENT

Sign-In Sheet

Pre-Bid Conference & Walk-Through

Invitation for Bid (IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport
2:00 pm CT, Thursday, March 17, 2022 / Location: Jack Brooks Regional Airport (Administration Conference Room)

Please Print.

NAME	COMPANY/FIRM	ADDRESS	OFFICE/CELL # (s)	EMAIL
Christie Cure	Knife River	4825 Romeda Beaumont	409.284.6118	christie.cure@kniferiver.com
Brooke Ramsey	Knife River	4825 Romeda Beamont	409.239.8324 409.981.7671	brooke.ramsey@kniferiver.com
Terry McGee	Knife River	4825 Romeda Beaumont,	409. 832-6655 409 239 9133	terry.mcgee@kniferiver.com
James West	Jefferson Cty. Purchasing	1149 Pearl, 1st flr Bmt, TX 77701	409-835-8193	jwest@co.jefferson.tx.us
Jose Loza	Gulf Coast	12917 Hwy 90 Bmt TX 77713	409-284-9798	jose.loza@gc-texas.com
Shawn Thurman	SpawGlass	13800 West Fwy Houston, TX 77041	281-970-5300	shawn.thurman@spawglass.com

JEFFERSON COUNTY PURCHASING DEPARTMENT

Sign-In Sheet

Pre-Bid Conference & Walk-Through

Invitation for Bid (IFB 22-011/JW) Taxiway A Rehabilitation at the Jack Brooks Regional Airport

2:00 pm CT, Thursday, March 17, 2022 / Location: Jack Brooks Regional Airport (Administration Conference Room)

Please Print.

NAME	COMPANY/FIRM	ADDRESS	OFFICE/CELL # (s)	EMAIL
Thomas (Tommy) Kelley	AIICO	P.O Box 368 Bmt, 77704	409-860-4459	BHARRISON@AIIco.com
Byron Glenn For Mike Kelley	MK Constructors	16736 IH-10 Vidor TX 77670	409-769-0084	Sales@MKconstructors.com
Gus Harris	Harris Const. Co	9505 Gilbert Rd Bmt.	409-791-2170	GHarris1668@ATT.net
Mark Hawkins	RT Technical	4484 Hodges Rd Nederland, Tx	409-728-9037	MHawkins@rttechnical.com
McCain McDonald	L&L General Contractors	11988 FM 365, Bmt TX	409-796-1344	landline@att.net
Ron Lane	Boston Contracting	8585 Chemical Rd Bmt, TX 77705	409-842-6768	Ron@Brystar.com
Alex Rupp	Airport	5000 Jerry Ware	409-719-4900	ARuppe@co.Jefferson.TX.US
Ben Latham	GARVEX	Bmt 77705	479-347-0033	KKRUTPSAMA@GMAIL.COM
David Granado	G.A.R.V.E.R.		713 491 8333	DGRANADO@GARVER.COM
Duke Yokimans	Airport		409-719-4900	DYOKIMANS@CO.JEFFERSON TX.US
Esther Salazar	RAMTEX	905 Jade Ave. Port Arthur	409-983-5555	Esther@dextex.com
Megan Kitchens	Airport		409-719-4900	mkitchens@co.jefferson.tx.us

Executive Order 11246 has set a goal of 6.9% nationally for female participation for all construction projects. This value remains constant for all counties and states.

Contract Types:

- Construction: The sponsor must incorporate this notice in all solicitations for bids or requests for proposals for AIP funded construction work contracts and subcontracts that exceed $10,000.
- Equipment: The sponsor must incorporate this notice in all solicitations for equipment project exceeding $10,000 that involves installation of equipment onsite (e.g. electrical vault equipment, generators). This provision does not apply to equipment acquisition projects where the manufacturer of the equipment takes place offsite at a manufacturer's plant (e.g. firefighting and vehicles).
- Professional Services: The sponsor must incorporate this notice in any professional service agreement if the agreement includes tasks that meet the definition of construction work, as defined by the DOL, and exceeds $10,000.

Use of Provision: When applicable, the sponsor's language in the contract must fully satisfy the requirements of 41 CFR Part 60-4. The following will be in applicable contracts:

Solicitation Clause:

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractors aggregate workforce in each trade on all construction work in the covered area, are as follows:
   a. Goals for minority participation for each trade: **10.73%**
   b. Goals for female participation in each trade: **N/A**

These goals are applicable to all of the contractor's construction work, whether or not it is federal or federally assisted, performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with these goals will be measured against the total work hours performed.

The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of these subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

CONTRACT

THIS AGREEMENT made this _____ day of _____, 2021, by and between **TBD,** a Corporation organized and existing under the laws of the State of **Texas** hereinafter called the "Contractor", and **JEFFERSON COUNTY, TEXAS**, hereinafter called the "Owner".

W I T N E S S E T H:

That the Contractor and the Owner for the consideration stated herein mutually agree as follows:

ARTICLE 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, incidentals and services, including utility and transportation services and perform and complete all work required for the construction of **Taxiway A Rehabilitation** in strict accordance with the Contract Documents.

ARTICLE 2. The Contract Price. The Owner will pay the Contractor, because of his performance of the Contract, for the total quantities of work performed at the lump sum and unit prices stipulated in the Proposal for the **Base Bid, not to exceed a total contract value of: COST IN WORDS ($XXX,XXX.XX)** subject to additions, and deductions as provided in the Section entitled "CHANGES IN THE WORK" of the GENERAL PROVISIONS.

ARTICLE 3. Contract Time. The Contractor agrees to begin work within ten (10) calendar days after issuance by the Owner of a "Work Order" or "Notice to Proceed" and to complete the work within **Two Hundred and Forty (240)** consecutive calendar days thereafter (except as modified in accordance with the GENERAL PROVISIONS of these Contract Documents). If the Contractor shall fail to complete the work within the time specified, he and his Surety shall be liable for payment to the Owner, as liquidated damages ascertained and agreed, and not in the nature of a penalty, the amount specified in the PROPOSAL of these Contract Documents for each day of delay. To the extent sufficient in amount, liquidated damages shall be deducted from the payments to be made under this Contract.

ARTICLE 4. Contract. The executed Contract Documents shall consist of the following:

1. General Conditions of Bidding and Terms Of Contract
2. Special Requirements/Bid Submission Instructions
3. Federal Mandated Contract Provisions
4. Title Vi Solicitation Notice
5. Bidder Information
6. Statement Of Bidder's Qualifications
7. Conflict Of Interest Questionnaire
8. Local Government Officer
9. Good Faith Effort (GFE) Determination Checklist
10. Notice Of Intent (NOI) To Subcontract with Disadvantaged Business Enterprises (DBE)
11. Disadvantaged Business Enterprises (DBE) Subcontracting Participation Declaration Form
12. Residence Certification/Tax Form
13. House Bill 89 Verification
14. Senate Bill 252 Certification
15. Bid Surety
16. Contract
17. Notice Of Award
18. Notice To Proceed
19. Performance And Payment Bonds
20. Offer And Acceptance Form
21. Bid Form and Proposal
22. Vendor References Form
23. Signature Page
24. Certification Regarding Lobbying
25. Bid Affidavit
26. Addenda
27. Wage Rates

SAMPLE

XXXXXXX, 2021

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Re: Jack Brooks Regional Airport
Taxiway A Rehabilitation; Jefferson County Contract 22-011/JW
AIP No. X-XX-XXXX-XXX-XXXX
Notice to Proceed

Dear Mr. _____:

Please consider this letter as your Notice to Proceed with construction on the above referenced project, effective XXXXXXX, 2021.

Under the terms of the Contract, contract time will start when construction begins or ten (10) days after the effective date of this Notice to Proceed, whichever comes first. Work must be completed within 240 calendar days of the start of contract time, and construction phase 2 must be completed within 60 calendar days. Before you start work at the site, Special Provisions Section C-01 requires that you must deliver to the Engineer and Owner Certificates of Insurance which you are required to purchase and maintain in accordance with the Contract. As stipulated in the Contract Proposal, failure to complete the work within the contract time (including phase 2) shall result in the assessment of liquidated damages. The damages are therein set in the amount of $1,500.00 per calendar day.

Please call me if you have any questions.

Sincerely,

GARVER, LLC

Jason Frank, P.E.
Sr. Project Manager

CC: Alex Rupp, Jack Brooks Regional Airport (via email)

ACCEPTANCE OF OFFER

The Offer is hereby accepted for the following items: Taxiway A Rehabilitation at the Jack Brooks Regional Airport

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as **Contract No. 22-011/JW, Taxiway A Rehabilitation at the Jack Brooks Regional Airport**. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

COUNTERSIGNED:

Jeff R. Branick
Jefferson County Judge

Date

ATTEST:

Laurie Leister
Interim Jefferson County Clerk

It is understood the quantities of work to be done at unit prices are approximate and are intended for bidding purposes only. Amounts are to be shown in both words and figures. In case of discrepancy the amount shown in words shall govern.

Contract Award will be based on the lowest qualified bidder, depending on the availability of funds.

Bidders understand the Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to State and local laws and ordinances pertaining to the letting of construction contracts. Funding availability will be considered in selecting the bid award. The bidder agrees this bid shall be honored and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" and to fully complete the project within:

- **240 Calendar Days** thereafter.
    - Construction Phase 2 shall be completed within **60 Calendar Days** thereafter.

Bidder further agrees to pay as liquidated damages the sum of **one thousand five hundred dollars ($1500.00)** for each calendar day to complete the work beyond the allotted time (including Phase 2) or as extended by an approved Change Order or Supplemental Agreement.

the CF and WF may be adjusted during production ±3 WF and ±5 CF. Adjustments to gradation may not take the point outside of the parallelogram.

e. Contractors combined aggregate gradation. The Contractor shall submit their combined aggregate gradation using the following format:

Contractor's Combined Aggregate Gradation

Sieve Size	Contractor's Concrete mix Gradation (Percent passing by weight)
2 inch (50 mm)	*
1-1/2 inch (37.5 mm)	*
1 inch (25.0 mm)	*
3/4 inch (19.0 mm)	*
1/2 inch (12.5 mm)	*
3/8 inch (9.5 mm)	*
No. 4 (4.75 mm)	*
No. 8 (2.36 mm)	*
No. 16 (1.18 mm)	*
No. 30 (600 µm)	*
No. 50 (300 µm)	*
No. 100 (150 µm)	*

501-2.2 Cement. Cement shall conform to the requirements of:

- ASTM **C150** Type **II**.
- **ASTM C595** Type **IP, IS, IL**

501-2.3 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total alkali content less than 3% per ASTM C311. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Resident Project Representative (RPR).

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

c. Raw or calcined natural pozzolan. Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

501-2.4 Joint seal. The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type specified in the plans.

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) - PAGE 1 OF 2

1. COORDINATION

   A. CONTRACTOR PROGRESS MEETINGS - THE OWNER, ENGINEER AND CONTRACTOR WILL HOLD PROGRESS MEETINGS ON A COORDINATED SCHEDULE DURING CONSTRUCTION. OPERATIONAL SAFETY WILL BE A STANDING AGENDA ITEM IN SUCH MEETINGS.

   B. SCOPE OR SCHEDULE CHANGES - THE OWNER AND/OR ENGINEER WILL CALL SUCH COORDINATION CONFERENCES AS MAY SEEM EXPEDIENT TO HIM FOR THE PURPOSE OF ASSURING COORDINATION OF THE WORK COVERED BY THIS CONTRACT AND/OR SCOPE OR SCHEDULE CHANGES. THE CONTRACTOR SHALL ATTEND ALL SUCH CONFERENCES. 1

   C. FAA ATO COORDINATION - THERE ARE NO DIRECT IMPACT TO (FAA) EQUIPMENT. CONTRACTOR SHALL COORDINATE WITH THE FAA TECH OPS WHEN WORKING IN THE VICINITY OF PAPIs AND REILs.

   D. THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS 150/5370-10H (OR LATEST EDITION)

2. PHASING

   DURING PERFORMANCE OF THIS PROJECT, THE AIRPORT RUNWAYS, TAXIWAYS, AND AIRCRAFT PARKING APRONS SHALL REMAIN IN USE BY AIRCRAFT TO THE MAXIMUM EXTENT POSSIBLE. THE PROJECT SHALL BE PHASED TO REDUCE OPERATIONAL IMPACTS AT THE AIRPORT.

   A. PHASE ELEMENTS - IF NECESSARY FOR A GIVEN PHASE, EACH PHASE OF THE CONSTRUCTION SAFETY DRAWINGS SHALL DETAIL THE AREAS CLOSED TO AIRCRAFT OPERATIONS, ESTIMATED DURATION OF CLOSURES, TAXI ROUTES, ARFF ACCESS ROUTES, CONSTRUCTION STAGING AREAS, CONSTRUCTION ACCESS AND HAUL ROUTES, NAVAID IMPACTS, LIGHTING AND MARKING CHANGES, AVAILABLE RUNWAY LENGTH, DECLARED DISTANCES, HAZARD MARKING AND LIGHTING, AND REQUIRED LEAD TIME FOR NOTAMS.

   B. CONSTRUCTION SAFETY DRAWINGS - SEE SHEET GC-101 THROUGH GC-103 FOR CONSTRUCTION SAFETY DRAWINGS.

3. AREAS OF OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY

   A. IDENTIFICATION OF AFFECTED AREAS - SEE "AIRFIELD AREAS OF OPERATION AFFECTED BY CONSTRUCTION" TABLE AND CONSTRUCTION SAFETY DRAWINGS FOR AIRFIELD AREAS OF OPERATIONS AFFECTED BY CONSTRUCTION.

   B. MITIGATION EFFORTS - SEE TABLE ON PAGE 2 OF THE CSPP AND CONSTRUCTION SAFETY DRAWINGS FOR MITIGATION EFFORTS OF OPERATIONS AFFECTED BY CONSTRUCTION.

4. PROTECTION OF NAVIGATION AIDS (NAVAIDS)

   THE CONTRACTOR MUST NOT CONDUCT ANY CONSTRUCTION ACTIVITY WITHIN NAVIGATIONAL AID RESTRICTED AREAS WITHOUT PRIOR APPROVAL FROM THE LOCAL FAA AIRWAY FACILITIES SECTOR REPRESENTATIVE. NAVIGATIONAL AIDS INCLUDE INSTRUMENT LANDING SYSTEM COMPONENTS, VERY HIGH-FREQUENCY OMNI-DIRECTIONAL RANGE STATIONS, AND AIRPORT SURVEILLANCE RADAR. SUCH RESTRICTED AREAS ARE DEPICTED ON CONSTRUCTION PLANS.

5. CONTRACTOR ACCESS

   A. LOCATION OF STOCKPILED MATERIALS - THE CONTRACTOR SHALL INSTALL A TEMPORARY FENCE AROUND HIS CONSTRUCTION STAGING AREA TO SEPARATE HIS BATCH PLANT, MATERIAL STOCKPILE, EQUIPMENT STORAGE, AND PARKING AREAS FROM THE PUBLIC. NO PERSONAL VEHICLES OF CONTRACTOR'S EMPLOYEES WILL BE ALLOWED INSIDE THE SECURED AREA OF THE AIRPORT. ALL MATERIAL DELIVERIES SHALL BE RECEIVED IN THE STAGING AREA RESERVED BY THE CONTRACTOR. NO DELIVERY TRUCKS WILL BE ALLOWED ACCESS TO A SECURED AREA OF THE AIRPORT BEYOND THIS STAGING AREA. STOCKPILED MATERIALS AND EQUIPMENT ARE NOT PERMITTED WITHIN THE ACTIVE RUNWAY SAFETY AREA AND OBSTACLE FREE ZONE. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER AND FAA AIR SPACING OFFICE PRIOR TO LOCATING STOCKPILES OR EQUIPMENT WITHIN THE OBJECT FREE AREA, SAFETY AREA, OR OBSTACLE FREE ZONE. NO STOCKPILE SHALL BE GREATER THAN 15-FT IN HEIGHT.

   B. VEHICLE AND PEDESTRIAN OPERATIONS - SEE THE CONSTRUCTION SAFETY DRAWINGS FOR CONSTRUCTION SITE PARKING, EQUIPMENT STORAGE AREAS, AND ACCESS AND HAUL ROUTES. VEHICULAR TRAFFIC SHALL ALWAYS YIELD TO AIRCRAFT TRAFFIC.

   WHEN ANY VEHICLE, OTHER THAN ONE THAT HAS PRIOR APPROVAL FROM THE AIRPORT OPERATOR, MUST TRAVEL OVER ANY PORTION OF AN AIRCRAFT MOVEMENT AREA, IT WILL BE ESCORTED AND PROPERLY IDENTIFIED. TO OPERATE IN THOSE AREAS DURING DAYLIGHT HOURS, THE VEHICLE MUST HAVE A FLAG OR BEACON ATTACHED TO IT. ANY VEHICLE OPERATING ON THE MOVEMENT AREAS DURING HOURS OF DARKNESS OR REDUCED VISIBILITY MUST BE EQUIPPED WITH A FLASHING DOME-TYPE LIGHT, THE COLOR OF WHICH IS IN ACCORDANCE WITH LOCAL OR STATE CODES.

   ALL CONSTRUCTION VEHICLES SHALL BE CLEARLY IDENTIFIED FOR CONTROL PURPOSES BY PROMINENTLY DISPLAYING THE COMPANY NAME ON EACH SIDE OF THE VEHICLE. THE IDENTIFICATION SYMBOLS SHOULD BE A MINIMUM 6-INCH BLOCK-TYPE CHARACTERS OF A CONTRASTING COLOR AND EASY TO READ. THEY MAY BE APPLIED EITHER BY USING TAPE OR A WATER-SOLUABLE PAINT TO FACILITATE REMOVAL. MAGNETIC SIGNS ARE ALSO ACCEPTABLE. IN ADDITION, VEHICLES MUST DISPLAY IDENTIFICATION MEDIA, AS SPECIFIED IN THE APPROVED SECURITY PLAN.

   AT 14 CFR PART 139 CERTIFIED AND TOWERED AIRPORTS, ALL VEHICLE OPERATORS HAVING ACCESS TO THE MOVEMENT AREA MUST BE FAMILIAR WITH AIRPORT PROCEDURES FOR THE OPERATION OF GROUND VEHICLES AND THE CONSEQUENCES OF NONCOMPLIANCE OR BE ESCORTED BY SOMEONE WHO IS. 1

   VEHICULAR TRAFFIC LOCATED IN OR CROSSING AN ACTIVE MOVEMENT AREA MUST HAVE A WORKING TWO-WAY RADIO IN CONTACT WITH THE CONTROL TOWER OR BE ESCORTED BY A PERSON IN RADIO CONTACT WITH THE TOWER. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT IS APPROACHING THE VEHICLE POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS. TWO-WAY RADIO COMMUNICATIONS ARE REQUIRED BETWEEN CONTRACTORS AND THE AIRPORT TRAFFIC CONTROL TOWER.

   C. CONTROL OF GATES - THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SECURITY OF THE ACCESS GATES BY KEEPING THE ACCESS GATE LOCKED OR GUARDED AT ALL TIMES. SHOULD THE CONTRACTOR FAIL, AT ANY TIME, TO KEEP THE ACCESS GATE LOCKED OR GUARDED, THERE SHALL BE A FINE OF $200.00 ASSESSED TO THE CONTRACTOR, FOR EACH OCCURRENCE THAT THE CONTRACTOR FAILS TO MAINTAIN THE SECURITY OF THE ACCESS GATE. ALL FINES ASSESSED TO THE CONTRACTOR SHALL BE DEDUCTED FROM ANY MONIES DUE TO HIM/HER.

6. WILDLIFE MANAGEMENT

   IF APPLICABLE, THE CONTRACTOR SHALL REVIEW AND ADHERE TO THE CONTENTS OF THE AIRPORT OPERATOR'S WILDLIFE HAZARD MANAGEMENT PLAN. THE CONTRACTOR SHALL ALSO REVIEW AC 150/5200-33, HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS, AND CERTALERT 98-05, GRASSES ATTRACTIVE TO HAZARDOUS WILDLIFE (www.faa.gov). THE CONTRACTOR SHALL CAREFULLY CONTROL AND CONTINUOUSLY REMOVE WASTE OR LOOSE MATERIALS THAT MIGHT ATTRACT WILDLIFE. CONTRACTOR PERSONNEL MUST BE AWARE OF AND AVOID CONSTRUCTION ACTIVITIES THAT CAN CREATE WILDLIFE HAZARDS ON AIRPORTS. THE CONTRACTOR SHALL MITIGATE THE FOLLOWING ITEMS.

   A. TRASH - THE CONTRACTOR SHALL PERFORM TRASH CLEAN-UP ON A DAILY BASIS.

   B. STANDING WATER - THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE DURING CONSTRUCTION TO AVOID STANDING WATER.

   C. TALL GRASS AND SEEDS - THE CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS OF SECTION T-901, SEEDING OF THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

   D. POORLY MAINTAINED FENCING AND GATES - THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGE TO GATES OR FENCES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRS TO ANY GATES OR FENCES CAUSED BY NEGLIGENCE BY THE CONTRACTOR.

   E. DISRUPTION OF EXISTING WILDLIFE HABITAT - THE CONTRACTOR SHALL NOTIFY THE AIRPORT IMMEDIATELY OF ANY WILDLIFE SIGHTINGS.

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

   THE CONTRACTOR SHALL ENSURE THAT THE PAVEMENT SURFACES ARE KEPT CLEAN FROM DIRT, MUD, AND OTHER DEBRIS FROM THE CONTRACTOR'S EQUIPMENT. FREQUENT CLEAN UP IN THE VICINITY OF CONTRACTOR'S WORK AREAS IS REQUIRED, SEE AC 150/5210-24, FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT (www.faa.gov) FOR FURTHER INSTRUCTION.

8. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

   IF ANY CONSTRUCTION VEHICLE OR EQUIPMENT IS OPERATED WITHIN AIRPORT PROPERTY, THE CONTRACTOR MUST BE ADEQUATELY PREPARED TO EXPEDITIOUSLY CONTAIN AND CLEAN-UP SPILLS RESULTING FROM FUEL OR HYDRAULIC FLUID LEAKS. SPECIAL CARE MUST ALSO BE TAKEN WHEN HANDLING OR TRANSPORTING HAZARDOUS MATERIALS ON AIRPORT PROPERTY. SEE AC 150/5320-15, MANAGEMENT OF AIRPORT INDUSTRIAL WASTE (www.faa.gov), FOR FURTHER INSTRUCTION.

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES

   A. LIST OF RESPONSIBLE REPRESENTATIVES - A POINT OF CONTACT LIST WILL BE COMPLETED AS PART OF THE SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) AND WILL BE DELIVERED TO ALL PARTIES PRIOR TO CONSTRUCTION.

   B. NOTICES TO AIRMEN (NOTAM) - BEFORE BEGINNING ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR MUST, THROUGH THE AIRPORT OPERATOR, GIVE NOTICE USING THE NOTAM SYSTEM OF PROPOSED LOCATION, TIME, AND DATE OF COMMENCEMENT OF CONSTRUCTION. UPON COMPLETION OF WORK AND RETURN OF ALL SUCH AREAS TO STANDARD CONDITIONS, THE CONTRACTOR MUST, THROUGH THE AIRPORT OPERATOR, VERIFY THE CANCELLATION OF ALL NOTICES ISSUED VIA THE NOTAM SYSTEM.

   C. EMERGENCY NOTIFICATION PROCEDURES - IN THE EVENT OF AN EMERGENCY, THE CONTRACTOR SHALL CALL 911, THEN NOTIFY THE ENGINEER AND AIRPORT MANAGER (409) 719-4900. 1

   D. COORDINATION WITH ARFF PERSONNEL - ANY DEACTIVATION OF WATER LINES OR HYDRANTS, REROUTING OF ACCESS ROUTES, OR USE OF HAZARDOUS MATERIALS ON THE AIRFIELD SHALL BE COORDINATED AND APPROVED BY THE AIRPORT'S ARFF PERSONNEL PRIOR TO EXECUTION OF SUCH ACTIVITIES.

   E. NOTIFICATION TO THE FAA - THE CONTRACTOR SHALL ENSURE, THROUGH THE ENGINEER, THAT ALL CONSTRUCTION EQUIPMENT OVER 15 FT IN HEIGHT IS AIR SPACED THROUGH THE APPROPRIATE FAA REGIONAL OR DISTRICT OFFICE PRIOR TO USING SUCH EQUIPMENT ON SITE.

   F. SHUTDOWN OF ANY NAVAID (AIRPORT OR FAA OWNED) SHALL BE COORDINATED WITH THE FAA ATO 45 DAYS PRIOR TO THE PROPOSED SHUTDOWN. THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL SEVEN DAYS ADVANCE NOTICE TO THE AIRPORT TO COORDINATE WITH THE FAA ATO TECH OPS OFFICE RESPONSIBLE FOR THE FAA FACILITIES. SHUTDOWN OF AN AIRPORT OWNED AND FAA MAINTAINED NAVAID OF 24 HOURS OR GREATER, OR MORE THAN 4 HOURS DAILY ON CONSECUTIVE DAYS, SHALL BE COORDINATED WITH THE FAA ATO A MINIMUM OF 45 DAYS PRIOR TO THE SHUTDOWN. ATO CENTRAL SERVICE CENTER (817) 222-4013.

   G. ATCT CONTACT: (281) 443-5844 ; (281) 443-5688 1

10. INSPECTION REQUIREMENTS

    A. DAILY INSPECTIONS - THE CONTRACTOR SHALL PERFORM DAILY SAFETY INSPECTIONS TO VERIFY ALL CONSTRUCTION OPERATIONS ARE IN CONFORMANCE WITH THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP).

    B. INTERIM INSPECTIONS - PRIOR TO OPENING ANY PORTION OF THE AIRPORT TO TRAFFIC, THE CONTRACTOR, ENGINEER, AND AIRPORT OPERATOR SHALL PERFORM A SAFETY INSPECTION OF THE AREA TO BE OPENED TO TRAFFIC TO VERIFY CONFORMANCE WITH THE CSPP AND FAA STANDARDS.

    C. FINAL INSPECTIONS - PRIOR TO OPENING ANY PORTION OF THE AIRPORT TO TRAFFIC, THE CONTRACTOR, ENGINEER, AND AIRPORT OPERATOR SHALL PERFORM A SAFETY INSPECTION OF THE AREA TO BE OPENED TO TRAFFIC TO VERIFY CONFORMANCE WITH THE CSPP AND FAA STANDARDS.

11. UNDERGROUND UTILITIES

    UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS. HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN AND THE ACTUAL LOCATIONS OF THE UTILITIES MAY VARY FROM THE LOCATIONS SHOWN. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITIES ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY.

    TEXAS STATE LAW, THE UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, REQUIRES TWO WORKING DAYS ADVANCE NOTIFICATION THROUGH THE ONE-CALL SYSTEM CENTER BEFORE EXCAVATING USING MECHANIZED EQUIPMENT OR EXPLOSIVES (EXCEPT IN THE CASE OF AN EMERGENCY). THE ONE-CALL SYSTEM PHONE NUMBER IS 1-800-344-8377. THE CONTRACTOR IS ADVISED THAT THERE IS A SEVERE PENALTY FOR NOT MAKING THIS CALL. NOT ALL UTILITY COMPANIES ARE MEMBERS OF THE TEXAS ONE-CALL SYSTEM; THEREFORE, THE CONTRACTOR IS ADVISED TO CONTACT ALL NON-MEMBER UTILITIES AS WELL AS THE ONE-CALL SYSTEM.

12. PENALTIES

    FAILURE OF THE CONTRACTOR (INCLUDING EMPLOYEES) OR ANY OF HIS SUBCONTRACTORS (INCLUDING EMPLOYEES) TO COMPLY WITH ATCT INSTRUCTIONS, THE AIRPORT SAFETY PLAN, OR ANY OF THE OTHER REQUIREMENTS OF THE AIRPORT WHILE OPERATING ON AIRPORT PROPERTY, SHALL BE SUBJECT TO THE FOLLOWING:

    A. FIRST OFFENSE - THE CONTRACTOR SHALL RECEIVE A FINE OF $1,000.00, AND THE VEHICLE OPERATOR WILL RECEIVE A LOSS OF DRIVING PRIVILEGES ON THE AIRPORT. IN ADDITION, ANY FINES OR PENALTIES IMPOSED ON THE AIRPORT AS A RESULT OF THE INCIDENT WILL BE ASSESSED TO THE CONTRACTOR.

    B. SECOND OFFENSE - THE CONTRACTOR SHALL RECEIVE A FINE OF $5,000.00 TO BE DEDUCTED FROM ANY MONIES DUE HIM, AND THE VEHICLE OPERATOR WILL RECEIVE A LOSS OF DRIVING PRIVILEGES ON THE AIRPORT. IN ADDITION, ANY FINE OR PENALTIES IMPOSED ON THE AIRPORT AS A RESULT OF THE INCIDENT WILL BE ASSESSED TO THE CONTRACTOR.

    C. THIRD OFFENSE - WORK WILL BE SUSPENDED. THE CONTRACTOR (INCLUDING EMPLOYEES) AND ANY OF HIS SUBCONTRACTORS (INCLUDING EMPLOYEES) WHO WILL OPERATE GROUND VEHICLES ON THE AIRPORT SHALL SUCCESSFULLY COMPLETE, FOR A SECOND TIME, FORMALIZED AIRPORT SAFETY TRAINING, TO BE CONDUCTED BY AIRPORT STAFF, WHEN THE CONTRACTOR'S EMPLOYEES HAVE COMPLETED AIRPORT SAFETY TRAINING TO THE SATISFACTION OF THE OWNER, WORK MAY CONTINUE AT THE DISCRETION OF THE OWNER.

13. SPECIAL CONDITIONS

    NONE

14. RUNWAY AND TAXIWAY VISUAL AIDS

    A. GENERAL - ALL AIRPORT MARKINGS, LIGHTING, SIGNS, AND VISUAL NAVAIDS THAT ARE IN OPERATION MUST BE CLEAR FROM ALL OBSTRUCTIONS. ALL

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87979

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY & PHASING NOTES 1

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

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DRAWING NUMBER
GC-001

SHEET NUMBER 4

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CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) - PAGE 2 OF 2

TEMPORARY MARKINGS, SIGNS, LIGHTS, OR OTHER VISUAL AIDS MUST BE SECURED IN PLACE TO PREVENT PROP WASH, JET BLAST, WING VORTICES, OR OTHER WIND CURRENTS.

B. MARKINGS - ALL TEMPORARY OR PERMANENT RUNWAY AND TAXIWAY VISUAL AIDS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT EDITION OF FAA AC 150/5340-1 (www.faa.gov). MARKINGS FOR THIS PROJECT INCLUDE THE FOLLOWING:

- TEMPORARILY CLOSED RUNWAYS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING RUNWAY CLOSURE MARKERS ON TOP OF THE RUNWAY DESIGNATION MARKERS. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR CLOSED RUNWAY MARKER DETAIL.
- PARTIALLY CLOSED RUNWAYS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING TEMPORARY MARKING AND LIGHTING FOR THE PARTIALLY CLOSED RUNWAY. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR PARTIALLY CLOSED RUNWAY DETAIL.
- DISPLACED THRESHOLDS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING TEMPORARY MARKING AND LIGHTING FOR THE DISPLACED THRESHOLD, INCLUDING RELOCATING EXISTING NAVIGATIONAL AIDS. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR TEMPORARY DISPLACED THRESHOLD DETAIL.
- TEMPORARILY CLOSED TAXIWAYS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING TAXIWAY CLOSURE MARKERS AT THE ENTRANCE TO THE CLOSED TAXIWAY FROM THE ADJACENT RUNWAY. THE TAXIWAY CLOSURE MARKERS SHALL BE INSTALLED INSIDE THE RUNWAY SAFETY AREA. THE CONTRACTOR SHALL ALSO FURNISH AND INSTALL LOW PROFILE BARRICADES AT THE ENTRANCE TO THE CLOSED TAXIWAY FROM AN ADJACENT TAXIWAY. BARRICADES SHALL BE INSTALLED OUTSIDE ALL ACTIVE TAXIWAY SAFETY AREAS. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR CLOSED TAXIWAY MARKER AND LOW-PROFILE AIRCRAFT BARRICADE DETAILS.

C. LIGHTING AND VISUAL NAVAIDS - ALL TEMPORARY LIGHTING FOR RUNWAY AND TAXIWAY SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT EDITION OF FAA AC 150/5340-30 AND 150/5345-50 (www.faa.gov). THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING ISOLATION TRANSFORMERS ASSOCIATED WITH ANY RUNWAY OR TAXIWAY LIGHT FIXTURES THAT ARE BEING DISCONNECTED.

IF APPLICABLE, ALL CONSTRUCTION, ALTERATION, OR REMOVAL OF FAA OWNED EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE APPROVED FAA REIMBURSABLE AGREEMENT. NO WORK SHALL BE COMPLETED ON FAA OWNED EQUIPMENT PRIOR TO COMPLETION OF THE FAA REIMBURSABLE AGREEMENT.

D. SIGNS - THE CONTRACTOR SHALL INSTALL ALL SIGNS IN ACCORDANCE WITH THE MOST RECENT EDITION OF FAA AC 150/5345-44 AND 150/5340-18. ANY SIGN THAT IS NOT PERFORMING ITS NORMAL FUNCTION MUST BE COVERED OR REMOVED TO PREVENT MISLEADING PILOTS.

15. MARKING AND SIGNS FOR ACCESS ROUTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL NECESSARY MARKINGS AND SIGNAGE FOR ALL ACCESS ROUTES TO AND FROM THE SITE TO BE USED BY CONTRACTOR PERSONNEL, SUBCONTRACTOR PERSONNEL, OR DELIVERY OPERATIONS. ALL SIGNAGE IN THE AIR OPERATIONS AREA SHALL BE FRANGIBLY MOUNTED.

16. HAZARD MARKING AND LIGHTING

A. PURPOSE - HAZARD MARKING AND LIGHTING PREVENTS PILOTS FROM ENTERING AREAS CLOSED TO AIRCRAFT AND PREVENTS CONTRACTOR PERSONNEL FROM ENTERING AREAS OPEN TO AIRCRAFT.

B. EQUIPMENT - THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN LOW-PROFILE BARRICADES IN HAZARDOUS AREAS INSIDE MOVEMENT AREAS. BARRICADES SHALL RESTRICT ACCESS AND MAKE HAZARDS OBVIOUS TO AIRCRAFT, PERSONNEL, AND VEHICLES. DURING PERIODS OF LOW VISIBILITY AND AT NIGHT, BARRICADES SHALL BE EQUIPPED WITH RED FLASHING OR STEADY BURNING LIGHTS. THE SPACING OF BARRICADES SHALL BE SUCH THAT A BREACH IS PHYSICALLY PREVENTED BARRING A DELIBERATE ACT. IF BARRICADES ARE INTENDED TO PREVENT PEDESTRIANS, THEN THEY SHALL BE LINKED. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR LOW-PROFILE AIRCRAFT BARRICADE DETAIL. THE CONTRACTOR SHALL PROVIDE A REPRESENTATIVE CONTACT AVAILABLE 24 HOURS A DAY FOR EMERGENCY MAINTENANCE OF AIRPORT HAZARD LIGHTING AND BARRICADES. (1)

17. WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION

ALL WORK CONDUCTED AT NIGHT SHALL BE ACCOMPANIED BY ADEQUATE LIGHT FACILITIES TO COMPLETE THE WORK. ALL LIGHT FACILITIES SHALL BE AIMED OR SHIELDED AS NECESSARY TO AVOID IMPACTING AIRCRAFT OR ATCT OPERATIONS. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT A LIGHTING PLAN SHOWING THE LOCATION AND AIMING DIRECTION OF ALL LIGHT FACILITIES PRIOR TO THE COMPLETION OF ANY NIGHT WORK.

18. PROTECTION OF SAFETY AREAS, OBJECT FREE AREAS, OBJECT FREE ZONES, AND APPROACH/DEPARTURE SURFACES.

A. RUNWAY SAFETY AREAS (RSA) - NO WORK SHALL BE PERMITTED WITHIN AN ACTIVE RUNWAY SAFETY AREA. IF REQUIRED, ADJUSTMENTS TO THE RSA DIMENSIONS THROUGH RESTRICTED OPERATIONS SHALL BE COORDINATED WITH THE FAA AIRPORTS REGIONAL OR DISTRICT OFFICE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL ENSURE ADEQUATE DISTANCE PROTECTION FOR BLAST PROJECTION, AS NEEDED. ALL OPEN TRENCHES OR EXCAVATIONS WITHIN THE LIMITS OF THE RSA SHALL BE PROMINENTLY MARKED WITH RED OR ORANGE FLAGS AND BACK FILLED OR COVERED PRIOR TO OPENING THE RUNWAY TO OPERATIONS. IN ADDITION, EROSION CONTROL MEASURES SHALL BE PROVIDED IN THE RSA TO PREVENT RUTS, HUMPS, OR DEPRESSIONS INSIDE THE LIMITS OF THE RSA. (1)

B. RUNWAY OBJECT FREE AREAS (ROFA) - NO MATERIAL SHALL BE STOCKPILED INSIDE THE LIMITS OF THE ACTIVE ROFA UNLESS APPROVED BY AIR SPACING THROUGH THE APPROPRIATE FAA AIRPORTS REGIONAL OR DISTRICT OFFICE.

C. TAXIWAY SAFETY AREAS (TSA) - NO WORK SHALL BE PERMITTED WITHIN AN ACTIVE TSA. IF REQUIRED, ADJUSTMENTS TO THE TAXIWAY TSA DIMENSIONS THROUGH RESTRICTED OPERATIONS SHALL BE COORDINATED WITH THE FAA AIRPORTS REGIONAL OR DISTRICT OFFICE PRIOR TO CONSTRUCTION. ALL OPEN TRENCHES OR EXCAVATIONS WITHIN THE LIMITS OF THE TSA SHALL BE PROMINENTLY MARKED WITH RED OR ORANGE FLAGS AND BACK FILLED OR COVERED PRIOR TO OPENING THE TAXIWAY TO OPERATIONS. IN ADDITION, EROSION CONTROL MEASURES SHALL BE PROVIDED IN THE TSA TO PREVENT RUTS, HUMPS, OR DEPRESSIONS INSIDE THE LIMITS OF THE TSA. (1)

D. TAXIWAY OBJECT FREE AREAS (TOFA) - NO CONSTRUCTION SHALL BE PERMITTED INSIDE AN ACTIVE TOFA UNLESS THE TAXIWAY HAS BEEN RESTRICTED TO OPERATIONS REQUIRING A TOFA EQUAL TO THAT OF THE TOFA AVAILABLE. IF REQUIRED, CONSTRUCTION MAY BE PERMITTED INSIDE THE TOFA IF THE TAXIWAY CENTERLINE MARKINGS ARE OFFSET WITH CENTERLINE REFLECTORS OR LIGHTING, OR APPROPRIATE NOTAMS ARE ISSUED. CONSTRUCTION MAY ALSO BE PERMITTED INSIDE THE TOFA IF A FIVE FOOT WING TIP CLEARANCE IS MAINTAINED FOR ALL CONSTRUCTION EQUIPMENT AND VEHICLES. IN THIS SCENARIO, FLAGGERS AND WING WALKERS MUST BE USED TO DIRECT TRAFFIC THROUGH THE CONSTRUCTION SITE.

E. OBSTACLE FREE ZONE (OFZ) - NO PERSONNEL, MATERIAL, OR EQUIPMENT SHALL PENETRATE THE OFZ WHILE THE RUNWAY IS OPEN TO OPERATIONS. THE DIMENSIONS OF THE OFZ ARE AS DEFINED IN FAA AC 150/5300-13 (www.faa.gov). THE CONTRACTOR SHALL PROVIDE FLAGGERS TO ENSURE NO EQUIPMENT OR PERSONNEL IS PRESENT INSIDE AN ACTIVE OFZ. (1)

F. APPROACH/DEPARTURE SURFACES - ALL CONTRACTOR PERSONNEL, MATERIALS, AND EQUIPMENT SHALL REMAIN CLEAR OF THE APPLICABLE THRESHOLD SITING SURFACES AS DEFINED IN APPENDIX 2, "RUNWAY END SITING REQUIREMENTS" OF FAA AC 150/5300-13 (www.faa.gov). CONSTRUCTION ACTIVITIES THAT REQUIRE PENETRATION INTO THE THRESHOLD SITING SURFACE SHALL BE ACCOMPLISH THROUGH DISPLACING OR PARTIALLY CLOSING THE RUNWAY. SUCH CONSTRUCTION ACTIVITIES SHALL REQUIRE COORDINATION WITH THE FAA AIRPORTS REGIONAL OR DISTRICT OFFICE.

19. OTHER LIMITATIONS ON CONSTRUCTION

A. PROHIBITIONS - THE USE OF TALL EQUIPMENT (I.E. CRANES, CONCRETE PUMPS) SHALL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER.

OPEN FLAME WELDING AND TORCH CUTTING OPERATIONS ARE NOT PERMITTED UNLESS ADEQUATE FIRE SAFETY PRECAUTIONS ARE PROVIDED AND THESE OPERATIONS ARE AUTHORIZED BY THE AIRPORT OPERATOR AND THE ENGINEER.

ELECTRICAL BLASTING CAPS SHALL NOT BE PERMITTED WITHIN 1,000-FT OF THE AIRPORT PROPERTY. FLARE POTS ARE NOT PERMITTED WITHIN THE AIR OPERATIONS AREA.

B. RESTRICTIONS - WORK INSIDE THE GA APRON OBJECT FREE AREA SHALL BE PERFORMED DURING NIGHTTIME UNLESS OTHERWISE APPROVED BY THE AIRPORT.

AIRFIELD AREAS AFFECTED BY CONSTRUCTION

OPERATIONAL REQUIREMENT	EXISTING CONDITION	PHASE 1	Phase 2A	Phase 2B
RUNWAY 12-30 ARC	C-III	SAME	SAME	SAME
RUNWAY 16-34 ARC	B-III	CLOSED	SAME	SAME
RUNWAY 12 DECLARED DISTANCES	TORA: 6,750	SAME	TORA: 5,590	TORA: 5,590
	TODA: 6,750	SAME	TODA: 5,590	TODA: 5,590
	ASDA: 6,575	SAME	ASDA: 5,590	ASDA: 5,590
	LDA: 6,575	SAME	LDA: 5,590	LDA: 5,590
RUNWAY 30 DECLARED DISTANCES	TORA: 6,750	SAME	TORA: 5,590	TORA: 5,590
	TODA: 6,750	SAME	TODA: 5,590	TODA: 5,590
	ASDA: 6,750	SAME	ASDA: 5,590	ASDA: 5,590
	LDA: 6,750	SAME	LDA: 5,590	LDA: 5,590
RUNWAY 16 DECLARED DISTANCES	TORA: 5,070	CLOSED	SAME	SAME
	TODA: 5,070	CLOSED	SAME	SAME
	ASDA: 5,070	CLOSED	SAME	SAME
	LDA: 5,070	CLOSED	SAME	SAME
RUNWAY 34 DECLARED DISTANCES	TORA: 5,070	CLOSED	SAME	SAME
	TODA: 5,070	CLOSED	SAME	SAME
	ASDA: 5,070	CLOSED	SAME	SAME
	LDA: 5,070	CLOSED	SAME	SAME
RUNWAY 12 APPROACH MINIMUMS	PRECISION	SAME	SAME	SAME
RUNWAY 30 APPROACH MINIMUMS	½ MILE	SAME	SAME	SAME
RUNWAY 16 APPROACH MINIMUMS	¾ MILE	CLOSED	SAME	SAME
RUNWAY 34 APPROACH MINIMUMS	½ MILE	CLOSED	SAME	SAME
RUNWAY 12 NAVAIDS	LOC, ILS, RNAV	SAME	LOC	LOC
RUNWAY 30 NAVAIDS	RNAV	SAME	SAME	SAME
RUNWAY 16 NAVAIDS	VOR	CLOSED	SAME	SAME
RUNWAY 34 NAVAIDS	VOR/DME, RNAV	CLOSED	SAME	SAME
TAXIWAY A	ADG-III / TDG-III	CLOSED	ADG-III / TDG-III	ADG-III / TDG-III
TAXIWAY B	ADG-III / TDG-III	ADG-III / TDG-III	CLOSED	ADG-III / TDG-III
TAXIWAY D	ADG-III / TDG-III	ADG-III / TDG-III	ADG-III / TDG-III	CLOSED
TAXIWAY E	ADG-III / TDG-III	ADG-III / TDG-III	ADG-III / TDG-III	ADG-III / TDG-III
TAXIWAY F	ADG-III / TDG-III	ADG-III / TDG-III	ADG-III / TDG-III	ADG-III / TDG-III

RUNWAY DATA

RUNWAY END NUMBER	AIRPLANE DESIGN GROUP	AIRCRAFT APPROACH CATEGORY	MINIMUM SAFETY AREA PRIOR TO THE THRESHOLD	MINIMUM UNOBSTRUCTED APPROACH SLOPE	RSA WIDTH DIVIDED BY 2
RUNWAY 12	III	C	1,000-FT	50:1	250-FT
RUNWAY 30	III	C	1,000-FT	34:1	250-FT
RUNWAY 16	III	B	600-FT	34:1	150-FT
RUNWAY 34	III	B	600-FT	34:1	150-FT

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87970
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY & PHASING NOTES 2

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

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DRAWING NUMBER
GC-002

SHEET NUMBER 5

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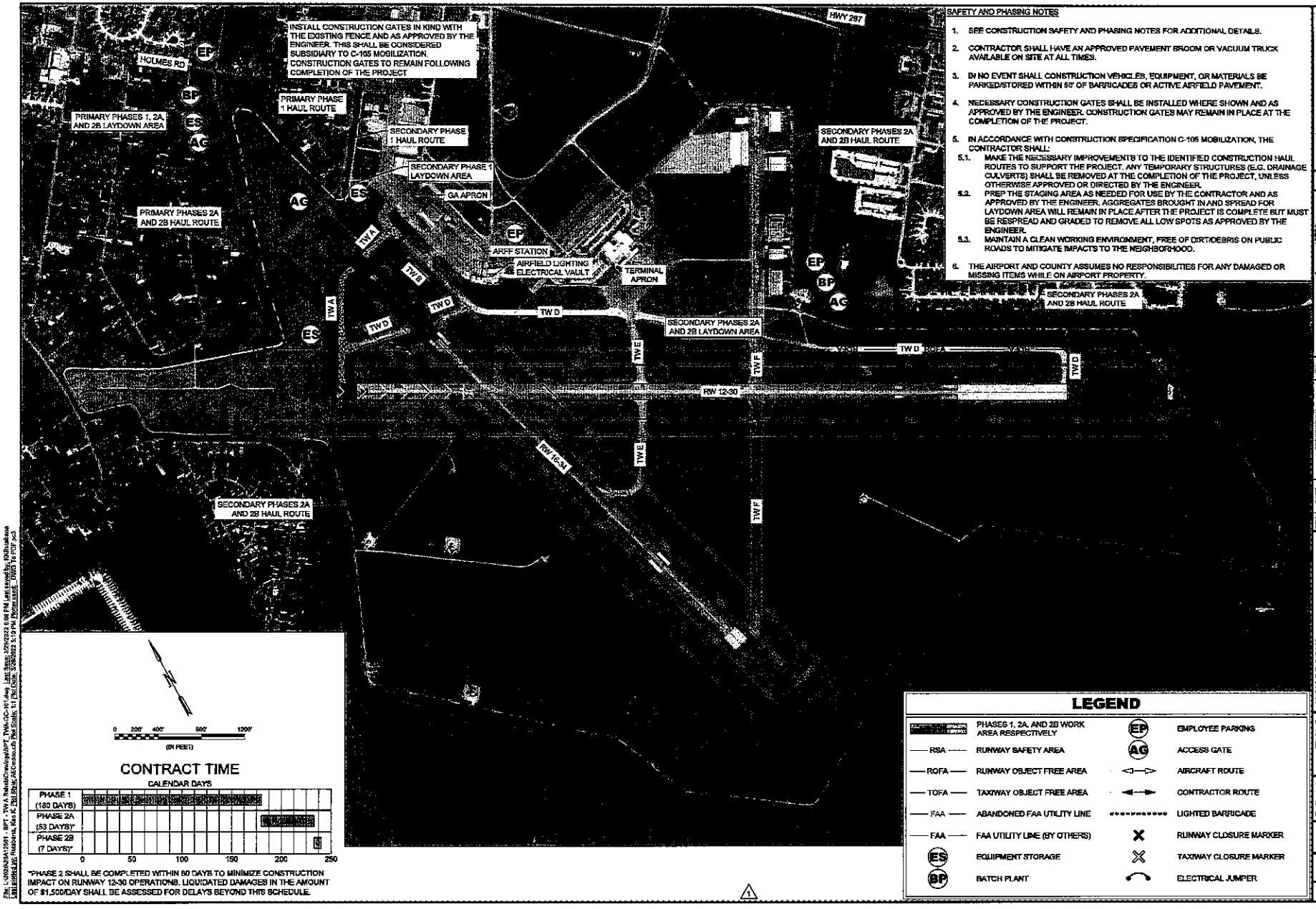
Last plotted by: Rodriguez, Kim K. Plot Style: ACConnect.ctb Plot Scale: 1:1



SAFETY AND PHASING NOTES

1. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL DETAILS.
2. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES.
3. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.
4. NECESSARY CONSTRUCTION GATES SHALL BE INSTALLED WHERE SHOWN AND AS APPROVED BY THE ENGINEER. CONSTRUCTION GATES MAY REMAIN IN PLACE AT THE COMPLETION OF THE PROJECT.
5. IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION C-105 MOBILIZATION, THE CONTRACTOR SHALL:
   - 5.1. MAKE THE NECESSARY IMPROVEMENTS TO THE IDENTIFIED CONSTRUCTION HAUL ROUTES TO SUPPORT THE PROJECT. ANY TEMPORARY STRUCTURES (E.G. DRAINAGE CULVERTS) SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT, UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER.
   - 5.2. PREP THE STAGING AREA AS NEEDED FOR USE BY THE CONTRACTOR AND AS APPROVED BY THE ENGINEER. AGGREGATES BROUGHT IN AND SPREAD FOR LAYDOWN AREA WILL REMAIN IN PLACE AFTER THE PROJECT IS COMPLETE BUT MUST BE RESPREAD AND GRADED TO REMOVE ALL LOW SPOTS AS APPROVED BY THE ENGINEER.
   - 5.3. MAINTAIN A CLEAN WORKING ENVIRONMENT, FREE OF DIRT/DEBRIS ON PUBLIC ROADS TO MITIGATE IMPACTS TO THE NEIGHBORHOOD.
6. THE AIRPORT AND COUNTY ASSUMES NO RESPONSIBILITIES FOR ANY DAMAGED OR MISSING ITEMS WHILE ON AIRPORT PROPERTY.

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87979
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY AND PHASING PLAN - OVERALL

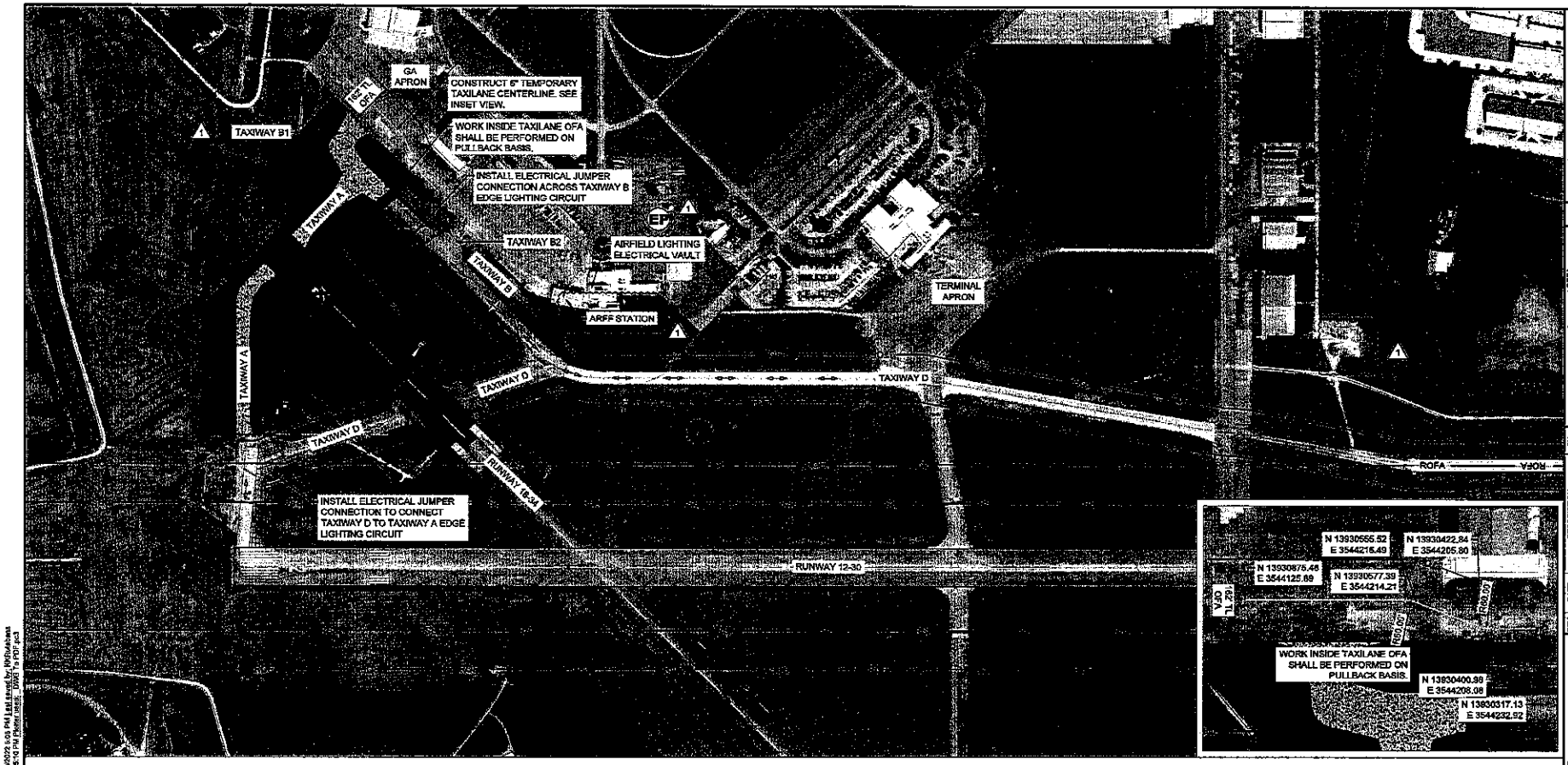
JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER GC-100

SHEET NUMBER 6A

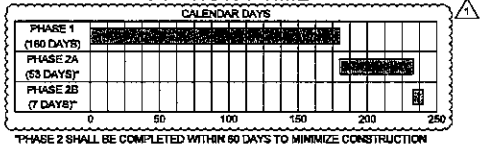
File: I:\2020\20A12501 - BPT - TWA Rehab\Drawings\BPT_TWA_GC-101.dwg Last Save: 3/29/2022 8:06 PM Last saved by: KKRuhalma
Last Plotted By: Ruhalma, Mark K. [All Styles_ASConvert.ctb Pen Scale: 1:1 | Plot Date: 3/30/2022 5:10 PM | Plotter name: DWG To PDF.pc3



LEGEND

	PHASE 1 WORK AREA	EP	EMPLOYEE PARKING
RSA	RUNWAY SAFETY AREA	AG	ACCESS GATE
ROFA	RUNWAY OBJECT FREE AREA		AIRCRAFT ROUTE
TOFA	TAXIWAY OBJECT FREE AREA		CONTRACTOR ROUTE
FAA	ABANDONED FAA UTILITY LINE		LIGHTED BARRICADE
FAA	FAA UTILITY LINE (BY OTHERS)	X	RUNWAY CLOSURE MARKER
ES	EQUIPMENT STORAGE	X	TAXIWAY CLOSURE MARKER
BP	BATCH PLANT		ELECTRICAL JUMPER

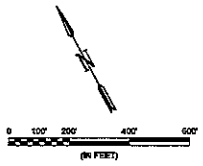
CONTRACT TIME



*PHASE 2 SHALL BE COMPLETED WITHIN 60 DAYS TO MINIMIZE CONSTRUCTION IMPACT ON RUNWAY 12-30 OPERATIONS. LIQUIDATED DAMAGES IN THE AMOUNT OF $1,500/DAY SHALL BE ASSESSED FOR DELAYS BEYOND THIS SCHEDULE.

ITEMS OF WORK

1. ISSUE NOTAM FOR PROPOSED WORK.
2. CONSTRUCT TEMPORARY TAXILANE CENTERLINE ON THE GA APRON.
3. INSTALL BARRICADES AND PAVEMENT CLOSURE MARKERS.
4. REMOVE EXISTING TAXIWAY A PAVEMENT EAST OF RUNWAY 12 RSA.
5. CONSTRUCT CONCRETE TAXIWAY A PAVEMENT SECTION EAST OF RUNWAY 12 RSA
6. INSTALL ELECTRICAL IMPROVEMENTS, DRAINAGE IMPROVEMENTS, AND PAVEMENT MARKINGS IN WORK AREA.



PHASING NOTES

1. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL DETAILS.
2. LIGHTED BARRICADES SHOWN ARE FOR GRAPHIC PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF LIGHTED BARRICADES REQUIRED TO COMPLETE THE WORK AS SHOWN AND MUST BE IN ACCORDANCE WITH CURRENT FAA ADVISORY CIRCULARS.
3. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SUFFICIENT LIGHTING TO ADEQUATELY ILLUMINATE THE WORK AREA DURING NIGHTTIME OPERATIONS. PORTABLE LIGHTING SHALL NOT BE ORIENTED IN SUCH A WAY TO CAUSE IMPACT TO AIRPORT OPERATIONS.
5. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87979
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

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DRAWING NUMBER
GC-101

SHEET NUMBER 6B

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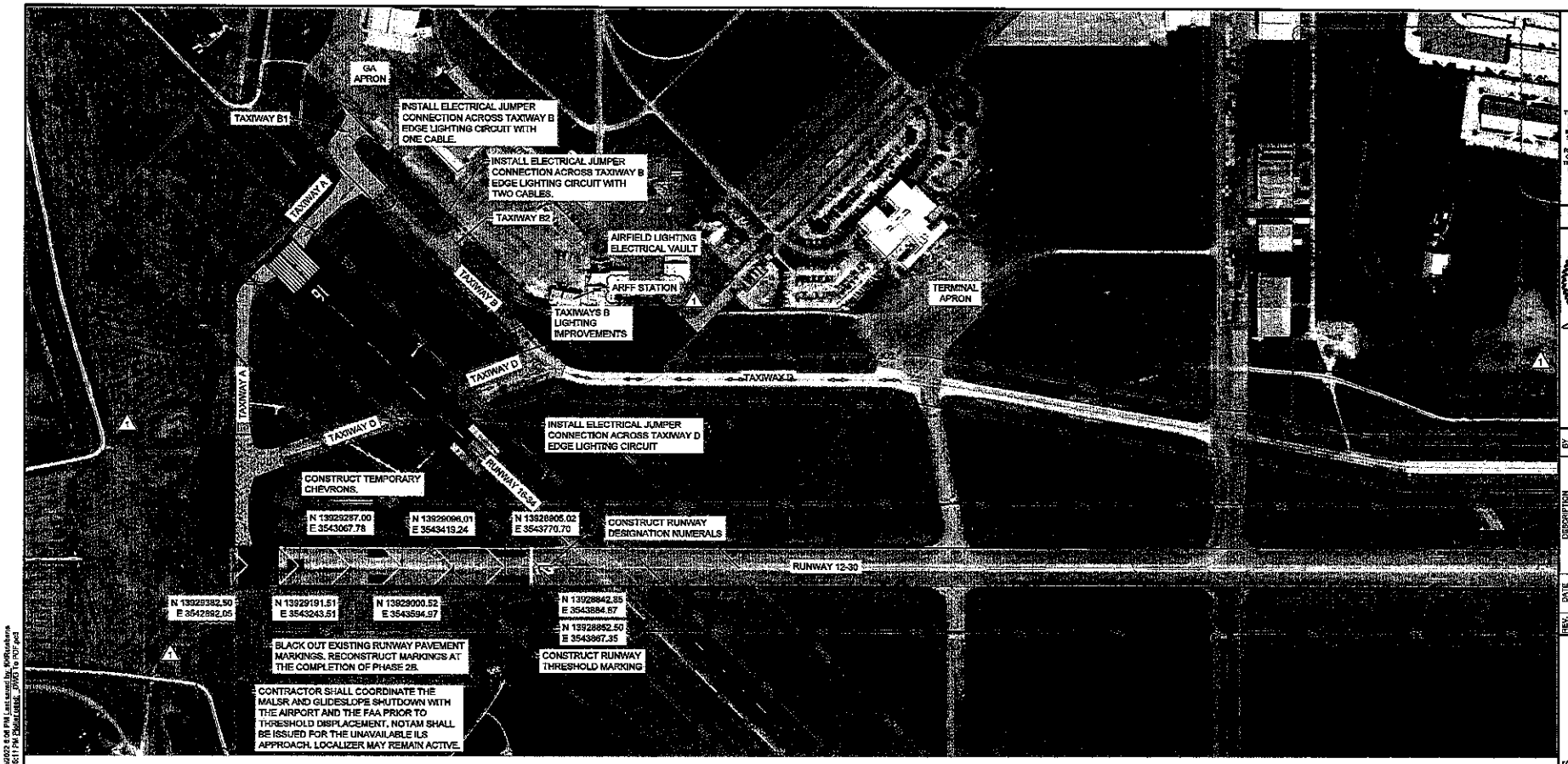

LEGEND

PHASE 2A	PHASE 2A WORK AREA	EP	EMPLOYEE PARKING
RSA	RUNWAY SAFETY AREA	AG	ACCESS GATE
ROFA	RUNWAY OBJECT FREE AREA		AIRCRAFT ROUTE
TOFA	TAXIWAY OBJECT FREE AREA		CONTRACTOR ROUTE
FAA	ABANDONED FAA UTILITY LINE		LIGHTED BARRICADE
FAA	FAA UTILITY LINE (BY OTHERS)	X	RUNWAY CLOSURE MARKER
ES	EQUIPMENT STORAGE	X	TAXIWAY CLOSURE MARKER
BP	BATCH PLANT		ELECTRICAL JUMPER

CONTRACT TIME

CALENDAR DAYS

PHASE 1 (180 DAYS)	
PHASE 2A (50 DAYS)*	
PHASE 2B (7 DAYS)*	

0 50 100 150 200 250

*PHASE 2 SHALL BE COMPLETED WITHIN 50 DAYS TO MINIMIZE CONSTRUCTION IMPACT ON RUNWAY 12-30 OPERATIONS. LIQUIDATED DAMAGES IN THE AMOUNT OF $1,500/DAY SHALL BE ASSESSED FOR DELAYS BEYOND THIS SCHEDULE.

ITEMS OF WORK

1. ISSUE NOTAM FOR PROPOSED WORK.
2. TEMPORARILY PARTIALLY CLOSE RUNWAY 12-30. THIS WORK SHALL BE PERFORMED DURING THE HOURS OF 10PM-6AM.
3. INSTALL BARRICADES AND PAVEMENT CLOSURE MARKERS.
4. REMOVE REMAINDER OF EXISTING TAXIWAY A PAVEMENT.
5. CONSTRUCT REMAINDER OF CONCRETE TAXIWAY A PAVEMENT SECTION.
6. INSTALL ELECTRICAL IMPROVEMENTS, DRAINAGE IMPROVEMENTS, AND PAVEMENT MARKINGS IN WORK AREA.

0 100' 200' 400' 600'
(IN FEET)

PHASING NOTES:

1. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL DETAILS.
2. LIGHTED BARRICADES SHOWN ARE FOR GRAPHIC PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF LIGHTED BARRICADES REQUIRED TO COMPLETE THE WORK AS SHOWN AND MUST BE IN ACCORDANCE WITH CURRENT FAA ADVISORY CIRCULARS.
3. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SUFFICIENT LIGHTING TO ADEQUATELY ILLUMINATE THE WORK AREA DURING NIGHTTIME OPERATIONS. PORTABLE LIGHTING SHALL NOT BE ORIENTED IN SUCH A WAY TO CAUSE IMPACT TO AIRPORT OPERATIONS.
5. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87579
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2A

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BARS ONE INCH ON ORIGINAL DRAWING
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
GC-102

SHEET NUMBER 7

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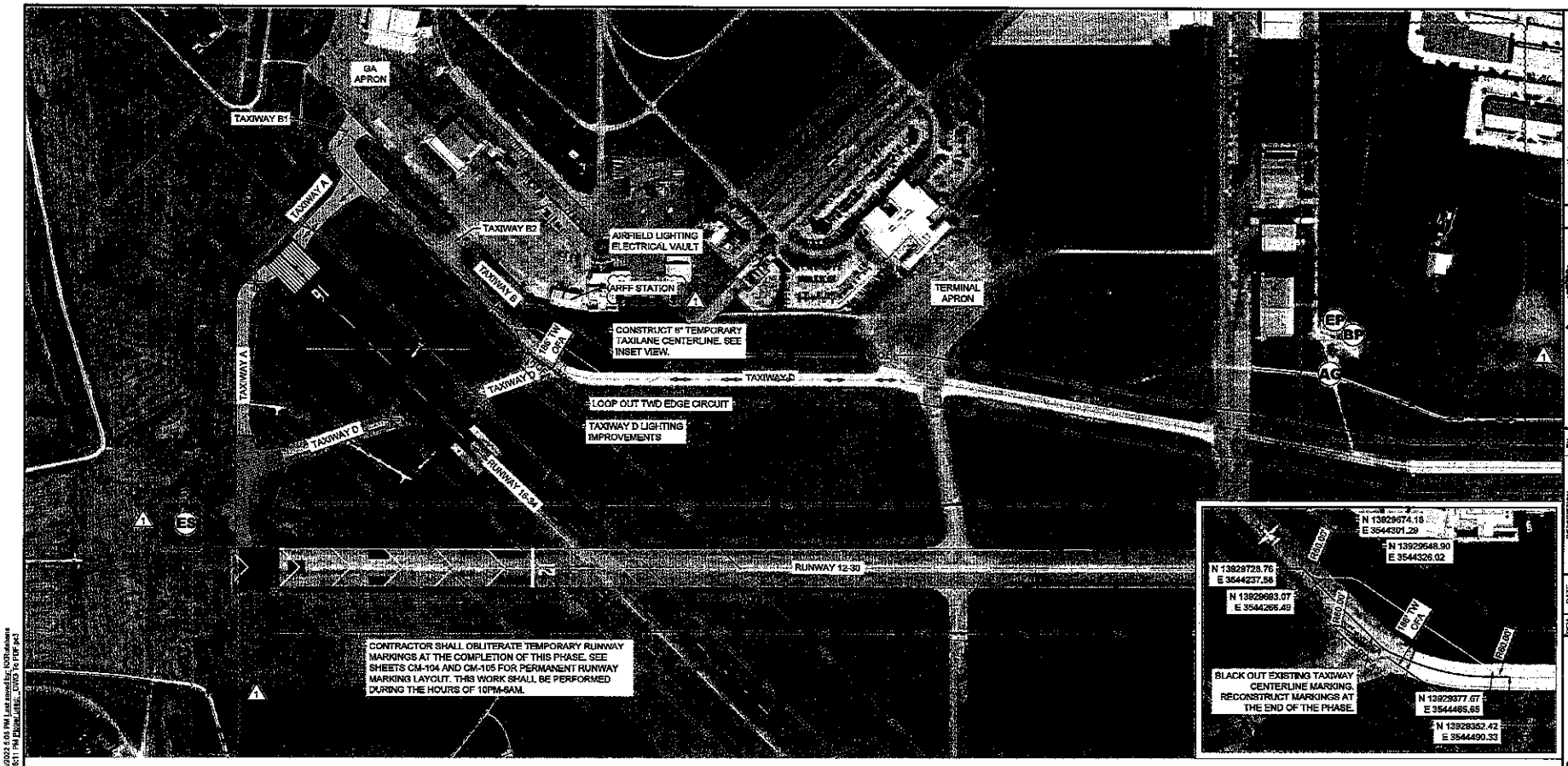


LEGEND

	PHASE 2B WORK AREA	EP	EMPLOYEE PARKING
RSA	RUNWAY SAFETY AREA	AG	ACCESS GATE
ROFA	RUNWAY OBJECT FREE AREA		AIRCRAFT ROUTE
TOFA	TAXIWAY OBJECT FREE AREA		CONTRACTOR ROUTE
FAA	ABANDONED FAA UTILITY LINE		LIGHTED BARRICADE
FAA	FAA UTILITY LINE (BY OTHERS)	X	RUNWAY CLOSURE MARKER
ES	EQUIPMENT STORAGE	X	TAXIWAY CLOSURE MARKER
BP	BATCH PLANT		ELECTRICAL JUMPER

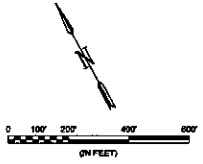
CONTRACT TIME

CALENDAR DAYS

*PHASE 2 SHALL BE COMPLETED WITHIN 60 DAYS TO MINIMIZE CONSTRUCTION IMPACT ON RUNWAY 12-30 OPERATIONS. LIQUIDATED DAMAGES IN THE AMOUNT OF $1,500/DAY SHALL BE ASSESSED FOR DELAYS BEYOND THIS SCHEDULE.

ITEMS OF WORK

1. ISSUE NOTAM FOR PROPOSED WORK.
2. CONSTRUCT TEMPORARY TAXIWAY CENTERLINE MARKING ON TAXIWAY D.
3. INSTALL BARRICADES AND PAVEMENT CLOSURE MARKERS.
4. REMOVE REMAINDER OF EXISTING TAXIWAY A PAVEMENT.
5. CONSTRUCT REMAINDER OF CONCRETE TAXIWAY A PAVEMENT SECTION.
6. INSTALL ELECTRICAL IMPROVEMENTS, DRAINAGE IMPROVEMENTS, AND PAVEMENT MARKINGS IN WORK AREA.



PHASING NOTES:

1. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL DETAILS.
2. LIGHTED BARRICADES SHOWN ARE FOR GRAPHIC PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF LIGHTED BARRICADES REQUIRED TO COMPLETE THE WORK AS SHOWN AND MUST BE IN ACCORDANCE WITH CURRENT FAA ADVISORY CIRCULARS.
3. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SUFFICIENT LIGHTING TO ADEQUATELY ILLUMINATE THE WORK AREA DURING NIGHTTIME OPERATIONS. PORTABLE LIGHTING SHALL NOT BE ORIENTED IN SUCH A WAY TO CAUSE IMPACT TO AIRPORT OPERATIONS.
5. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87979
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2B

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
GC-103

SHEET NUMBER 8

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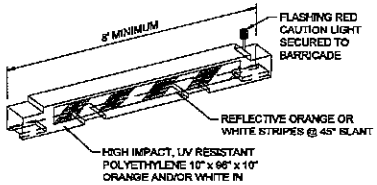
STAGING AREA NOTES

1. THE CONTRACTOR'S EMPLOYEES AND VISITORS VEHICLES SHALL PARK IN THE CONTRACTOR'S EMPLOYEE PARKING AREA. ONLY OWNER APPROVED PERSONNEL WILL BE ALLOWED TO ACCESS AND/OR PARK ON AIRPORT PROPERTY.
2. ALL DELIVERIES, MATERIAL OR OTHERWISE, SHALL BE MADE TO THE DELIVERY ADDRESS OF THE CONTRACTOR'S STAGING AREA. THE NAME "JACK BROOKS REGIONAL AIRPORT" SHALL NOT BE USED IN THE DELIVERY ADDRESS.
3. THE LOCATION AND SIZE OF THE CONTRACTOR'S STAGING AREA IS SHOWN FOR REFERENCE ONLY. THE EXACT LIMITS OF THE CONTRACTOR'S PARKING AND STAGING AREA FOR MATERIAL STOCKPILING, OFFICE TRAILERS, AND DELIVERIES SHALL BE PROPOSED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER. THE CONTRACTOR STAGING PLANS SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMIT(S) TO DEVELOP AND USE THE SITE FOR STAGING AND OTHER ACTIVITIES AS REQUIRED.
5. THE STAGING AREA SHALL BE PREPARED TO A STABLE AND DRAINABLE CONDITION. THE CONTRACTOR MAY HAVE THE OPTION OF ERECTING ADDITIONAL CHAIN-LINK SECURITY FENCING TO DELINEATE AND PROTECT THE AREA.
6. THE CONTRACTOR MAY DO SOME GRADING AND DRAINAGE WORK TO ADAPT THE AREA TO SPECIFIC NEEDS. UPON COMPLETION OF THE WORK, THE AREA WILL BE GRADED AND DRESSED TO THE SATISFACTION OF THE ENGINEER AND OWNER UPON COMPLETION OF THE CONTRACT WORK.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONNECTIONS TO THE STAGING AREA. ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S STAGING AREA SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY AGENCY BY THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE METERS AND PERMITS. UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
8. NO SEPARATE PAY ITEM SHALL BE MADE FOR ANY ITEM REQUIRED FOR THE CONTRACTOR TO ENCLOSE AND DEVELOP THEIR STAGING AREA.
9. THE OWNER SHALL NOT BE RESPONSIBLE FOR ANY LOST OR STOLEN PROPERTY.
10. NO EQUIPMENT OR VEHICLES SHALL BE PARKED WITHIN 10 FEET OF ANY AIRPORT OPERATIONS AREA (AOA) PERIMETER FENCE.



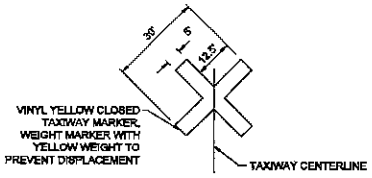
BARRICADE NOTES:

1. BARRICADES SHALL BE FURNISHED, INSTALLED, MAINTAINED, AND REMOVED BY THE CONTRACTOR.
2. BARRICADES SHALL MEET THE REQUIREMENTS OF THE CURRENT FAA ADVISORY CIRCULAR 150/5370-2 AND BE APPROVED BY THE ENGINEER.
3. CONTRACTOR SHALL WEIGHT BARRICADE TO PREVENT DISPLACEMENT. THE METHOD SHALL BE APPROVED BY THE ENGINEER.
4. BARRICADES SHALL BE LOCATED AS DEFINED IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP).
5. UNLESS OTHERWISE NOTED, MAXIMUM BARRICADE SPACING SHALL BE 10' O.C.

2 GC-201 — LOW PROFILE AIRCRAFT BARRICADE (MOVEMENT AREAS)
SCALE: NONE

BADGING AND SECURITY

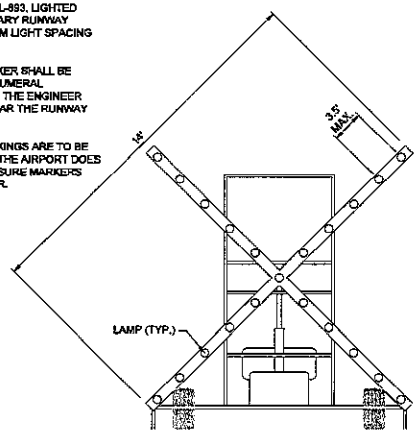
1. CONTRACTOR SHALL BE RESPONSIBLE FOR AIRPORT SECURITY AT ALL TIMES WHEN IN THE AIRPORT OPERATIONS AREA (AOA).
2. CONTRACTOR SHALL FOLLOW ALL AIRPORT SECURITY POLICIES, PROCEDURES, RULES, AND REGULATIONS WHILE OPERATING VEHICLES AND EQUIPMENT ON THE AOA. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ENSURING THAT ALL EMPLOYEES AND SUBCONTRACTORS MEET THE AIRPORT SECURITY REQUIREMENTS WHILE OPERATING VEHICLES AND EQUIPMENT ON THE AOA.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A GATE GUARD AT ALL AOA ENTRANCES. ALL GATE GUARDS MUST OBTAIN AN AIRPORT BADGE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINES ASSESSED TO THE AIRPORT DUE TO THE FAILURE OF THE CONTRACTOR OR SUBCONTRACTORS TO FOLLOW AIRPORT SECURITY REQUIREMENTS. THE AIRPORT RESERVES THE RIGHT TO SUSPEND AND/OR REVOKE DRIVING PRIVILEGES AND/OR BADGES FOR FAILURE TO COMPLY WITH THE AIRPORT SECURITY REQUIREMENTS.
5. AIRPORT BADGES SHALL BE VISIBLE AT ALL TIMES.



1 GC-201 — TAXIWAY CLOSURE MARKER
SCALE: NONE

RUNWAY CLOSURE MARKER NOTES:

1. LIGHTED RUNWAY CLOSURE MARKER SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-55A SPECIFICATION FOR L-893, LIGHTED VISUAL AID TO INDICATE TEMPORARY RUNWAY CLOSURE. DETAIL SHOWS MINIMUM LIGHT SPACING REQUIREMENTS.
2. LIGHTED RUNWAY CLOSURE MARKER SHALL BE INSTALLED ON TOP OF RUNWAY NUMERAL DESIGNATOR OR AS DIRECTED BY THE ENGINEER WHEN WORK IS TAKING PLACE NEAR THE RUNWAY NUMERALS.
3. LIGHTED RUNWAY CLOSURE MARKINGS ARE TO BE SUPPLIED BY THE CONTRACTOR. THE AIRPORT DOES NOT HAVE LIGHTED RUNWAY CLOSURE MARKERS AVAILABLE FOR THE CONTRACTOR.



3 GC-201 — PORTABLE LIGHTED RUNWAY CLOSURE MARKER (LIGHTED X)
SCALE: NONE

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REGISTRATION NO. F-5713

STATE OF TEXAS — JASON E. FRANK — 87979 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS
TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY DETAILS 1

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER GC-201
SHEET NUMBER 9

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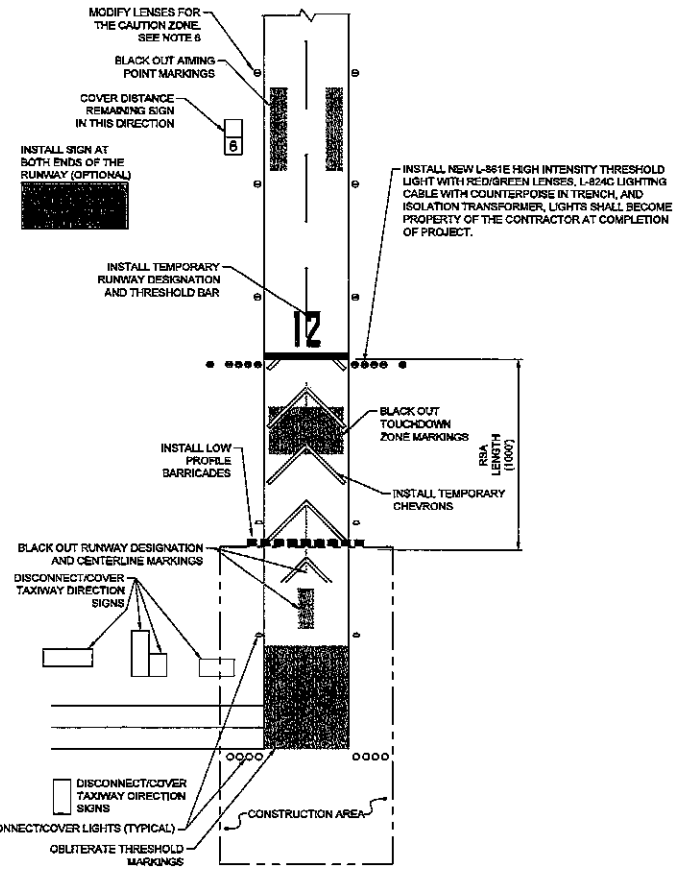
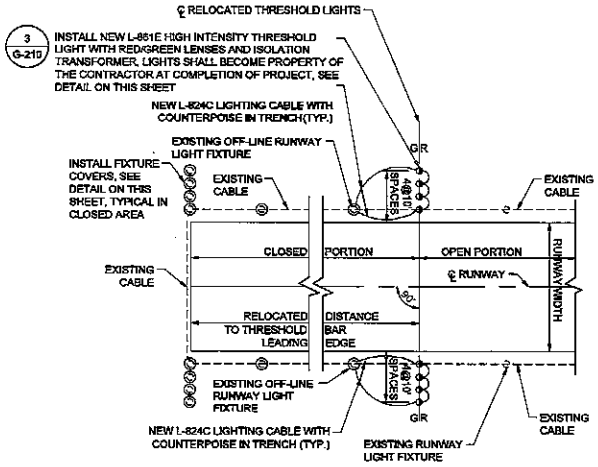


CLOSED RUNWAY NOTES:

1. PLACE LOW PROFILE BARRICADES AT ALL ACCESS POINTS TO CLOSED SECTION OF RUNWAY.
2. ALL LIGHTS SHALL BE DISCONNECTED OR COVERED BY METHOD APPROVED BY THE ENGINEER.
3. SEE SHEET GM-203 FOR RUNWAY MARKING DETAILS.
4. DISCONNECT CABLES AND CONNECT TEMPORARY AT EXISTING FIXTURES AS DIRECTED BY THE ENGINEER. DISCONNECT TRANSFORMERS IN FIXTURES BETWEEN NORMAL THRESHOLD AND RELOCATED THRESHOLD. CHECK REGULATOR LOADING TO ENSURE PROPER OPERATION. PROTECT ALL CABLE ENDS.
5. TEMPORARY ELECTRICAL BYPASS MAY BE REQUIRED DURING MODIFICATIONS TO RUNWAY CIRCUIT AT TAXIWAY/RUNWAY INTERSECTIONS.
6. RECONFIGURE CAUTION ZONE AND MOVE LIGHTS WITH WHITE/AMBER LENSES TO INDICATE LAST 2,000 FEET OR ONE-HALF THE AVAILABLE RUNWAY LENGTH, WHICHEVER IS LESS, RESTORE WHEN WORK IS COMPLETED.
7. MOW GRASS AND THOROUGHLY PREPARE GROUND AREA PRIOR TO CONSTRUCTION OF DISPLACED THRESHOLD.
8. CONTRACTOR SHALL MAINTAIN THE DISPLACED THRESHOLD IN ACCEPTABLE CONDITIONS AT ALL TIMES.
9. COORDINATE PLACING PAPI'S, ILS, AND OTHER NAVIGATIONAL AIDS OFF-LINE DURING PHASES OF WORK WITH TEMPORARY RELOCATED THRESHOLD.
10. ALL NEW FIXTURES AND/OR LENSES TO UPDATE THE RELOCATED THRESHOLD AND CAUTION ZONE EDGE LIGHTING AREAS SHALL BE PAID FOR BY TEMPORARY AIRFIELD LIGHTING.

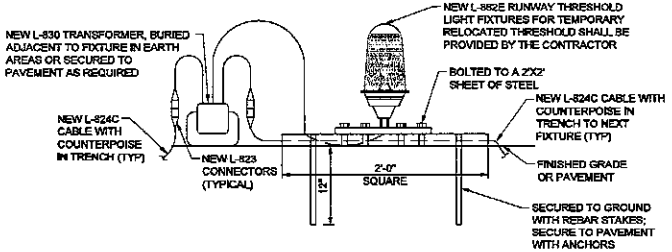
1 GC-202 **TEMPORARY PARTIALLY CLOSED RUNWAY**
SCALE: NONE



2 GC-202 **TEMPORARY RELOCATED THRESHOLD**
SCALE: NONE

RELOCATED THRESHOLD NOTES:

1. DISCONNECT CABLES AND CONNECT TEMPORARY AT EXISTING FIXTURES AS DIRECTED BY THE ENGINEER. DISCONNECT TRANSFORMERS IN FIXTURES BETWEEN NORMAL THRESHOLD AND RELOCATED THRESHOLD. CHECK REGULATOR LOADING TO ENSURE PROPER OPERATION. PROTECT ALL CABLE ENDS.
2. TEMPORARY ELECTRICAL BYPASS CIRCUIT MAY BE REQUIRED DURING MODIFICATIONS TO RUNWAY CIRCUIT AT TAXIWAY/RUNWAY INTERSECTIONS.
3. RECONFIGURE CAUTION ZONE AND MOVE WHITE/AMBER LENSES TO INDICATE LAST 2,000 FEET OR ONE-HALF THE AVAILABLE RUNWAY LENGTH, WHICHEVER IS LESS. RESTORE WHEN WORK IS COMPLETED.
4. MOW GRASS AND THOROUGHLY PREPARE GROUND AREA PRIOR TO CONSTRUCTION OF RELOCATED THRESHOLD.
5. CONTRACTOR SHALL MAINTAIN THE RELOCATED THRESHOLD IN ACCEPTABLE CONDITIONS AT ALL TIMES.
6. COORDINATE PLACING REILs AND OTHER NAVIGATIONAL AIDS OFF-LINE DURING PHASES OF WORK WITH TEMPORARY RELOCATED THRESHOLD.



RELOCATED THRESHOLD FIXTURE NOTES:

1. SECURE CABLES IN CONDUIT AND TRANSFORMER NEAR LIGHT TO PAVEMENT TO PREVENT MOVEMENT.
2. BURY CABLES AND TRANSFORMER IN EARTH AREAS.
3. ALTERNATE TO TRENCHING, INSTALL CABLE IN RIGID STEEL CONDUIT, SECURED TO GROUND AND BONDED TO GROUND RODS. INSTALL FLAGS AT 5' INTERVALS TO IDENTIFY LOCATION.

3 GC-202 **L-862 HIGH INTENSITY THRESHOLD LIGHT WITH RED/GREEN LENSES AND ISOLATION TRANSFORMER**
SCALE: NONE

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
87879
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY DETAILS 2

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BAR IS ONE INCH ON ORIGINAL DRAWING
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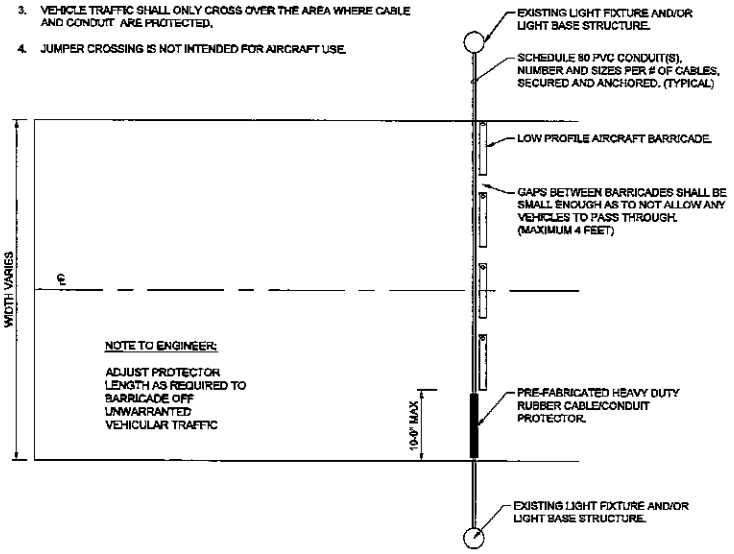
DRAWING NUMBER
GC-202

SHEET NUMBER 10

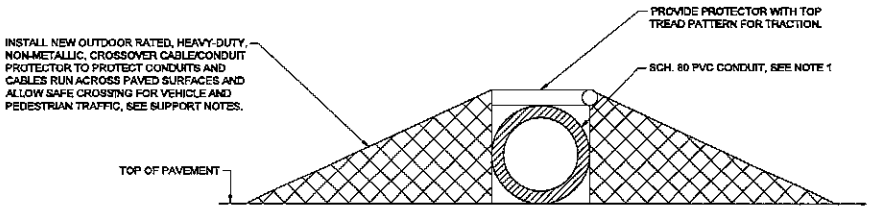
Plot: I:\2020\20A12501-JBPT - TWY A Rehab\Drawings\BPT_TWY-GC-201.dwg Last Save: 1/12/2021 12:09 PM Last saved by: KKR\dallaire
Last Revision by: Kristiana, Kara Xref: ESK-Sheet_ACSheet.dat Plot Date: 3/29/2022 5:12 PM Plotted with: DWG To PDF.pc3

CROSSING PROTECTOR NOTES:

1. CABLE SHALL REMAIN IN CONDUIT FOR ENTIRE JUMPER LENGTH.
2. CONTRACTOR SHALL SUBMIT SUPPORT PROTECTOR PRODUCT DATA SHEETS.
3. VEHICLE TRAFFIC SHALL ONLY CROSS OVER THE AREA WHERE CABLE AND CONDUIT ARE PROTECTED.
4. JUMPER CROSSING IS NOT INTENDED FOR AIRCRAFT USE.



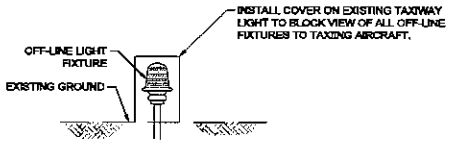
1 GC-203 TYPICAL PAVEMENT JUMPER CROSSING FOR TEMPORARY AIRFIELD LIGHTING
SCALE: NONE



SUPPORT NOTES:

1. SIZE CONDUIT PER NUMBER OF CABLES.
2. SIZE PROTECTOR PER CONDUIT NUMBER AND SIZES.
3. PROTECTOR SHALL EXTEND PARALLEL TO THE CONDUIT FOR THE ENTIRE LENGTH OF THE CONDUIT WHERE SUBJECT TO LIGHT VEHICULAR TRAFFIC.
4. BOLTS SHALL BE INSTALLED AND TORQUED PER MANUFACTURERS RECOMMENDATIONS TO SECURE AND ANCHOR THE COMPLETE PROTECTION SYSTEM.

3 GC-203 ABOVE GROUND TEMPORARY CONDUIT PROTECTOR
SCALE: NONE



FIXTURE COVER NOTES:

1. CONTRACTOR SHALL MAINTAIN THE FIXTURE COVERS IN ACCEPTABLE CONDITIONS AT ALL TIMES.
2. WHEN NO LONGER REQUIRED, THE FIXTURE COVERS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
3. FIXTURE COVERS SHALL BE SECURED TO PREVENT MOVEMENT BY PROP WASH, JET BLAST, OR OTHER WIND CURRENTS.
4. COST FOR PROVIDING, INSTALLING, MAINTAINING AND REMOVING PVC EDGE LIGHT MASK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR TEMPORARY AIRFIELD LIGHTING.

2 GC-203 LIGHT FIXTURE COVER
SCALE: NONE

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
97879

REV.	DATE	DESCRIPTION	BY

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS

TAXIWAY A REHABILITATION

CONSTRUCTION SAFETY DETAILS 3

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
GC-203

SHEET NUMBER 11

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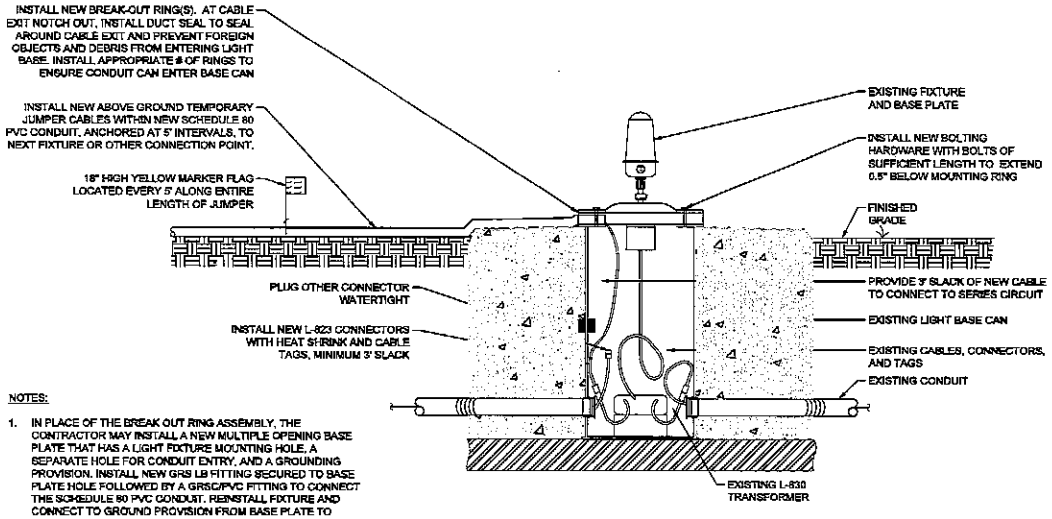
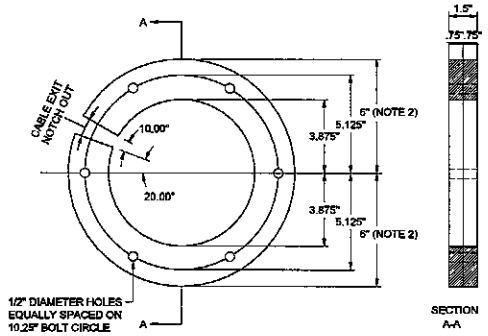


NOTES:

1. IN PLACE OF THE BREAK OUT RING ASSEMBLY, THE CONTRACTOR MAY INSTALL A NEW MULTIPLE OPENING BASE PLATE THAT HAS A LIGHT FIXTURE MOUNTING HOLE, A SEPARATE HOLE FOR CONDUIT ENTRY, AND A GROUNDING PROVISION. INSTALL NEW GRS LB FITTING SECURED TO BASE PLATE HOLE FOLLOWED BY A GRSC/PVC FITTING TO CONNECT THE SCHEDULE 80 PVC CONDUIT. REINSTALL FIXTURE AND CONNECT TO GROUND PROVISION FROM BASE PLATE TO JUNCTION BASE INTERNAL LUG.

1 GC-204 **TEMPORARY JUMPER CIRCUIT CONNECTION**
SCALE: NONE



BREAK-OUT RING NOTES:

1. HOLE PATTERN SHALL MATCH EXISTING BASE CAN. PATTERN SHOWN IS FOR 12" L-867B CAN.
2. OUTSIDE DIMENSION SHALL MATCH EXISTING CAN.
3. BREAK-OUT RING SHALL BE FABRICATED FROM 3/4" MARINE GRADE A PLYWOOD WITH 10 MIL POLYURETHANE FINISH APPLIED AFTER TEMPORARY CABLE IS INSTALLED.
4. BREAK-OUT RINGS, ABOVE GROUND CONDUIT, JUMPER CABLES, LUMBER, SUPPORTS, HARDWARE, AND OTHER APPURTENANCES ARE INCIDENTAL TO THE TEMPORARY AIRFIELD LIGHTING PAY ITEM. CONTRACTOR SHALL SUPPLY SUFFICIENT QUANTITY TO SUPPORT ALL RE-WIRING ACTIVITIES.

2 GC-204 **BREAK OUT RING**
SCALE: NONE

MAXIMUM CONDUIT FILL	
SCHEDULE 80 PVC TRADE SIZE	NUMBER OF L-824C CABLES
1"	2
1-1/4"	3
1-1/2"	5

FILL NOTE:

1. FOR NEW L-824C CABLE INSTALLED ON THIS PROJECT, THEBASIS-OF-DESIGN OUTSIDE DIAMETER THAT WAS USED IS 0.415 INCHES. IF THE CONTRACTOR USES L-824C CABLE WITH A LARGER OUTSIDE DIAMETER, ANY CONDUIT OR DUCT BANK INCREASES IN SIZE NECESSARY TO MAINTAIN CABLE FILL CODE COMPLIANCE SHALL BE INSTALLED AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND TO THE SATISFACTION OF THE ENGINEER. PAYMENT WILL ONLY BE MADE AT THE BASIS-OF-DESIGN CONDUIT OR DUCT BANK PAY ITEM SHOW ON THE PLANS. AS-BUILT DRAWINGS SHALL BE MARKED UP BY THE CONTRACTOR TO IDENTIFY ANY SIZE CHANGES.

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REGISTRATION NO. F-5713

STATE OF TEXAS
JASON E. FRANK
97978
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS
TAXIWAY A REHABILITATION

CONSTRUCTION SAFTEY DETAILS 4

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
GC-204

SHEET NUMBER 12

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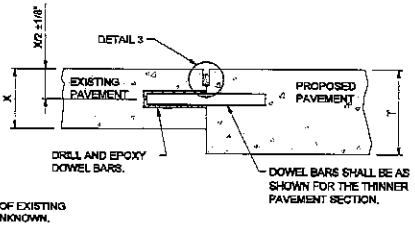
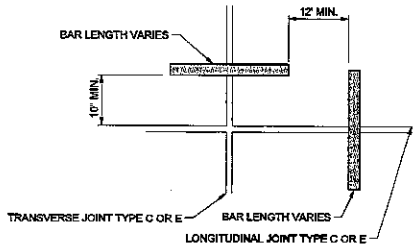


NOTE:
THICKNESS "X" OF EXISTING PAVEMENT IS UNKNOWN.

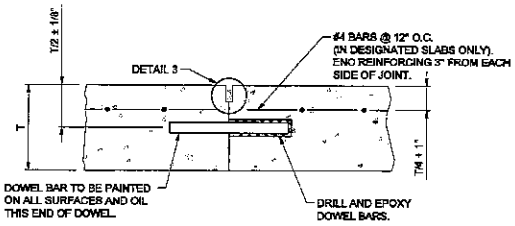
TYPE E - DOWELED CONSTRUCTION JOINT AT EXISTING/PROPOSED PAVEMENT

1 / CJ-301 SCALE: NONE



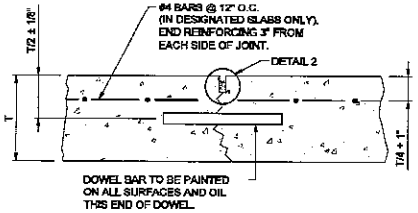
DOWEL BARS AT SLAB CONRNERS (PLAN VIEW)

2 / CJ-301 SCALE: NONE



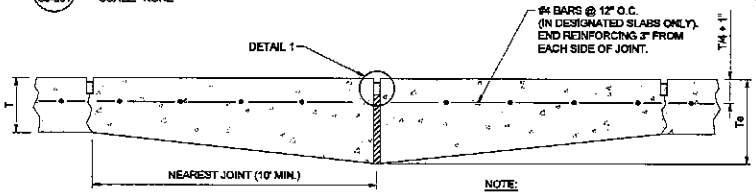
TYPE E - DOWELED CONSTRUCTION JOINT

3 / CJ-301 SCALE: NONE



TYPE C - DOWELED CONTRACTION JOINT

4 / CJ-301 SCALE: NONE



NOTE:
Te = 1.25(T) ± 1" (MIN. T + 2")

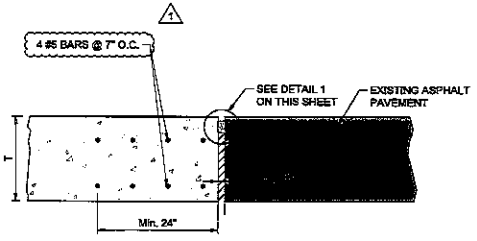
TYPE A THICKENED EDGE JOINT

5 / CJ-301 SCALE: NONE

SLAB THICKNESS	BAR SIZE	BAR LENGTH	BAR SPACING
≤ 6"	NO. 4	20"	36" O.C.
6" < T < 9"	NO. 5	30"	30" O.C.

TIE BAR SPECIFICATIONS

6 / CJ-301 SCALE: NONE



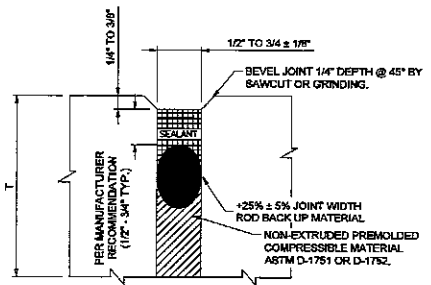
TYPE A-1 REINFORCED ISOLATION JOINT AT EXISTING ASPHALT PAVEMENT

7 / CJ-301 SCALE: NONE

NOTE:
1. REINFORCING STEEL SHALL ONLY BE INSTALLED IN SLABS IDENTIFIED IN THE JOINT LAYOUT PLAN SHEETS.

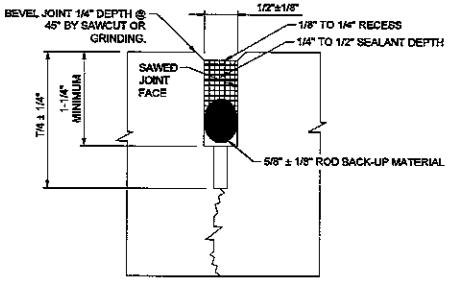
SYMBOLS

- SEALANT
- ROD BACK-UP MATERIAL CLOSED-CELL RESILIENT FOAM OR SPONGE RUBBER
- RESILIENT FILLER



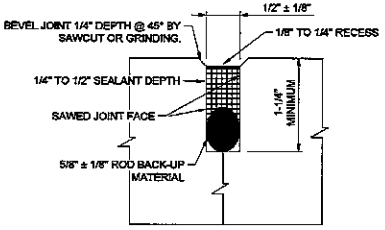
DETAIL 1 - ISOLATION JOINTS

A / CJ-301 SCALE: NONE



DETAIL 2 - CONTRACTION JOINTS

B / CJ-301 SCALE: NONE



DETAIL 3 - CONSTRUCTION JOINTS

C / CJ-301 SCALE: NONE

SLAB THICKNESS	DOWEL DIAMETER	DOWEL LENGTH	DOWEL SPACING
6" TO 7"	3/4"	18"	12"
7.5" TO 12"	1"	18"	12"
12.5" TO 15"	1 1/4"	20"	15"
15.5" TO 20"	1 1/2"	20"	18"
20.5" TO 24"	2"	24"	18"

DOWEL BAR SPECIFICATIONS

8 / CJ-301 SCALE: NONE

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REGISTRATION NO. E-5713

STATE OF TEXAS
JASON E. FRANK
87979
REGISTERED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
1	03/22/22	ADDENDUM NO. 2	JEF

JACK BROOKS REGIONAL AIRPORT
JEFFERSON COUNTY, TEXAS
TAXIWAY A REHABILITATION

JOINT DETAILS

JOB NO.: 20A12501
DATE: MARCH, 2022
DESIGNED BY: KKR
DRAWN BY: KKR

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER CJ-301
SHEET NUMBER 31

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Plotted: 3/22/2022 8:04 PM By: KKRobideaux 1:1 Plot Time: 3/24/2022 12:47 PM Plotted using: DWG To PDF.pc3

WAGE RATES

Article 5159a of the Revised Civil Statutes of Texas, passed by the 43rd Legislature Acts of 1933, Page 91, Chapter 45, provides that any government subdivision shall ascertain the general prevailing rate of per diem wages in the locality in which the work is to be performed for each craft or type of workman or mechanic and shall specify in the call for bids and in the Contract the prevailing rate of per diem wages which shall be paid for each craft type of workman. This Article further provides that the CONTRACTOR shall forfeit, as a penalty, to the City, County, or State, or other political subdivision, Ten Dollars ($10.00) per day for each laborer, or workman, or mechanic who is not paid the stipulated wage for the type of work performed by him as set up on the wage scale. The OWNER is authorized to withhold from the CONTRACTOR, after full investigation by the awarding body, the amount of this penalty in any payment that might be claimed by the CONTRACTOR or Subcontractor. The Act makes the CONTRACTOR responsible for the acts of the Subcontractor in this respect.

The Article likewise requires that the CONTRACTOR and Subcontractor keep an accurate record of the names and occupations of all persons employed by him and show the actual per diem wages paid to each worker, and these records are open to the inspection of the OWNER.

The Davis Bacon minimum wage rates for this project are as follows:

LABOR CLASSIFICATION AND MINIMUM WAGE SCALE

General Decision Number: TX20220038 01/07/2022
Superseded General Decision Number: TX20210038

State: Texas

Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022, Executive Order 14026

generally applies to the contract. The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022, Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/07/2022

* SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.98	
ELECTRICIAN	$ 27.11	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.34	
Structures	$ 12.23	
LABORER		
Asphalt Raker	$ 12.36	
Flagger	$ 10.33	
Laborer, Common	$ 11.02	
Laborer, Utility	$ 11.73	
Pipelayer	$ 12.12	
Work Zone Barricade Servicer	$ 11.67	

PAINTER (Structures).....$ 18.62

POWER EQUIPMENT OPERATOR:
- Asphalt Distributor.....$ 14.06
- Asphalt Paving Machine.....$ 14.32
- Broom or Sweeper.....$ 12.68
- Concrete Pavement Finishing Machine.....$ 13.07
- Concrete Paving, Curing, Float, Texturing Machine....$ 11.71
- Concrete Saw.....$ 13.99
- Crane, Hydraulic 80 Tons or less.....$ 13.86
- Crane, Lattice boom 80 tons or less.....$ 14.97
- Crane, Lattice boom over 80 Tons.....$ 15.80
- Crawler Tractor.....$ 13.68
- Excavator, 50,000 pounds or less.....$ 12.71
- Excavator, Over 50,000 pounds.....$ 14.53
- Foundation Drill, Crawler Mounted.....$ 17.43
- Foundation Drill, Truck Mounted.....$ 15.89
- Front End Loader 3 CY or Less.....$ 13.32
- Front End Loader, Over 3 CY.$ 13.17
- Loader/Backhoe.....$ 14.29
- Mechanic.....$ 16.96
- Milling Machine.....$ 13.53
- Motor Grader, Fine Grade....$ 15.69
- Motor Grader, Rough.....$ 14.23
- Off Road Hauler.....$ 14.60
- Pavement Marking Machine....$ 11.18
- Piledriver.....$ 14.95
- Roller, Asphalt.....$ 11.95
- Roller, Other.....$ 11.57
- Scraper.....$ 13.47
- Spreader Box.....$ 13.58

Servicer.....$ 13.97

Steel Worker
- Reinforcing Steel.....$ 15.15
- Structural Steel Welder.....$ 12.85
- Structural Steel.....$ 14.39

TRUCK DRIVER

Low Boy Float.....$ 16.03
Single Axle.....$ 11.46
Single or Tandem Axle Dump..$ 11.48
Tandem Axle Tractor w/Semi
Trailer.....$ 12.27

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union, which prevailed in the survey for this classification, which in this example would be Plumbers 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Division National Office Branch of Wage Surveys. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

CHANGE ORDER FORM

Change Order

No. _____

Date of Issuance: Effective Date:
Project: Owner: Owner's Contract No.:
Contract: Date of Contract:
Contractor: Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:
Original Contract Price:

CHANGE IN CONTRACT TIMES:
Original Contract Times:
□ Working days □ Calendar days

Substantial completion (days or date):
$ Ready for final payment (days or date):
[Increase] [Decrease] from previously approved Change

Orders No._____ to No._____:

[Increase] [Decrease] from previously approved Change Orders
No._____ to No._____:

Substantial completion (days):

$ Ready for final payment (days):
Contract Price prior to this Change Order: Contract Times prior to this Change Order:

Substantial completion (days or date):

$ Ready for final payment (days or date):
[Increase] [Decrease] of this Change Order: [Increase] [Decrease] of this Change Order:
Substantial completion (days or date):

$ Ready for final payment (days or date):
Contract Price incorporating this Change Order: Contract Times with all approved Change Orders:

Substantial completion (days or date):
$ Ready for final payment (days or date):

RECOMMENDED:	ACCEPTED:	ACCEPTED:
_____	_____	_____
By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized signature)
_____	_____	_____
Date:	Date:	Date:

_____ _____
Approved by Funding Agency (if applicable): Date:

GENERAL PROVISIONS

SECTION 10 DEFINITION OF TERMS

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	Advertisement	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	Airport	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	Airport Improvement Program (AIP)	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	Air Operations Area (AOA)	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	Building Area	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	Calendar Day	Every day shown on the calendar.

Paragraph Number	Term	Definition
10-13	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**Change Order**	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.

Paragraph Number	Term	Definition
10-23	**Construction Safety and Phasing Plan (CSPP)**	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. **b.** Owner Force Account - Work performed for the project by the Owner's employees.

Paragraph Number	Term	Definition
10-31	Intention of Terms	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.
10-32	Lighting	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.
10-33	Major and Minor Contract Items	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	Materials	Any substance specified for use in the construction of the contract work.
10-35	Modification of Standards (MOS)	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	Notice to Proceed (NTP)	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	Owner	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is **Jefferson County, TX**.
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

Paragraph Number	Term	Definition
10-42	Plans	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	Proposal	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.

Paragraph Number	Term	Definition
10-54	**Specifications**	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	**Sponsor**	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**Structures**	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	**Surety**	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	**Taxilane**	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	**Taxiway**	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	**Taxiway/Taxilane Safety Area (TSA)**	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.

Paragraph Number	Term	Definition
10-64	Work	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	Working day	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	Owner Defined terms	None

END OF SECTION 10

SECTION 20 PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 Advertisement (Notice to Bidders). See Page A-1

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals.*

Mobilization is limited to 5 **percent** of the total project cost.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; **This shall occur at the time referenced in the Advertisement and the Proposal, unless otherwise specified herein.**

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials

furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner *in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid* before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

SECTION 30 AWARD AND EXECUTION OF CONTRACT

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals.*

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders.*

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within ~~*[ ] calendar days of the date specified for publicly opening proposals*~~ *the time referenced in the Advertisement and the Proposal,* unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract.*

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within *the time specified in the proposal.*

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of

this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

SECTION 40 SCOPE OF WORK

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities.*

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items.*

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work.* Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement.*

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations.* It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others.*

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

SECTION 50 CONTROL OF WORK

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. See Special Provisions (Page K-1)

A. FEDERAL AVIATION ADMINISTRATION REQUIREMENTS

B. STATE TERMS AND CONDITIONS

C. LOCAL TERMS AND CONDITIONS

50-05 Cooperation of Contractor. The Contractor shall be supplied with three hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): **electronic CAD format (.dwg or .dgn).**

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications.*

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work.*

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and

replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases

the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

SECTION 60 CONTROL OF MATERIALS

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. *See Section C-105*

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

SECTION 70 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows:

Owner	Contract (Phone Number)
XXXX Utility	XXXX (XXX-XXX-XXXX)

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations.*

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is on sheet(s) **GC-001 through GC-103** of the project plans.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and

Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Detailed phasing information is provided in the Construction Safety and Phasing Plan.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the

Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others.* A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to

prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements. See Special Provisions.

END OF SECTION 70

SECTION 80 EXECUTION AND PROGRESS

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least **25** percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within 10 days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work *and in advance of the preconstruction meeting*. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has

been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
See Proposal and Contract		

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

SECTION 90 MEASUREMENT AND PAYMENT

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

MEASUREMENT AND PAYMENT TERMS

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton or hundredweight.
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Term	Description
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items,* the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. Retainage will not be withheld on this project. No retainage will be withheld by the Owner from progress payments due the prime Contractor. Retainage by the prime or subcontractors is prohibited, and no retainage will be held by the prime from progress due subcontractors.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the project work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the

Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

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SECTION A – FEDERAL AVIATION ADMINISTRATION REQUIREMENTS

A-01 CIVIL RIGHTS - GENERAL

The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A-02 CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:
The Owner, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Compliance with Nondiscrimination Requirements:
During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the **Title VI List of Pertinent Nondiscrimination Acts And Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

a. Withholding payments to the contractor under the contract until the contractor complies; and/or

b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Title VI List of Pertinent Nondiscrimination Acts and Authorities:
During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);

- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;

- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);

- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

A-03 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A-04 RIGHT TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

A-05 SEISMIC SAFETY

The contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A-06 ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of their duly authorized representatives, access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A-07 BUY AMERICAN PREFERENCE

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP funded projects are produced in the United States, unless the FAA has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

A bidder or offeror must complete and submit the Buy American certification included in the contract documents with their bid or offer. The Owner will reject as nonresponsive any bid or offer that does not include a completed Certificate of Buy American Compliance.

See Section 010470 "Bidder Certifications" for Contractor Buy American Certification.

A-08 DISADVANTAGED BUSINESS ENTERPRISE

The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of Department of Transportation-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Owner deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;

2) Assessing sanctions;

3) Liquidated damages; and/or

4) Disqualifying the Contractor from future bidding as non-responsible.

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives from the Owner. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

A-09 ENERGY CONSERVATION REQUIREMENTS

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to energy efficiency as contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201et seq).

A-10 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division

A-11 TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (U.S.T.R.);

b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the U.S.T.R.; and

c. has not entered into any subcontract for any product to be used on the Federal on the project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to an Offeror or subcontractor:

(1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the U.S.T.R. or

(2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such U.S.T.R. list or

(3) who incorporates in the public works project any product of a foreign country on such U.S.T.R. list;

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by U.S.T.R, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

A-12 VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A-13 TAX DELINQUENCY AND FELONY CONVICTIONS

The Contractor shall be required to complete the certification regarding tax delinquency and felony convictions included in these contract documents.

Felony conviction: Felony conviction means a conviction within the preceding twenty-four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 U.S.C. § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A-14 COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A-15 DAVIS-BACON REQUIREMENTS

1. Minimum Wages

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under

the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage

requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without

weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(ii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(iii) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually

performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination: Debarment.

   A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with the Davis-Bacon and Related Act Requirements

   All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards

   Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility

    (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    (iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

A-16 DISTRACTED DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10 "Text Messaging While Driving" (12/30/2009), the FAA encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 and involve driving a motor vehicle in performance of work activities associated with the project.

A-17 AFFIRMATIVE ACTION REQUIREMENT

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   Timetables

   Goals for minority participation for each trade: **(Vol. 45 Federal Register pg. 65984 10/3/80)**

   Goals for female participation in each trade: X.X%

   These goals are applicable to all of the contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is **Jefferson County, Texas.**

A-18 EQUAL EMPLOYMENT OPPORTUNITY (E.E.O.)

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identify or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however*, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

1. As used in these specifications:

    a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

    b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

    c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

    d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the

completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

    f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

    g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such a superintendents, general foremen,

etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is

the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A-19 PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage

or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

A-20 TERMINATION OF CONTRACT

Termination for Convenience:

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

a) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

b) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

c) reasonable and substantiated claims, costs and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and

d) reasonable and substantiated expenses to the contractor directly attributable to Owner's termination action

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination for Default:

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights and remedies associated with Owner termination of this contract due default of the Contractor.

A-21 PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use of products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or,

b) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/epawaste/conserve/tools/cpg/products/. Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

A-22 DEBARMENT AND SUSPENSION

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT:

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT:

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov

2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to disclose to a higher tire participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A-23 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements

   No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages

   In the event of any violation of the clause set forth in paragraph (1) of this clause, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

   The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this clause.

4. Subcontractors.

   The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A-24 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

The bidder or offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the

extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

A-25 BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide contractor written notice that describes the nature of the breach and corrective actions the contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the contractor must correct the breach. Owner may proceed with termination of the contract if the contractor fails to correct the breach by deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A-26 CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. § 740-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. § 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds $150,000.

SECTION B – STATE TERMS AND CONDITIONS

B-01 NOT USED

SECTION C – LOCAL TERMS AND CONDITIONS

C-01 CONTRACTOR'S INSURANCE

Contractor shall obtain insurance of the types and in the amounts described below. The insurance shall be written by insurance companies and on forms acceptable to Owner.

Owner and Garver, LLC shall be included as an insured under the CGL, (using ISO Additional Insured Endorsement CG 20 10 11 85 or a substitute providing equivalent coverage), and under the commercial automobile liability (using ISO Additional Insured Endorsement CA 2048 or a substitute providing equivalent coverage), and commercial umbrella, if any. This insurance, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

C-01.1 Commercial General and Umbrella Liability Insurance: Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance, with a limit of not less than $5,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to the Project.

CGL insurance shall be written on ISO occurrence form CG 20 10 (11-85) (or a substitute combination of the following forms CG 20 10 (10-01) and CG 20 37 (10-01) providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury and liability assumed under an insured contract.

There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from pollution, explosion, collapse, underground property damage, or amending the contractual coverage in the ISO occurrence form.

CGL insurance shall be written with an ISO form CG 25 03 05 09 Designated Construction Project(s) General Aggregate Limit or a substitute form providing equivalent coverage.

C-01.2 Continuing CGL Coverage: Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance, with a limit of not less than $5,000,000 each occurrence for at least 3 years following substantial completion of the Work.

Continuing commercial umbrella coverage, if any, shall include liability coverage for damage to the insured's completed Work equivalent to that provided under ISO form CG 00 01.

C-01.3 Owner's and Contractor's Protective Liability Insurance: Contractor shall maintain Owner's and Contractor's Protective Liability (OCP) insurance on behalf of Owner and Garver, LLC, as named insured, with a limit of $1,000,000.

C-01.4 Railroad Protective Liability Insurance: Not applicable

C-01.5 Commercial Auto and Umbrella Liability Insurance: Contractor shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident.

Such insurance shall cover liability arising out of any auto (including owned, hired and non-owned autos).

Commercial auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

If the Contract Documents require Contractor to remove and haul hazardous waste from the Project site, or if the Project involves such similar environmental exposure, pollution liability coverage equivalent to that provided under the ISO Pollution Liability-Broadened Coverage for Covered Autos Endorsement (CA 99 48) shall be provided, and the Motor Carrier Act Endorsement (MCS 90) shall be attached.

C-01.6 Workers' Compensation Insurance: Contractor shall maintain workers' compensation and employer's liability insurance.

The employer's liability, and if necessary commercial umbrella, limits shall not be less than $500,000 each accident for bodily injury by accident or $500,000 each employee for bodily injury by disease.

If Contractor leases its employees, the alternate employer endorsement (WC 00 03 01 A) shall be attached showing Owner in the schedule as the altemate employer.

Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy.

Where applicable, Nonappropriated Fund Instrumentalities Act (NFIA) shall be attached to the policy. NFIA extends the coverage of the Longshore and Harbor Workers' Compensation Act to civilian employees working on United States military bases throughout the world who are not paid with funds appropriated by Congress. These employees, working in facilities operated for the comfort, contentment, and improvement of armed forces personnel, are instead compensated with funds generated from earnings of their facility.

Where applicable, Outer Continental Shelf Lands Act Endorsement shall be attached to the policy.

Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.

If project is located in a state where workers compensation is secured via monopolistic state funds, include evidence of the "Stop Gap" endorsement to the general liability policy.

C-01.7 Property Insurance: If applicable, Contractor shall purchase and maintain property insurance for the Work. Such insurance shall be written in an amount at least equal to the initial contract sum as well as subsequent modifications of that sum. The insurance shall apply on a replacement cost basis. If the insurance obtained in compliance with this paragraph is builders risk insurance, coverage shall be written on a completed value form.

The property insurance as required above shall name as insureds the Owner, Contractor, and all subcontractors and sub-subcontractors on the Project.

C-01.8 Primary and Non-contributory: Contractor agrees that the insurance listed above, including insurance provided under the commercial umbrella, if any, shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs afforded to, or maintained by, Owner.

C-01.9 Waiver of Subrogation: Contractor waives all rights against the Owner and Garver, LLC and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability, commercial umbrella liability insurance, automobile liability insurance and workers compensation insurance maintained pursuant to paragraph C-01 of this agreement.

C-01.10 No Implied Waiver: Contractor shall furnish certifications matching the coverage requirements. Failure of Owner or Engineer to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Owner or Engineer to identify a deficiency from evidence that is provided shall not be construed as a waiver of the contractors obligations to furnish and maintain such insurance, or as a waiver to the enforcement of any of the provisions at a later date.

Any waiver of the contractor's obligation to furnish such certificate or maintain such evidence must be by written change order and signed by a Managing Member (Officer) of the Engineer and the Owner.

C-01.11 Cancellation, Non-Renewal, and/or Impairment Notification: The Contractor shall not cause any insurance policy to be cancelled or permit it to lapse and all insurance policies shall include an endorsement to the effect that the insurance policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance until notice has been mailed to the Owner and Engineer, stating the date when such cancellation or reduction shall be effective, which date shall not be less than (60) days after such notice.

The amount shown in the bid item for the Owner's Protective Insurance shall include that amount of additional premium required for obtaining Owner's and Engineer's Protective Liability insurance for the Owner and Garver, LLC. The Engineer has the right to request justification from the contractor for the full amount of the cost included under the items "Owner's Protective Insurance".

Notice shall be sent via email and regular mail to the following persons and addresses:

Owner:
Alex Rupp
5000 Jerry Ware Drive
Beaumont, TX 77705
ARupp@co.Jefferson.tx.us

Garver:
Jason Frank, PE
Garver, LLC
12141 Wickchester
Suite 200
Houston, TX 77079
JEFrank@GarverUSA.com

C-01.12 Sample Certificate of Liability Insurance:

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) (must be dated)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agency Name Agency Address www.stephens.com	CONTACT NAME: Agency contact PHONE (A/C, No, Ext): Agency ph# FAX (A/C, No): E-MAIL ADDRESS: Agency contact email address	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A: Carrier Name (AM Best Rating)	
INSURED Named Insured on the policies	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY ✓ COMMERCIAL GENERAL LIABILITY CLAIMS-MADE ✓ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY ✓ PRO-JECT LOC	X	X	XXXXXXXXX			EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 5,000,000 $ 500,000 $ 10,000 $ 1,000,000 $ 5,000,000 $ 5,000,000
	AUTOMOBILE LIABILITY ✓ ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS ✓ HIRED AUTOS ✓ NON-OWNED AUTOS	X	X	XXXXXXXXXX			COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	✓ UMBRELLA LIAB ✓ OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $ XXXXX	X	X	XXXXXXXXXX Umbrella / Excess only if needed to meet the required underlying General Liability limit			EACH OCCURRENCE AGGREGATE	$ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	XXXXXXXXXX			✓ WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 500,000 $ 500,000 $ 500,000
				XXXXXXXXXX				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Owner & Garver, LLC shall be included as an Additional Insured by endorsement #CG2010(11/85) on the General Liability and #CA2048 on the Automobile and Umbrella or substitute endorsement providing equivalent coverage. Coverage shall be Primary and non-contributory with respect to any other insurance or self-insurance programs afforded to the Owner and Garver LLC. Waiver of Subrogation applies in favor of the Owner and Garver LLC on all policies. 60 day notice will be provided to the Owner and Garver LLC in the event of cancellation, non-renewal and/or impairment of the Contractor's policies.

CERTIFICATE HOLDER	CANCELLATION
Owner and Garver LLC	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE (must be signed by the Contractor's Insurance Agent)

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C-02 UTILITIES

All work in this contract shall be in accordance with the Texas Underground Facilities Damage Prevention Act. The Contractor shall abide by the most current edition of this Act.

Underground utilities exist within and adjacent to the limits of construction. An attempt has been made to locate these utilities on the plans. However, all existing utilities may not be shown and the actual locations of the utilities may vary from the locations shown.

The Contractor shall be responsible for the protection of all existing utilities, structures, equipment, or improvements crossed by or adjacent to his construction operations. Where existing utilities, service lines, structures, equipment, etc. are cut, broken, or damaged, the Contractor shall replace or repair immediately these items with the same type of original material and construction or better, at his own expense to the satisfaction of the Owner and the Engineer. After damage discovery, the Contractor shall immediately coordinate with the Owner and the Engineer on the complete repair and/or replacement work required. Following written notice of work required, the Contractor shall expeditiously begin and finish this work with all labor and materials required. All repair and/or replacement work, labor, and materials shall be supplied and installed by the Contractor. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects and any expenses incurred by the Owner shall be withheld from the Contractor's payments.

C-03 LEGAL HOLIDAYS

Holidays that shall be observed are the following: New Year's Day (January 1); Dr. Martin Luther King Jr.'s Birthday (3rd Monday in January); President's Day (3rd Monday in February); Memorial Day (last Monday in May); Independence Day (July 4); Labor Day (1st Monday in September); Columbus Day (2nd Monday in October); Thanksgiving Day (4th Thursday in November); Day after Thanksgiving (Friday following Thanksgiving); Christmas Eve (December 24); and Christmas Day (December 25). If a holiday falls on a Saturday or Sunday, the observed day shall be the Friday preceding the Saturday or the Monday following the Sunday. No construction observation will be furnished on legal holidays or Sundays, except in an emergency. The Contractor shall observe these legal holidays and all Sundays, and no work shall be performed on these days except in an emergency. Calendar day contract time includes delays for all holidays. Refer to Section C-06 for more information.

C-04 CLEAN UP

From time to time, the Contractor shall clean up the site, including any work areas at the airport, in order that the site presents a neat appearance and the progress of the work not be impeded. One such period of clean up shall immediately precede final inspection.

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary plant, equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

C-05 PROJECT MEETINGS AND COORDINATION

A preconstruction conference will be called by the Engineer at a time convenient to the Owner and before the issuance of the "Notice to Proceed". The Engineer and the Contractor and such subcontractors as the Contractor may desire shall attend this meeting with the Owner.

The Owner and/or Engineer will call such coordination conferences as may seem expedient to him for the purpose of assuring coordination of the work covered by this Contract. The Contractor shall attend all such conferences. This in no way relieves the Contractor of his responsibility to fully coordinate his work under this Contract.

C-06 LIQUIDATED DAMAGES FOR DELAY

The number of calendar days allowed for completion of the project is stipulated in the Proposal and in the Contract and shall be known as the Contract Time. The Contractor agrees that time is a critical element for this Contract. Loss will accrue to the Owner due to delayed completion of the work; and the cost to the Owner of the administration of the Contract, including engineering, inspection, and supervision, will be increased as the time occupied in the work is lengthened. The Contractor agrees that for each day of delay beyond the number of calendar days herein agreed upon for the completion of the work herein specified and contracted for, the Owner may withhold, permanently, from the Contractor's total compensation, the sum of **One Thousand Five Hundred** Dollars ($1500.00) as stipulated damages for each day of such delay. Should the amount otherwise due the Contractor be less than the amount of such ascertained and liquidated damages, the Contractor and his Surety shall be liable to the Owner for such deficiency.

It is understood and agreed by and between the Owner and the Contractor that the time of completion herein set out is a reasonable time. The Contractor shall perform fully, entirely, and in an acceptable manner, the work contracted for within the contract time stated in the Contract. The contract time shall be counted from ten days after the effective date of the "Notice to Proceed", or the date work commences, whichever occurs first; and shall include all Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of any orders of the Engineer for suspension of the prosecution of the work, due to the fault of the Contractor, shall be counted as elapsed contract time, and shall not be considered for an extension of time.

Extensions of time for completion, under the condition of 3(a) next below, will be granted; extensions may be granted under other stated conditions:

1. If the satisfactory execution and completion of the Contract shall require work or material in greater amounts or quantities than those set forth in the Contract, then the Contract time shall be increased in the same proportion as the additional work bears to the original work contracted for.

2. An average or usual number of inclement weather days, when work cannot proceed, is to be anticipated during the construction period and is not to be considered as warranting extension of time. The days included in the contract time for Normal Weather-Related Events and holidays are as follows:

(On A Monthly Basis)

Month	Normal Weather-Related Events	Holidays
January	9	1
February	5	1
March	6	0
April	8	1
May	8	1
June	12	0
July	10	1
August	13	0
September	9	1
October	8	0
November	6	3
December	8	2

If, however, it appears that the Contractor is delayed by conditions of weather, outside of normal weather-related events detailed in the proceeding table, extensions of time may be granted.

3. Should the work under the Contract be delayed by other causes which could not have been prevented or contemplated by the Contractor, and which are beyond the Contractor's power to prevent or remedy,

an extension of time may be granted. Such causes of delay shall include but not necessarily be limited to the following:

a. Acts of God, acts of the public enemy, acts of the Owner except as provided in these Specifications, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather.

b. Any delays of Subcontractors or suppliers occasioned by any of the causes specified above.

The Engineer or other authorized representative of the Owner shall keep a written record sufficient for determination as to the inclusion of that day in the computation of Contract time. This record shall be available for examination by the Contractor during normal hours of work as soon as feasible after the first of each construction month. In case of disagreement between the representative of the Owner and the Contractor, as to the classification of any day, the matter shall be referred to the Owner whose decision shall be final.

If the Contractor finds it impossible for reasons beyond his control to complete the work within the Contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the Contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may recommend to the Owner that the contract time be extended as conditions justify. If the Owner extends the contract, the extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

The amount of all extensions of time for whatever reason granted shall be determined by the Owner. In general, only actual and not hypothetical days of delay will be considered. The Owner shall have authority to grant additional extensions of time as the Owner may deem justifiable.

C-07 CARE OF WORK

The Contractor shall avoid damage, as a result of his operations, to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, equipment, etc., and he shall at his own expense completely repair any damage thereto caused by his operations, to the satisfaction of the Owner and Engineer. After damage discovery, the Contractor shall immediately coordinate with the Owner and the Engineer on the complete repair and/or replacement work required. Following written notice of work required, the Contractor shall expeditiously begin and finish this work with all labor and materials required. All repair and/or replacement work, labor, and materials shall be supplied and installed by the Contractor. If the Contractor fails to promptly perform the repair work and correct all deficiencies, the Owner shall have the option of remedying the defects and any expenses incurred by the Owner shall be withheld from the Contractor's payments.

C-08 QUALITY ASSURANCE/MATERIALS TESTING

The Owner shall be responsible for quality assurance testing as stated in theses specifications; however, the Contractor shall be responsible for payment of any subsequent tests made necessary by previous unsatisfactory tests. In this event, the Owner's quality assurance representative shall conduct the additional testing and payment for such tests shall be directly deducted from the Contractor's payment. The Contractor shall pay for additional testing at the Owner's contract rate.

C-09 RECORD DOCUMENTS

The Contractor shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, Shop Drawings and samples at the site, in good order, and annotated to show all changes made during the construction process. In addition, the Contractor shall note any differences between locations of underground

existing facilities shown in the plans and the actual location located during construction. These record documents shall be available to the Engineer for examination and shall be delivered to the Engineer upon completion of the work.

C-10 CONTRACTOR/SUBCONTRACTOR/SUPPLIER LEGAL DISPUTES

Any fees, expenses, charges, fines or other costs borne by the Owner as a result of legal disputes or lawsuits between the contractor and his subcontractors, or between the contractor and his suppliers, shall be deducted from monies due or which may thereafter become due the contractor.

C-11 GENERAL GUARANTY

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there, which shall appear within a period of 12 months from the date of final acceptance of the work. The Contractor will be responsible for all costs associated with construction observation and oversight for the repair work. The Owner will give notice of defective materials and work with reasonable promptness. In the event repair work is required, the Contractor shall remedy any defects and pay for any damage to other work resulting there, which shall appear within a period of 12 months from the date of the acceptance of the repair work.

C-12 CONTRACTOR'S RELEASE AND AFFIDAVIT

At the project's completion, the Contractor shall execute the attached Release and Lien Waiver to release all claims against the Owner arising under and by virtue of his Contract. The date of the Release shall be that agreed to for the final acceptance of the project with the Owner.

C-13 SUBMITTALS

The Contractor shall prepare and submit information required by the individual Specification sections sufficiently in advance of the related work to allow an appropriate review time by the Engineer. The types of submittals are indicated in the individual Specification sections.

During the preconstruction conference, the Contractor shall review his submittal schedule and procedures, including notifying the Engineer whether electronic submittals or paper submittals will be provided for all submittal packages in the project. Mixing of package types will not be allowed. The Contractor shall provide one of the following submittal package types:

1. Submit electronic submittals via email as PDF electronic files directly to the Engineer's designated representative, or post these PDF electronic files directly to the Engineer's FTP site specifically established for this project. Electronic submittals shall be in Adobe Acrobat (*.PDF) format and shall be legible when printed.

2. Submit six (6) paper submittal copies via mail or other courier service to the Engineer's designated representative.

Submittals shall be neat, organized, and easy to interpret. Assemble complete submittal package into a single indexed electronic file or hard cover bound book, incorporating submittal requirements of an individual Specification section, the transmittal form with unique submittal numbering system, and electronic links or tabs enabling navigation to each item. Unless approved otherwise by the Engineer, all submittals for the individual Specification section shall be submitted at one time.

Submittals must come directly from the Prime Contractor; submittals from subcontractors or suppliers will not be reviewed.

Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review. Faxed submittals or submittals with extremely small or otherwise unreadable print will not be accepted. Submittals not required by the Contract Documents will be returned by the Engineer without action.

The Contractor shall be responsible for payment of any subsequent submittal reviews beyond the second iteration of a specific item as indicated by the construction submittal log. In this event, the Owner's representative shall conduct the submittal review and payment for the submittal review shall be directly deducted from the Contractor's payment. The Contractor shall pay for additional submittal reviews at the Owner's contract rate.

The Contractor shall retain complete copies of submittals on project site. Use only final submittals that are marked with approval notation from Engineer's submittal review stamp with comments form.

Resubmittals shall continue the unique, sequential, submittal numbering system. Resubmittals without unique numbering, example resubmittals transmitted as 005A or 005REV, are unacceptable and will be returned un-reviewed.

The Contractor will implement, in conjunction with the Engineer and LRNA Manager of Construction, project-specific procedures/policies for construction management services during construction to assist in obtaining completed Projects in accordance with the purpose and intent of the construction documents including, but not limited to the following:

1. Use web based Construction Management Software (EADOC) provided to the Contractor. Access to this system will be provided at no cost to the Contractor by LRNA.

2. Ensure that ALL Subcontractors, and any other project participants use the EADOC Construction Management Software provided by LRNA. Access to this system will be provided at no cost to each by LRNA.

C-14 STORMWATER POLLUTION PREVENTION PLAN

Refer to Technical Specification C-105.

C-15 TEST BORINGS/SUBSURFACE INFORMATION

Soil characteristics provided in any soil reports, or as shown on boring logs, are representative only at the location of the sample taken, and neither the Owner, Engineer nor Engineer's consultants will be responsible for variations in the soil characteristics at other locations. Any subsurface information or geotechnical reports made available to Contractor was obtained and intended for the Owner's design and estimating purposes only. Such reports and drawings are not Contract Documents.

The Contractor may not rely upon or make any claim against Owner, Engineer, or Engineer's Consultants with respect to (1) the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor and safety precautions and programs incident thereto, (2) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, or (3) any Contractor interpretation or other conclusion drawn from any data, interpretations, opinions, or information.

C-16 WAGE RATES

The Davis Bacon minimum wage rates for this project are applicable and included in Section M of this Contract:

END OF SPECIAL PROVISIONS

RELEASE OF LIEN

FROM: Contractor's Name:_____

Address: _____

TO: Owner's Name:_____

Address: _____

DATE OF CONTRACT: _____

Upon receipt of the final payment and in consideration of that amount, the undersigned does hereby release the Owner and its agents from any and all claims arising under or by virtue of this Contract or modification thereof occurring from the undersigned's performance in connection with the

_____

project.

Contractor's Signature: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____

CONTRACTOR'S AFFIDAVIT

FROM: Contractor's Name:_____

Address: _____

TO: Owner's Name:_____

Address: _____

DATE OF CONTRACT: _____

I hereby certify that all claims for material, labor, and supplies entered into contingent and incident to the construction or used in the course of the performance of the work on the

_____

project have been fully satisfied.

Contractor's Signature: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20____.

_____
Notary Public

My Commission Expires:

_____

The Surety Company consents to the release of the retained percentage on this project with the understanding that should any unforeseen contingencies arise having a right of action on the bond that the Surety Company will not waive liability through the consent to the release of the retained percentage.

Dated: _____

Surety Company: _____

By: _____
Resident Agent, State of Texas

TECHNICAL SPECIFICATIONS

ITEM SS-101 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

DESCRIPTION

101-1.1 The Contractor shall thoroughly review the approved Construction Safety and Phasing Plan (CSPP) and shall comply with approved CSPP. The Contractor shall certify such compliance by completing the attached SPCD and submitting to the Engineer for approval.

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Contractor Safety Plan Compliance Documents

Owner Name: Jefferson County

Airport: Jack Brooks Regional Airport

Project Description: Taxiway A Rehabilitation

Contractor: _____

Each item listed below corresponds to a specific section of the approved CSPP. The Contractor shall certify that he/she will comply with each section of the approved CSPP. Each certified section with a "no" response must be fully explained in an attachment to the SPCD. The document shall be signed and dated by a principle or owner in the Contractor's company. All other requested information shall be completed by the Contractor and submitted to the Engineer for approval as part of the SPCD.

1. **Section 1 - Correspondence:** This project shall be completed in accordance with Section 1 "Coordination" of the approved Construction Safety Plan Compliance Document.

Owner:	
Contact: Alex Rupp, Airport Manager	**Phone:** 409-719-4900
Engineer:	
Project Manager: Jason Frank	**Phone:** 713-395-4282
Project Engineer: Ken Rutabana	**Phone:** 214-619-9016
Construction Observer: TBD	**Phone:**
Materials Testing: TBD	**Phone:**
Contractor:	
Project Manager:	**Phone:**
Superintendent:	**Phone:**
Subcontractors:	**Phone:**

Yes_____No_____

2. **Section 2 - Phasing:** This project shall be completed in accordance with Section 2 "Phasing" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

3. **Section 3 – Areas of Operations Affected by Construction Activity:** This project shall be completed in accordance with Section 3 "Areas of Operations Affected by Construction Activity" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

4. **Section 4 – Protection of Navigational Aids (NAVAIDS):** This project shall be completed in

accordance with Section 4 "Protection of Navigational Aids (NAVAIDS)" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

5. **Section 5 – Contractor Access:** This project shall be completed in accordance with Section 5 "Contractor Access" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

6. **Section 6 – Wildlife Management:** This project shall be completed in accordance with Section 6 "Wildlife Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

7. **Section 7 – Foreign Object Debris (FOD) Management:** This project shall be completed in accordance with Section 7 "Foreign Object Debris (FOD) Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

8. **Section 8 – Hazardous Materials (HAZMAT) Management:** This project shall be completed in accordance with Section 8 "Hazardous Materials (HAZMAT) Management" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

9. **Section 9 – Notification of Construction Activities:** This project shall be completed in accordance with Section 9 "Notification of Construction Activities" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

10. **Section 10 – Inspection Requirements:** This project shall be completed in accordance with Section 10 "Inspection Requirements" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

11. **Section 11 – Underground Utilities:** This project shall be completed in accordance with Section 11 "Underground Utilities" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

12. **Section 12 – Penalties:** This project shall be completed in accordance with Section 12 "Penalties" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

13. **Section 13 – Special Conditions:** This project shall be completed in accordance with Section 13 "Special Conditions" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

14. **Section 14 – Runway and Taxiway Visual Aids:** This project shall be completed in accordance

with 14 "Runway and Taxiway Visual Aids" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

15. **Section 15 – Marking and Signs for Access Routes:** This project shall be completed in accordance with Section 15 "Marking and Signs for Access Routes" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

16. **Section 16 – Hazard Marking and Lighting:** This project shall be completed in accordance with Section 16 "Hazard Marking and Lighting" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

17. Section 17 – Work Zone Lighting for Nighttime Construction: This project shall be completed in accordance with Section 17 "Work Zone Lighting for Nighttime Construction" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

18. **Section 18 – Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces:** This project shall be completed in accordance with Section 18 "Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

19. **Section 19 – Other Limitations on Construction:** This project shall be completed in accordance with Section 19 "Other Limitations on Construction" of the approved Construction Safety Plan Compliance Document.

Yes_____No_____

I certify that, for the project identified herein, the responses to the foregoing items are correct as marked, and that I shall comply with the approved Construction Safety and Plan.

Signed: _____
Contractor's Authorized Representative

Date: _____

_____

Print Name and Title of Contractor's Representative

END OF ITEM SS-101

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ITEM SS-110 STANDARD SPECIFICATIONS

GENERAL

110-1.1 The standard specifications adopted by the Texas Department of Transportation (November 1, 2014) are bound in a book titled "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges". These specifications are referred to herein as "Standard Specifications." The latest edition shall apply. A copy of these "Standard Specifications" may be purchased or downloaded by going to the Texas Department of Transportation's web page, http://www.txdot.gov, contacting Support Services Division, or calling the Texas Department of Transportation's Support Services Division. For additional information on specifications or information on Departmental Materials Specifications (DMS), Material Producer Lists (MPL), Test Procedures, Material Inspection Guide, and other materials information, go to http://www.txdot.gov.

INCORPORATION AND MODIFICATION

110-2.1 Certain parts of the Standard Specifications are appropriate for inclusion in these Technical Specifications. Such parts are incorporated herein by reference to the proper section or paragraph number. The individual specification numbers noted herein may be different from those in the latest edition of the "Standard Specifications." The most current specification number shall apply. Each such referenced part shall be considered to be a part of these Contract Documents as though copied herein in full.

110-2.2 Certain referenced parts of the Standard Specifications are modified in the Specifications that follow. In case of conflict between the Standard Specifications and the Specifications that follow, the Specifications that follow shall govern.

110-2.3 Individual material test numbers change from time to time. Use the latest applicable test.

110-2.4 Reference in the Standard Specifications to the "Department" is herein changed to the "Owner".

END OF ITEM SS-110

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ITEM SS-120 CONSTRUCTION SAFETY AND SECURITY

DESCRIPTION

120-1.1 This item covers safety and security for construction of the proposed improvements.

The attention of the bidder is directed to the necessity for careful examination of the entire project site to determine, at the time of bid preparation, the full extent of work to be done under the item "Construction Safety and Security."

The item "Construction Safety and Security" shall include:

1. Lighted Barricades, Closed Taxiway Markers, and Lighted Runway Markers
2. Temporary Relocated Threshold
3. Temporary Signs
4. Airport Security Requirements
5. Airport Safety Requirements

CONSTRUCTION METHODS

120-2.1 LIGHTED BARRICADES, CLOSED TAXIWAY MARKERS, AND LIGHTED RUNWAY MARKERS. The Contractor shall furnish, install, maintain, and remove closed taxiway markers, lighted runway markers, and lighted barricades in accordance with details on the plans and as directed by the Engineer. The closed taxiway markers shall be aviation yellow, nylon-reinforced vinyl. The markers shall be secured to the pavement/ground as shown on the plans and as directed by the Engineer. The lighted runway markers and barricades shall be constructed and installed as shown on the plans. All lighted barricades, closed taxiway markers, and lighted runway markers shall be constructed in accordance with AC 150/5370-2G Operational Safety on Airports During Construction.

All work involved in the furnishing, installation, maintenance, fueling, and removal of lighted barricades, barrels, closed taxiway markers, and lighted runway markers will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.2 TEMPORARY RELOCATED THRESHOLD. Before commencing work within the air operations areas the Contractor shall temporarily relocate the Runway 18-36 thresholds as shown in the Plans. The Contractor shall furnish, install and maintain the temporary threshold in accordance with details on the Plans. The Contractor shall accomplish the relocation of the threshold within one 8-hour work shift. The Contractor shall remove the temporary threshold when work is complete within the safety area, and as directed by the sequence of construction in the Plans and by the Engineer.

Before relocating the threshold, the Contractor shall perform a Megger test from the regulator serving the runway in the presence of the Owner/Engineer. Data from the test shall be reported in writing to the Owner/Engineer. The Contractor shall determine the appropriate method of disabling the lights on the closed portion of the runway and shall verify the circuit prior to re-energizing. Strict adherence to OSHA Lockout/Tagout procedures is mandatory. The Contractor will be held responsible for any damage to the lighting system caused by his operations. Following restoration of the lighting system to its original/final configuration, the Megger test procedure shall be repeated by the Contractor in the presence of the Owner/Engineer, and the results of the test reported in writing to the Owner/Engineer.

All work involved in the furnishing, fabrication, installation, maintenance, and removal of the temporary relocated threshold, unless otherwise noted below, will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

Pavement markings for the temporary relocated threshold shall be paid for under P-620.

Temporary relocated threshold lights and any electrical connections required to maintain the temporary relocated threshold shall be considered part of SS-310 "Temporary Airfield Lighting."

120-2.3 TEMPORARY SIGNS. The Contractor shall furnish, install, maintain, and remove temporary signs in accordance with details on the plans and as directed by the Engineer. All temporary signs shall be constructed in accordance with AC 150/5370-2 Operational Safety on Airports During Construction, latest edition. All work involved in the furnishing, installation, maintenance, and removal of temporary signs will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.4 AIRPORT SECURITY REQUIREMENTS. The Contractor shall abide by the Airport Security requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). Any costs associated with the Airport Security requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.5 AIRPORT SAFETY REQUIREMENTS. The Contractor shall abide by the Airport Safety requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). All costs associated with the Airport Safety requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

MEASUREMENT AND PAYMENT

120-3.1 Construction safety and security will be measured as a lump sum complete item. Work completed and accepted under this item will be paid for at the contract lump sum price bid for "Construction Safety and Security", which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item SS-120-3.1	Construction Safety and Security - per Lump Sum

END OF ITEM SS-120

ITEM SS-130 TRENCH AND EXCAVATION SAFETY SYSTEMS

DESCRIPTION

130-1.1 This section covers trench and excavation safety system required for constructing improvements that necessitate open excavations on the project. All work under this item shall be in accordance with the current edition of the "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System, 29 CFR 1926, Subpart "P", a copy of which may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

NOTIFICATIONS REQUIRED

130-2.1 The Contractor, prior to beginning any excavation, shall notify the State Department of Labor (Safety Division) that work is commencing on a project with excavations greater than five feet.

The Contractor shall notify all Utility Companies and Owners in accordance with OSHA Administration 29 CFR 1926.651(b)(2) for the purpose of locating utilities and underground installations.

EXISTING STRUCTURES AND UTILITIES

130-3.1 Where the trench or excavation endangers the stability of a building, wall, street, highway, utilities or other installation, the Contractor shall provide support systems such as shoring, bracing, or underpinning to ensure the stability of such structure or utility.

The Contractor may elect to remove and replace or relocate such structures or utilities with the written approval of the owner of the structure or utility and the Project Owner.

MEASUREMENT AND PAYMENT

130-4.1 The work required by this item will be paid for at the lump sum price bid for "Trench and Excavation Safety Systems", which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work. After award of the contract, the Contractor shall submit to the Engineer a breakdown of cost for work involved in the lump sum price bid for "Trench and Excavation Safety Systems" and shall, with each periodic payment request, submit a certification by the Contractor's "competent person" as defined in Subpart "P" 1926.650(b) that the Contractor has complied with the provisions of "Occupational Safety and Health Administration Standard for Excavation and Trenches Safety System", 29 CFR 1926 Subpart P for work for which payment is requested.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer.

Payment will be made under:

Item SS-130-4.1 Trench and Excavation Safety Systems - per Lump Sum

END OF ITEM SS-130

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ITEM SS-300 BASIC ELECTRICAL REQUIREMENTS

DESCRIPTION

300-1.1 This item shall consist of furnishing and installing complete electrical systems as defined in the plans and in these specifications. The work includes the installation, connection and testing of new electrical systems, equipment, and all required appurtenances to construct and demonstrate proper operation of the completed electrical systems.

300-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

300-1.3 This work shall consist of lockout/tagout and constant current regulator calibration procedures at the airport electrical vault in accordance with the design and details shown in the plans and in compliance with these specification documents.

EQUIPMENT AND MATERIALS

300-2.1 STANDARDS.

a. Applicable National Fire Protection Association (NFPA) codes, including but not limited to:
   (1) NFPA 70 - National Electrical Code.
   (2) NFPA 70E - Standard for Electrical Safety in the Workplace.
   (3) NFPA 101 - Life Safety Code.
   (4) Internet Website: http://www.nfpa.org
b. Applicable Code of Federal Regulations (CFR) codes, including but not limited to:
   (1) 29 CFR 1910 - Occupational Safety and Health Standards (OSHA)
   (2) 29 CFR 1926 - Safety and Health Regulations for Construction.
   (3) Internet Website: http://www.gpoaccess.gov/cfr/index.html
c. ANSI/IEEE C2 - National Electrical Safety Code.
d. NECA 1 – Standard for Good Workmanship in Electrical Construction.
e. Applicable Federal, State and Local Electrical Codes.
f. Applicable Federal, State and Local Energy Codes.
g. Applicable Federal, State and Local Building Codes.
h. Applicable Federal, State and Local Fire Codes.
i. Applicable City Electrical Code.
j. Applicable City Ordinances pertaining to electrical work.
k. Applicable Federal, State and Local - Environmental, Health and Safety Laws and Regulations.

Contractor shall utilize the most current editions of standards, which are current at time of bid and as recognized by the Authority Having Jurisdiction for the respective standard.

300-2.2 GENERAL.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, current version on the date that the submittals are received by the RPR. When an equipment advisory circular is being updated and two equipment lists for the same specific equipment are listed in the current certified equipment AC 150/5345-53 addendum, only that equipment qualified to the latest advisory circular will be acceptable.

b. Airport lighting equipment and materials shall also meet the Buy American Preference requirements in 49 USC 50101 and the Aviation Safety and Capacity Expansion Act. The equipment shall be approved and listed on the FAA "Equipment Meeting Buy American Requirements" list located at *www.faa.gov/airports/aip/procurement/federal_contract_provisions/*, current version on the date that the submittals are received by the RPR, or the Contractor may submit a signed formal letter from the manufacturer that clearly lists the specific equipment, model number, location where it is manufactured, and statement certifying that the equipment and/or materials meet the Buy American Preference requirements.

c. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR. All equipment and materials shall be new and meet applicable manufacturer's standards. All electrical components and products shall be tested and listed by an OSHA accepted, nationally recognized testing laboratory (NRTL) to conform to the standards indicated in these contract documents and to the industry standards required in the NEC, NEMA, IEEE, UL, and applicable FAA advisory circulars.

d. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

e. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise, and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components or electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

f. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the Contract Documents plans and specifications. The RPR reserves the right to reject all equipment, materials, or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

g. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

(1) All LED light fixtures, except for obstruction lighting, shall be warranted by the manufacturer for a minimum of 4 years after date of installation, final acceptance testing by the RPR, and Owner's beneficial use of the equipment, inclusive of all electronics. Refer to FAA Engineering Brief No. 67D for additional requirements.

h. After approval of submitted equipment, the Contractor shall supply the following Operation and Maintenance Manual documentation to the Owner. Two (2) complete sets of documentation shall be supplied for each model of equipment. The documentation shall be securely bound in heavy-duty 3-ring binders. The information for each piece of equipment shall be indexed using typewritten label tabs. The spine of each binder shall have a typewritten label, which indicates the included equipment types. The documentation shall include:

(1) Approved Submittals and Shop Drawings
(2) Cable Splicer Qualifications, Type and Voltage
(3) State Contractors License with Electrical Classification
(4) Master, Journeyman and Apprentice Electrician Licenses and Certifications
(5) Lockout/Tagout Program
(6) Installation Manuals
(7) Operation Manuals
(8) Maintenance Manuals
(9) Parts Lists, including recommended spare parts. Recommended spare parts shall be furnished with the respective equipment.
(10) Ground Rod Impedance Test Reports
(11) Insulation Resistance Test Reports
(12) Regulator Load and Calibration Reports for testing, checking, and adjusting all regulators in the electrical vault

i. After approval of the O&M Manuals, the Contractor shall provide three (3) complete electronic copies of all documentation in Adobe PDF file format on CD-R (non-rewriteable) discs storage media. The electronic files shall contain searchable text and include a hyperlink index for ease in locating information with the PDF file.

j. All requirements herein Item SS-300 shall be applicable to all referenced sections in these contract documents and applicable to all sections, which reference Item SS-300.

k. The Contractor is the single source of responsibility for the installation and integration of the airport's lighting, power, and control systems. New airport lighting equipment and materials shall be fully compatible with all other new and existing airport lighting equipment and systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

300-2.3 OPERATION AND MAINTENANCE DATA.

Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment. Provide bound hard copies and electronic copies as noted in section 300-2.2.

a. Certificate of Substantial Completion, Release and Contractor's Affidavit, executed copies.

b. Final approved equipment submittals, including product data sheets and shop drawings, clearly labeled.

c. Installation manuals: Description of function, installation and calibration manuals, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.

d. Operations manuals: Manufacturer's printed operating instructions and procedures to include start-up, break-in, routine, and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; summer and winter operating instructions; and all programming and equipment settings.

e. Maintenance manuals: Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

f. Service manuals: Servicing instructions and lubrication charts and schedules, including the names and telephone numbers of personnel to contact for both routine periodic and warranty service for equipment and materials provided under this Specification.

g. Final test reports, clearly labeled, including but not limited to, insulation resistance test reports, ground rod impedance test reports, cable pulling tension values logs, and equipment certification tests.

h. Final certified calibration sheets for all equipment and instruments.

i. Preventive maintenance programs for the visual aid facilities and equipment installed in this project, including the applicable equipment sections within Chapter 5 "Preventive Maintenance" from AC 150/5340-26 (latest edition) "Maintenance of Airport Visual Aid Facilities".

300-2.4 WIRE.

Unless otherwise indicated, conductors No. 10 AWG and smaller shall be solid, and conductors No. 8 AWG and larger shall be stranded.

For electrical work of 600 volts or less, all conductors, terminations, terminal blocks, lugs, connectors, devices, and equipment shall be listed, marked, and rated 75 degrees C minimum unless otherwise noted.

Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway. Pull ropes and pull wires shall have sufficient tensile strength for the cable(s) to be pulled and installed. Damaged cable or raceway shall be replaced at no additional cost to the Owner. Calculate and do not exceed the maximum allowable pulling tension or maximum allowable sidewall bearing pressure for all conductors and cables.

Install pull wires in empty raceways. Use a polypropylene plastic line with not less than 200-pound tensile strength. Secure and leave at least 12 inches of slack at each end of pull wire to prevent it from slipping back into the conduit. Cap spare raceways with removable tapered plugs, designed for this purpose.

Colorable L-824 cable in solid non-fading colors shall not be used for permanent series circuit identification.

300-2.5 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal.

The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Copies of the National Electrical Code may be obtained from the National Fire Protection Associations, Inc., One Batterymarch Park, Quincy, Massachusetts 02269.

300-2.6 CONCRETE. Concrete shall conform to Item P-610, Concrete for Miscellaneous Structures, with a minimum 28-day compressive strength of 4000 PSI (unless otherwise noted) using 1-inch (25-mm) maximum size coarse aggregate, as determined by test cylinders made in accordance with ASTM C 31 and tested in accordance with ASTM C 39.

Flowable backfill material may only be used where specifically indicated in the Plan details.

CONSTRUCTION METHODS

300-3.1 LOCKOUT/TAGOUT PROGRAM. The Contractor shall provide a complete copy of an electrical energy source Lockout/Tagout Program to the Owner, with copy to the RPR. The document shall clearly

identify the on-site master electricians and their contact information, including office and mobile telephone numbers.

The Lockout/Tagout Program shall comply with Part 1910 – Occupational Safety and Health Standards (OSHA) Subpart S – Electrical, and meet the requirements of 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout), including requirements listed in 1910.331 through 1910.335.

Implementation of the Lockout/Tagout Program and all other related safety requirements are the sole responsibility of the Contractor.

300-3.2 SAFETY PROGRAM. The Contractor shall implement an electrical safety program that complies with NFPA 70E and 29 CFR 1926.

Implementation of the Electrical Safety Program, determining and providing proper Personal Protective Equipment (PPE), training and enforcing personnel to wear the prescribed PPE, conducting work area safety inspections (including correcting deficiencies), and all other related safety requirements are the sole responsibility of the Contractor.

All work involved in the preparation and implementation of the safety program will not be measured for separate payment but will be considered subsidiary to the lockout/tagout bid item.

300-3.3 PRECONSTRUCTION MEETING.

A preconstruction meeting will be held with the Airport, FAA, RPR and Contractor, prior to any work. Complete submittals and shop drawings will be submitted at this time for review. An equipment procurement schedule will be provided by the Contractor with an anticipated field construction start date. The progress construction schedule will be submitted for review each week and shall outline all installation, testing and demolition work.

300-3.4 GENERAL.

The Contractor shall be responsible for coordinating all electrical work with the Utility. The Contractor shall provide temporary service conductors and raceway system. The Contractor shall then provide and connect permanent service conductors and raceway system after the completion.

All secondary conductors and controls, signaling and lighting shown in or on buildings are included in this project. Electrical service shall be extended from the service equipment as indicated.

In general, the various electrical equipment and material to be installed by the various trades under this specification shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards to complete the work in a neat and satisfactory manner. The following is a general outline concerning the running of various systems and is to be expected where the drawings or conditions at the buildings necessitate deviating from these standards.

The drawings and specifications are complementary; any work required by one, but not by the other, shall be performed as though required by both.

The Contractor shall maintain copies of all equipment installation manuals on site during construction.

All conduits shall be run exposed in the equipment rooms or run concealed as indicated.

The construction details of the building are illustrated on the drawings. Each Contractor shall thoroughly acquaint himself with the details before submitting his bid as no allowances will be made because of the Contractor's unfamiliarity with these details.

The electrical plans do not give exact locations, etc., and do not show all the offsets, control lines, junction boxes, and other installation details. Each Contractor shall carefully lay out his work at the site to conform to the job conditions, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide complete operating systems.

The electrical plans show diagrammatically the locations of the various electrical outlets and apparatus and the method of circulating and controlling them. Exact locations of these outlets and apparatus shall be determined by reference to the general plans and to all detail drawings, etc., by measurements at the buildings, and in cooperation with other crafts, and in all cases shall be subject to the approval of the RPR. The RPR reserves the right to make any reasonable change in location of any outlet or apparatus before installation, without additional cost to the Owner.

These Specifications and the accompanying Drawings are intended to cover systems which will not interfere with the structure of the buildings, which will fit into the several available spaces, and which will insure complete and satisfactory systems. Each bidder shall be responsible for the proper fitting of his material and apparatus into the buildings.

Should the particular equipment which any bidder proposes to install require other space conditions than those indicated on the Drawings, he shall arrange for such space with the RPR before submitting his bid. Should changes become necessary because of failure to comply with this clause, the Contractor shall make such changes at the Contractor's expense.

Should the particular equipment which any bidder proposes to install require other installation methods, such as larger light base junction structures, etc., he shall include all such equipment and appurtenances in his bid. Should changes become necessary because of failure to coordinate equipment requirements and comply with this clause, the Contractor shall make such changes at the Contractor's expense.

The Contractor shall be responsible to see that each party furnishes electrical equipment which meets the electrical requirements specified herein and that all systems work together to produce the specified operation.

Where two or more units of the same kind or class of equipment are required, these shall be products of a single manufacturer; however, the component parts need not be the products of one manufacturer.

Each Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these Specifications and Plans, which shall be checked by the RPR and approved before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

Electrical equipment, such as switchgear, switchboards, panelboards, load centers and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

All electrical equipment shall be securely mounted as indicated in the plans, as required by the contract specifications, as required by guidelines and codes, and as required by the manufacturer using hardware compliant with the environmental conditions.

Interior components of electrical enclosures shall be securely mounted using appropriate hardware within the enclosure. Adhesives or adhesive tapes/strips are not allowed and are prohibited.

Electrical components, including but not limited to, relays, circuit boards, electronics, etc., shall be installed within approved enclosures.

The Contractor shall keep ends of conduits, including those extending through roofs, equipment and fixtures covered or closed with caps or plugs to prevent foreign material from entering during construction.

Where portions of raceways are known to be subjected to different temperatures, where condensation is a problem, and where passing from interior to exterior of a building, the portion of raceway or sleeve shall be filled with an approved material to prevent the circulation of air, prevent condensation, and prevent moisture entry. Sealing of raceways shall not occur until after the conductors and cables have been installed, tested, and accepted by the RPR.

The Contractor shall install any temporary lines and connections required to maintain electric services and safely remove and dispose of them when complete.

All temporary wiring shall conform to OSHA standards. Remove temporary services when work is complete. Any damage to electrical equipment caused by the Contractor shall be repaired at no cost to the Owner.

All non-current carrying parts and neutrals shall be grounded as indicated on the Drawings or as required by the Codes.

White and/or gray outer finish conductors may only be used as grounded conductors or neutral conductors in accordance with NEC.

Install insulated green equipment grounding conductors with all feeder and branch circuits.

Provide separate insulated equipment grounding conductors from grounding system to each electrical equipment, telecommunication equipment, other special electrical system equipment, and appurtenance item location in accordance with NFPA 70 and other applicable standard requirements.

The bidder shall inspect the site, thoroughly acquaint himself with conditions to be met and work to be accomplished. Failure to comply with this shall not constitute grounds for any additional payments.

Where electrical equipment is installed that causes electrical noise interference with other systems either existing or installed under this contract, the offending equipment shall be equipped with isolating transformers, filters, reactors, shielding, or any other means as required for the satisfactory suppression of the interferences, as determined by the RPR.

All junction boxes, expansion joints, flexible connections, instruments and similar items requiring servicing or repairs shall be installed in an accessible location.

All salvage and equipment removed by the work shall remain the property of the Owner. Material removed from the project shall be stored on the project site where and as directed. Debris shall be removed from the job site and disposed of by the Contractor.

The Contractor shall always maintain his work area clean and orderly. Debris shall be removed promptly. The electrical system shall be thoroughly cleaned inside and outside of all enclosures to remove all metal shavings or other work debris, dust, concrete splatter, plaster, paint, and lint.

The Contractor shall do all excavating and backfilling made necessary by electrical work and shall remove all surplus or supply any earth required to establish the proper finished grade.

The Contractor shall do all cutting and patching made necessary by electrical work, but in no case shall he cut through or into any structural member without written permission of the RPR.

All steel conduits, supports, channels, fittings, nuts, bolts, etc. shall be galvanized, corrosion-resistant type unless otherwise noted.

An approved anti-seize compound shall be used on all threads to prevent equipment and thread damage.

Equipment shall be installed in accordance with manufacturer's recommendation. Make all final electrical connections and coordinate all items with other trades.

Correct unnecessary damage caused due to installation of work, brought about through carelessness or lack of coordination. All openings, sleeves, and holes to be properly sealed, fire proofed and waterproofed. Any water leaks arising from project construction will be immediately corrected to the satisfaction of the Owner and the RPR.

300-3.5 POWER SUPPLY EQUIPMENT. Electrical equipment, such as switchgear, switchboards, panelboards, load centers, and other power supply equipment, shall not be used as a common enclosure, pull box or junction box for routing conductors of different systems, unless the equipment is specifically designed for this purpose and indicated as such on the Plans.

If shown in the plans, the power supply equipment shall be set on concrete housekeeping pads to provide a minimum space of 3-1/2 inches between the equipment and the floor. All equipment shall be secured to the floor or wall in accordance with the manufacturer's recommendations and these contract document requirements.

300-3.6 DUCT AND CONDUIT. Conduits shall be galvanized rigid steel unless otherwise indicated or specified. Refer to one-line diagram conduit notes for specific requirements.

Conduit runs shall be one trade size continuously with no reducers allowed. Changing of conduit size is only permitted at manholes, handholes, and boxes and conduit bodies used as outlet, device, junction, or pull boxes, including approved, listed fittings with removable covers.

Use an approved, listed adapter/coupling to convert to other types of conduit. Reducer couplings are not allowed.

For underground service entrance, feeder and branch circuit raceways, offsets and bends over 30 degrees and elbows in Schedule 40 PVC conduit runs shall be Schedule 80 PVC conduit. Underground service entrance PVC conduits shall be concrete encased unless otherwise noted. Underground PVC conduits shall be concrete encased under driveways, roadways, parking lots and other paved areas.

Non-encased conduits shall convert to concrete encased ducts under all paved areas and shall extend at least 3 feet beyond the edges of the pavement unless otherwise noted.

The Contractor shall provide a staked centerline or offset for the duct and manhole system - utilizing the drawings and a site inspection of the existing grounds, grades, and utility crossings. The Owner and RPR shall approve the staking plan that shall be indicated on a drawing submitted for approval before starting any excavation for the ducts. The staking plan shall indicate the proposed location, elevation, and dimensions of manholes and handholes. The RPR reserves the right to adjust duct, manhole and handhole locations and elevations before installation at no additional cost to the Owner.

The bottom surface of trenches shall be essentially smooth and free from coarse aggregate.

Install grounding-and-bonding type bushings and bonding jumpers on all service entrance conduits and on all feeder and branch circuit conduits.

Use conduit bushings at each conduit termination. Where No. 4 AWG or larger ungrounded wire is installed, use insulated bushings.

When EMT is allowed, utilize only steel compression fittings. Die-cast and set-screw fittings shall not be used.

Use double lock nuts at each conduit termination. Use weather tight hubs in damp and wet locations. Sealing lock nuts shall not be used.

Grounding continuity to rigid metal conduit shall be accomplished by grounding bushings/adapters with lugs for connection to grounding counterpoise and/or grounding electrode conductor as defined by NEC.

All exposed wiring shall be run in not less than 1/2 inch (12 mm) galvanized rigid steel conduit. All conduits shall be installed to provide for drainage. Conduit shall be attached to wooden structures with galvanized pipe straps and fastened with galvanized wood screws not less than No. 8 nor less than 1-1/4 inches (31 mm) long. There shall be at least two fastenings for each 10-foot (3 m) length.

Existing ducts may require clearing before use. It is the responsibility of the Contractor to locate the existing ducts, identify empty or partially empty conduits and clear the conduits as required. Where new cable is to be installed in existing duct, the full length of the duct shall be cleared of debris by mechanical means before the installation of the new cable. Acceptable methods of clearing existing ducts include "hydro-jetting" and "roto-rooting." All existing cables in each re-used duct shall be replaced for the length of the duct and properly spliced in a method approved by the RPR. Clearing of existing duct banks or conduits is incidental to the cable pay item.

Dedicated ground rods shall be installed and exothermically welded to the counterpoise wire at each end of a duct bank crossing under pavement.

For concrete markers, the impression of letters shall be done in a manner, approved by the RPR, to affect a neat, professional appearance. The letters shall be stenciled neatly. After placement, all markers shall be given one coat of high-visibility aviation orange paint, as approved by the RPR.

Existing concrete markers or survey pins for runway thresholds, duct/conduit/cable/splice markings, utility line markings, taxiway points of tangency markings, or other similar items shall be removed and reinstalled or replaced, depending on the project work requirements, as required by a registered professional surveyor to the satisfaction of the Owner and the RPR.

300-3.7 JUNCTION BOXES.

Junction cans shall have both internal and external ground lugs. Size (diameter) and depth shall be as specified in the plans.

Galvanized cans shall have an external ground lug for mechanical connection/bolting ground clamps bonding.

300-3.8 BACKFILL, COMPACTION, AND RESTORATION. Refer to the backfill, compaction and restoration requirements within Item P-152 where other compaction requirements are specified (under pavements, embankments, etc.)

Trenches shall be backfilled and compacted in 6" layers to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D6938.

Backfilling from two directions will not be allowed. No backfilling will be accomplished without the approval of the RPR or Construction Observer. The Contractor shall ensure all trenches are inspected prior to being covered and prior to encasement. Any uninspected trenches which are prematurely covered shall be exposed for inspection at the RPR and Owner's convenience at no additional cost to the Owner. The Construction Observer will coordinate with the Contractor for advance scheduling of trench inspection.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD) and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

All concrete/asphalt pavement removal and repair work shall be installed as separate pay items in accordance with Specification P-101 Preparation/Removal of Existing Pavements.

The subgrade below the removed pavement shall be compacted to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D2922. Subgrade preparation will not be measured for separate payment, but will be considered subsidiary to Specification P-101 Preparation/Removal of Existing Pavements.

300-3.9 CABLE AND UTILITY COORDINATION. The existing and the proposed locations of lighting cable are approximate. The Contractor shall be responsible for field locating and identifying the existing lighting circuits to determine their exact routing. The Contractor shall also be responsible for maintaining the lighting systems in a working condition until the new lighting circuits have been installed and tested. The Contractor shall proactively and expeditiously accomplish this cable identification work prior to performing any modifications to the lighting circuits. Coordinate identification work with the Owner and RPR and make all corrections, additions, etc. on the as-built drawings.

Underground cable and utilities exist within and adjacent to the limits of construction. An attempt has been made to locate these cables and utilities on the Plans. All existing cable and utilities may not be shown on the Plans and the location of the cables and utilities shown may vary from the location shown on the Plans. Prior to beginning of any type of excavation, the Contractor shall contact the utilities, the airport maintenance staff, FAA field personnel and other organizations as required and make arrangements for the location of the utilities on the ground. The Contractor shall maintain the cable and utility location markings until they are no longer required.

The Contractor shall replace or repair any underground cable or utility that has been damaged by the Contractor during excavation to the satisfaction of the owner of the cable or utility at no additional cost to the Owner.

The Contractor shall be responsible for all coordination work associated with existing and new utilities, their marking, their identification, proposed outages/shutoffs, connections, cutovers, etc.

300-3.10 WIRING. The Contractor shall furnish all labor and materials and shall make complete electrical connections in accordance with the wiring diagram furnished with the project plans. The electrical installation shall conform to the requirements of the latest edition of National Fire Protection Association, NFPA-70, National Electrical Code.

Provide color-coding for phase identification.

Colors for 240/120V Circuits:

a. Phase A: Black
b. Phase B: Red
c. Neutral: White

Colors for 208Y/120V Circuits:

a. Phase A: Black
b. Phase B: Red
c. Phase C: Blue
d. Neutral: White

Colors for 480Y/277V Circuits:

a. Phase A: Brown
b. Phase B: Orange
c. Phase C: Yellow
d. Neutral: Gray

All new electrical cable shall be marked using color-coded plastic electrical tape, which is specifically designed for application on polyethylene-jacketed cable. The tape shall be applied as detailed on the Plans. Marking tape shall be Scotch 35 Vinyl Plastic tape or approved equal.

300-3.11 MARKING AND LABELING. Properly identify all electrical equipment.

Wire/Cable Designation Tape Markers:

a. Indoor Dry Locations: UL Recognized Materials, vinyl or vinyl-cloth, self-adhesive, wraparound, self-laminating, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-427 with thermal transfer print type or approved equal.

b. Outdoor Locations and Indoor Wet and Damp Locations: White polyolefin, non-adhesive, full circle, heat-shrinkable sleeve, cable/conductor markers with computer printer-generated numbers and letters, minimum 1" width. Provide Brady B-342 with thermal transfer print type or approved equal.

Properly identify all electrical equipment, including but not limited to the following:

a. Switchgear, switchboards, and control panels.
b. Main distribution panel and individual devices within it.
c. Panelboards and individual devices within it.
d. Safety switches and disconnects.
e. Contactors and lighting control center, including all branch circuits.
f. Individually mounted circuit breakers.
g. Starters and relays.
h. Transformers.
i. Generators and automatic transfer switches.

Use permanently attached black phenolic plates with 3/8" white engraved lettering on the face of each, attached with minimum two sheet metal screws. Starters and relays connected under this Specification shall be identified whether furnished under this Specification or under other Specifications of this contract. Plates shall be indoor or outdoor rated as required by installation location.

Panelboard identification plates shall indicate panel by identification name, voltage system, ampacity rating and type, AIC rating, and feeder source description.

Identify each receptacle, light switch, junction box, etc. with panelboard identification and circuit number. For all wiring device covers, use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

Identify fire alarm junction boxes with red covers and mechanical control junction boxes with blue covers.

Install all identification as required by current adopted editions of the NFPA 70 - National Electrical Code and NFPA 70E - Standard for Electrical Safety in the Workplace.

300-3.12 REMOVAL AND RELOCATION OF EXISTING EQUIPMENT. The Contractor shall carefully remove all salvageable equipment as indicated on the Plans. Any equipment which is damaged during the removal operation shall be subject to a reduction in payment for removal of the equipment. All equipment which is removed during this project shall be transported to a site on the Airfield or removed from the Airfield and properly disposed of as directed by the Owner and the RPR.

The Contractor shall carefully relocate existing equipment as indicated in the Plans. Any equipment that is damaged during the relocation operation shall be replaced at no additional cost to the Owner.

Any existing electrical equipment, conduit, cables, etc. that is damaged during construction shall be replaced at no additional cost to the Owner to the satisfaction of the Owner and the RPR.

300-3.13 5 kV AND UNDER 600V CABLE CONNECTIONS.

Cable splicing/terminating personnel shall be licensed electricians who have the minimum continuous experience in terminating/splicing medium voltage cable as listed in Item L-108. The qualifications for these airfield lighting cable splicers shall be submitted for review and approval by the RPR prior to any work. The RPR may request sample splices be performed in his presence by the proposed personnel to clearly demonstrate that they have the skill and experience to perform this work. Connector kits and cables shall be provided in sufficient quantity by the Contractor in demonstrating these qualifications at no additional cost to the Owner.

Field-attached plug-in splices using FAA certified L-823 plug and receptacle connector kits, properly sized to the cable being used, shall be installed as shown in the plans. This work shall include the taping and heat shrinking. Refer to Item L-108 for additional requirements.

As an option, the Contractor may utilize enhanced FAA certified L-823 connector kits, such as the Amerace 54Super Kit. These kits do not require taping or heat shrinking. These kits shall be installed in accordance with the manufacturer's installation requirements. Note that the mixing of connector kits is unacceptable. The Contractor shall clearly list and submit the connector kits he proposes to utilize on the project for approval prior to any field construction work, and he shall only install that type during construction unless otherwise noted by the RPR.

For under 600V cable connections of voltage powered circuits, splices whether direct buried or within an underground enclosure shall only utilize approved cast splices, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M Company, or an approved equivalent.

300-3.14 CERTIFICATION AND PERFORMANCE. Equipment and materials covered by FAA Advisory Circulars are referred to by item numbers and approved equipment is listed within the AC 150/5345-53 Airport Lighting Equipment Certification Program's monthly Addendum, which contains a complete and updated listing of the certified equipment and manufacturers and is listed in the FAA Buy American Preference equipment list, which is also updated monthly. The Contractor shall provide and install new certified equipment that works reliably and efficiently with the existing equipment to remain in service. The Contractor shall provide any additional accessories and/or appurtenances required to provide fully functional electrical systems to the satisfaction of the Owner and RPR, at no additional cost to the Owner.

The Contractor shall ascertain that all lighting system components furnished (including FAA certified and approved equipment) are compatible in all respects with each other and the remainder of the new and existing systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

300-3.15 AS-BUILT DRAWINGS. The Contractor shall keep one (1) full-sized set of prints for As-Built Drawings at the site, in good order, and annotated to show all changes made during the construction process.

The Contractor shall locate all underground and concealed work, identifying all equipment, conduit, circuit numbers, motors, feeders, breakers, switches, and starters. The Contractor will certify accuracy by endorsement. As-Built drawings shall be correct in every detail, so Owner can properly operate, maintain, and repair exposed and concealed work.

The As-Built drawings shall indicate all control system labeling and marking.

The Contractor shall store the As-Built drawings on the site. Drawings shall not be rolled. Make corrections, additions, etc., with pencil, with date and authorization of change.

As-Built drawings must be submitted to RPR before project will be accepted.

Minor deviations from the Plans and Specifications shall be as approved by the RPR.

Upon completion of the installation, the Contractor shall adjust the systems to the satisfaction of the RPR.

300-3.16 TESTING.

General Electrical Testing: Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification and certify compliance with test parameters. Tests shall be conducted in the presence of the RPR and shall be to his/her satisfaction. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest. Perform infrared scan tests and inspections of service and power distribution equipment at the respective buildings and provide reports. Electrical equipment will be considered defective if it does not pass tests and inspections. Reports shall include notations of deficiencies, remedial action taken and observations after remedial action.

System and Equipment Testing: All installations shall be fully tested by continuous operation for not less than 24 hours as completed systems prior to acceptance. These tests shall include the functioning of each control not less than 10 times.

Test equipment and instruments utilized by the Contractor shall have been calibrated following the manufacturer's recommended schedule to verify their accuracy prior to performing the testing work. The Contractor shall provide instrument calibration certificates on test equipment when requested by the RPR. Retesting work due to inaccurate or defective instruments shall be performed by the Contractor to the satisfaction of the RPR at no additional cost to the Owner.

a. Regulator Calibration:

The Contractor shall check and calibrate both new and existing regulators utilizing the enclosed "Constant Current Regulator Calibration Report". Refer to the material section on constant current regulators for additional requirements.

New regulators are calibrated at the factory prior to shipping, while existing regulators typically need checks and calibrations on a routine basis so that they do not get out of tolerance. The intent is to check and/or calibrate these regulators using a high accuracy meter prior to energizing and placing the airfield lighting system in service.

Utilize a high accuracy true RMS ammeter with high accuracy clamp-on current probe when making these measurements (use round type probes, accuracy + or – 2% required, sized per the cable diameter and circuit ampacity to achieve the best accuracy). Adjust regulators per manufacturer's instructions to meet the output currents on each brightness step as listed in Tables 5-2 and 5-3 in AC 150/5340-26.

b. Megger Testing:

The Contractor shall perform megger testing on each existing regulator circuit prior to any work on the electrical system. This information shall be recorded and documented by the Contractor and submitted to the RPR. The Contractor shall perform megger tests on each regulator circuit after the acceptance test period. This acceptance test information shall be recorded and documented by the Contractor and submitted to the RPR. Megger test shall be performed in accordance with the requirements of Item L-108.

The Contractor shall submit his initial megger test reports on the enclosed "Insulation-Resistance Test Report" form prior to any work on the electrical system. This report shall

be submitted to the RPR and approved by the Owner prior to Contractor proceeding with his work.

After final acceptance testing has been completed, the Contractor shall complete and submit his final megger test reports to the RPR and insert copies of the initial and final megger test reports in the Operation and Maintenance Manuals.

Megger testing shall be performed using an insulation meter, such as a Fluke 1507 Insulation Resistance Multimeter, Ideal 61-797 Digital Insulation Meter, or approved equal having an insulation test range up to 10 Gigohms or greater.

Insulation resistance testers for 5kV series circuits shall utilize the 1000V DC source output for testing. The test equipment shall be submitted for review and approval by the RPR prior to performing the tests.

The Contractor shall be responsible to maintain an insulation resistance equal to minimum 80% of the initial testing value through the end of the contract warranty period. This requirement is based on AC 150/5340-26C which states that resistance values inevitably decline over the service life of the circuit and that a 10-20 percent decline per year is considered normal. Note that AC 150/5340-26C cancels AC 150/5340-26B; thus, refer to the current edition of the maintenance AC for requirements in this project.

For existing circuit insulation resistance requirements, refer to "Existing Circuits" section of Item L-108.

The insulation resistance to ground for 600V rated cables shall be not less than 100 Megohms when measured per NETA standards.

The installations shall be tested in operation as a completed unit prior to acceptance. Tests shall include taking megger and voltage readings in accordance with manufacturer's requirements. Testing equipment shall be furnished by the Contractor.

c. Ground Rod Impedance Testing:

The enclosed "Ground Rod Impedance Test Report" form shall be used, and testing shall be performed in the presence of the RPR.

As-Built drawings shall indicate the location of all installed ground rods. Each ground rod shall have a unique identifier that corresponds with its submitted ground impedance test report.

Three-pole fall-of-potential testers that can measure the ground resistance of a ground rod using auxiliary electrodes (staked testing), such as a Fluke 1621 Earth Ground Tester, shall be used for testing individual dedicated equipment ground rods at fixtures and equipment, or for testing isolated counterpoise ground rods not yet connected to the counterpoise wire.

Clamp-on testers that can measure the ground resistance of a ground rod without using auxiliary ground rods (stakeless testing), such as a Fluke 1630 Earth Ground Clamp Meter or approved equal, shall be used for testing counterpoise ground rods which have already been connected to the counterpoise wire, or ground ring ground rods which have already been connected to the established ground ring system.

Ground impedance test equipment shall be submitted for review and approval by the RPR prior to performing the tests.

If the ground rod's impedance exceeds 25 ohms, an additional rod shall be driven in a location suitable and approved by the RPR. However, the additional rod must satisfy the requirements of NEC 250.53 and not be less than 6 feet away from any other ground rod electrode. Additional ground rods shall not be measured for separate payment but shall be considered subsidiary to the counterpoise or respective equipment pay item.

The Contractor shall perform additional tests if required and requested by the RPR at no additional cost.

The Contractor shall coordinate with the resident RPR to approve tests daily before proceeding. The Contractor shall fill out a separate test report for each date. Test reports shall be submitted weekly to the RPR.

Airport lighting equipment and special systems shall be tested in accordance with applicable FAA Advisory Circular requirements and the manufacturer's installation instructions. These tests shall also include those system requirements listed within AC 150/5340-26 Maintenance of Airport Visual Aid Facilities.

300-3.17 INSPECTION FEES AND PERMITS. The Contractor shall obtain and pay for all necessary construction permits, licenses, government charges, and inspection fees necessary for prosecution of the Work. Unless otherwise noted, the Contractor shall pay all charges of utility owners for connections for providing permanent service to the Work, ready for subsequent utility account transfer to the Owner after final acceptance.

300-3.18 WORK SUPERVISION.

State of Texas: The electrical contractor (whether the general contractor or a subcontractor) shall be a licensed contractor in the state of Texas having an electrical classification suitable for performing the work required in these contract documents.

The Contractor shall designate in writing the qualified electrical supervisor who shall provide supervision to all electrical work on this project. The minimum qualifications for the electrical supervisor shall be a master electrician as defined by Texas Electrical Safety and Licensing Advisory Board. The supervisor or his appointed alternate possessing at least a journeyman electrician license shall be on site whenever electrical work is being performed. The qualifications of the electrical supervisor shall be subject to approval of the Owner and the RPR.

All master and journeyman electricians shall be licensed in accordance with Texas Board requirements. The website located at https://www.tdlr.texas.gov/electricians/eleclaw.htm publishes the text of this statutory requirement. No unlicensed electrical workers shall perform electrical work on this project. Apprentice electricians in a ratio of not more than one apprentice per journeyman electrician will be allowed if the apprentices are licensed and actively participating in an apprenticeship program recognized and approved by the Texas Electrical Safety and Licensing Advisory Board.

300-3.19 TRAINING. The training classes shall be coordinated with the Owner and RPR in advance of the final acceptance testing. Comprehensive operational and maintenance training materials shall be provided by the equipment manufacturer and the Contractor (see section 2.3 OPERATION AND MAINTENANCE DATA).

a. Operations and Maintenance:
   (1) One class, 4 hours in length.
   (2) Maximum of six (6) people.
   (3) Location at the discretion of Airport.
   (4) Equipment
      i. L-861T(L) Taxiway Edge Light

ii. L-858(L) Airfield Guidance Sign
iii. L-830 Isolation Transformer
(5) Provide training materials.
(6) Include hands on troubleshooting specifics.

b. Preventive Maintenance Program Recommendations
(1) Equipment
i. L-861T(L) Taxiway Edge Light
ii. L-858(L) Airfield Guidance Sign
iii. L-830 Isolation Transformer
(2) Go over failure scenarios and what to do.
(3) Provide technical assistance points of contact and phone numbers.

Schedule the training with the Owner at least 10 days in advance and notify the RPR.

Provide hands-on demonstrations and training of equipment components and functions, including adjusting, operating, and maintaining the lighting equipment and systems. Coordinate the training schedule with the Owner in advance, so that the Owner may record the training if desired. Provide 4 hours training for the operational personnel and 4-hours training for the maintenance personnel.

All training sessions shall be recorded, and documentation of training shall be turned over to the Owner as part of the O&M materials at project completion.

METHOD OF MEASUREMENT

300-4.1 The quantity of lockout/tagout and constant current regulator calibration procedures to be paid for shall consist of all lockout/tagout procedure work and all constant current regulator calibration work completed in place, accepted and ready for operation. This item does not include measurement for constant current regulator equipment.

BASIS OF PAYMENT

300-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-300-5.1	Lockout/Tagout and Constant Current Regulator Calibration Procedures – per Lump Sum

MATERIAL REQUIREMENTS

Commercial Item Description A-A-59544	Cable and Wire, Electrical (Power, Fixed Installation)
Fed. Spec. W-C-1094	Conduit and Conduit Fittings; Plastic, Rigid
Fed. Spec. W-P-115	Panel, Power Distribution
Fed. Std. 595	Colors

Underwriters Laboratories Standard 6	Rigid Metal Conduit
Underwriters Laboratories Standard 514	Fittings for Conduit and Outlet Boxes
Underwriters Laboratories Laboratories Standard 651	Schedule 40 and 80 Rigid PVC Conduit (for Direct Burial)
Underwriters Laboratories Standard 1242	Intermediate Metal Conduit
CFR 1910	Occupational Safety and Health Regulations
CFR 1926	Safety and Health Regulations for Construction
ANSI/IEEE C2	National Electrical Safety Code
NFPA 70	National Electrical Code (NEC)
NFPA 70E	Standard for Electrical Safety in the Workplace
NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems
29 CFR 1910	Occupational Safety and Health Standards (OSHA)
29 CFR 1926	Safety and Health Regulations for Construction
Jaquith Industries, Inc.	The Design, Installation, and Maintenance of In-Pavement Airport Lighting

FAA ADVISORY CIRCULARS

AC 150/5300-13	Airport Design
AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 for Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Base and Transformer

	Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Taxiway and Runway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Isolation Transformers for Airport Lighting Systems
AC 150/5345-53	Airport Lighting Equipment Certification Program

END OF ITEM SS-300

CONSTANT CURRENT REGULATOR CALIBRATION REPORT

Standard Requirements: FAA AC 150/5340-26 (latest edition) Maintenance of Airport Visual Aid Facilities

Owner / Sponsor:_____ Engineer: Garver, LLC _____

Airport: _____ Contractor: _____

Project Title: _____ Garver Project Number:_____

Vault ID / Location: _____ Date: _____

Weather / Site Conditions: _____ Last Two Weeks of Rain: _____inches

Constant Current Regulator #: _____ Serves: _____

	Completed	Comments
1. Check all control equipment for proper operation.	☐	_____
2. Perform short-circuit test. Record results and recalibrate if necessary.	☐	_____
3. Perform open-circuit test on regulators with open circuit protection. Open circuit protective device should de-energize the regulator. Record results.	☐	_____
4. Check and record regulator input voltage and current.	☐	_____
Input Voltage: _____ Input Current: _____		
5. Check and record regulator output load. (ONLY if regulator has monitoring package)	☐	_____
Volt-Amperes: _____		
6. Check and record output current on each brightness step. If output current is outside of the allowable range, adjust the regulator's on-board potentiometer to re-calibrate the output current within the allowable range. Re-record the new output current on this form.	☐	_____

3-Step CCR			5-Step CCR				
B10: _____	B30: _____	B100: _____	1: _____	2: _____	3: _____	4: _____	5: _____
Nominal: 4.8A	5.5A	6.6A	2.8A	3.4A	4.1A	5.2A	6.6A

Tested By: _____ (Signature and Date)

Test Equipment: _____ (Manufacturer and Model No.)

RPR Witness: _____ (Signature and Date)

Owner / Sponsor Witness: _____ (Signature and Date)

INSULATION RESISTANCE TEST REPORT

Owner / Sponsor:_____ Engineer: Garver, LLC

Airport:_____ Contractor: _____

Project Title: _____ Garver Project Number:_____

Vault ID / Location: _____ Date Initial / Final Tests: _____

Weather / Site Conditions (Initial Test): _____ Last Two Weeks of Rain:_____inches

Weather / Site Conditions (Final Test): _____ Last Two Weeks of Rain:_____inches

		Initial Test Results		Final Test Results	
	Circuit Designation and Color Code	Regulator Size (kW)	Megger Reading Before Field Work (Megohms)	Regulator Size (kW)	Megger Reading After Field Work (Megohms)
1					
2					
3					
4					
5					
6					
Tested By:					
Test Equipment:					
RPR Witness:					
Owner/Sponsor Witness:					

Provide signature/date and manufacturer/model no. as required in the fields above.

Initial Test Record – Owner Disposition

Owner / Sponsor: _____ (Signature and Date)

Check one only: ☐ Proceed with Installation ☐ Hold

GROUND ROD IMPEDANCE TEST REPORT

Owner / Sponsor: _____ Engineer: Garver, LLC _____

Airport: _____ Contractor: _____

Project Title: _____ Garver Project Number: _____

Date: _____ Weather / Site Conditions: _____

Fall-of-Potential Style Tester (F):
Manufacturer: _____ Model #: _____

Clamp-On Style Tester (C):
Manufacturer: _____ Model #: _____

Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)	Ground Rod #	Test Equipment Style (F or C)	Impedance Value (Ohms)

Tested By:	
RPR Witness:	

Provide signature/date in the fields above.

Page _____ of _____

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ITEM SS-301 ELECTRICAL DEMOLITION WORK

DESCRIPTION

301-1.1 This item shall consist of the removal and satisfactory disposal of existing runway and taxiway edge lights, in-pavement lights, guidance signs, markers, manholes, handholes, junction structures, racks, pads, equipment, poles, towers, shelters, and other incidentals, all of which are not designated or permitted to remain, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. This work shall include the removal of indicated equipment, materials, and incidentals necessary for a complete item removal, including all restoration work, as a completed unit to the satisfaction of the RPR.

301-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

MATERIALS

301-2.1 All backfill and repair materials used in electrical demolition, repair and restoration work shall comply with the referenced specifications and be approved by the RPR.

Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300 and Item L-125.

CONSTRUCTION METHODS

301-3.1 GENERAL. No demolition shall be started until the removal and/or relocation work has been laid out and approved by the RPR. All material shall be disposed of off-site. All hauling and disposal will be considered a necessary and incidental part of the work. Hauling cost shall be considered by the Contractor and included in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

Equipment removal shall typically include removing the equipment and its accessories, removing foundations/pads, removing existing conduits, conductors and appurtenances, removal of conduit to below grade, and removal of existing circuits back to source. The work shall include restoring the area to match existing, including filling and tamping all holes with earth, and clearing and leveling the site.

The Contractor shall remove all existing underground cable, which is unused or rendered unusable by this project, when such is exposed or made accessible during this work. All such wiring removed shall become property of the Contractor and shall be immediately removed from the project. Wiring in conduit shall be removed as indicated or if new wiring is shown to be installed in its place. Existing wiring shall not be reused or reinstalled.

Wiring not exposed shall be abandoned in place if a reasonable effort will not remove it. No measurement or payment will be made for this cable removal work. Damage to turf or other systems will not be permitted to salvage or retrieve existing cable.

Any damage to electrical equipment, systems, structures, conduits, cables, and accessories or other utilities, designated to remain in place, shall be repaired or replaced expeditiously at no additional cost to the Owner and to the satisfaction of the Owner and RPR.

Holes, ditches, or other abrupt changes in elevation caused by the removal operations that could obstruct drainage or be considered hazardous or unsightly shall be backfilled, compacted, and left in a workmanlike condition.

Trenches or voids resulting from the removal or demolition of existing electrical equipment or other structures shall be filled with approved material placed in layers in accordance with Item P-152.

Concrete foundations and pads to be removed shall be obliterated full depth.

301-3.2 REMOVAL AND/OR RELOCATION OF LIGHT FIXTURES AND EQUIPMENT. Light fixtures and other equipment which are to be removed shall be carefully excavated. All concrete bases and concrete anchors shall be removed by the Contractor. The removed lights, guidance signs, isolation transformers and wiring harnesses shall then be given to the Owner, or properly disposed of if so, directed by the Owner. The ground around the removed lighting equipment shall be backfilled and properly compacted. Light fixtures and equipment which are to be relocated shall be stored on site and reinstalled with new lamps, new transformers, and all other new required accessories as indicated in the plans.

301-3.3 REMOVAL OF EXISTING EQUIPMENT. The Contractor shall carefully remove all salvageable equipment as indicated in the plans. Any equipment that is damaged during the removal and/or relocation operation shall be subject to a reduction in payment for removal and/or relocation of the equipment. All equipment that is removed during this project shall be transported to a site on the Airfield or removed from the Airfield and properly disposed of as directed by the Owner and the RPR.

301-3.4 RELOCATION OF EXISTING EQUIPMENT. Existing equipment that is to be relocated shall be carefully disconnected from the existing electrical system. The equipment shall be stored on site in an enclosed area protected from the weather as directed by the Owner and RPR. The Contractor shall remove existing concrete bases and shall backfill and compact these areas to match existing. The electrical power circuit shall be field located and extended to the new installation location unless otherwise noted in the Plans. Coordinate the extension of the electrical service with the extension of the electrical duct serving the equipment and install duct, splice, and cable markers to mark the new complete route.

Refer to the plans for additional installation requirements concerning the relocation of existing lights, signs, systems, and incidentals.

Any equipment that is damaged during the relocation operation shall be subject to a reduction in payment for removal and/or relocation of the equipment.

Any equipment that is damaged during the relocation operation shall be repaired or replaced by the Contractor at his expense to the satisfaction of the Owner and RPR.

METHOD OF MEASUREMENT

301-4.1 The quantity of existing lights or guidance signs removed, to be measured under this item shall be the number of each complete unit removed and accepted by the RPR.

This item shall include removing and storing the existing equipment as directed by the RPR.

Where the light base and concrete structure are indicated to be removed or demolished, the item shall include restoring the area to match existing, including removing the complete concrete item, filling and tamping all holes with earth, and clearing and leveling the site.

BASIS OF PAYMENT

301-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-301-5.1	Existing Stake Mounted Edge Light, Removed -- per Each
Item SS-301-5.2	Existing Base Mounted Guidance Sign, Removed -- per Each
Item SS-301-5.3	Existing Abandoned Sign Base, Demolished – per Each

END OF ITEM SS-301

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ITEM SS-305 DIRECTIONAL BORING

DESCRIPTION

305-1.1 This item shall consist of furnishing and installing conduits via directional boring methods, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. The borings shall be installed at the locations and in accordance with the dimensions, design and details shown on the plans. It shall also include all trenching, backfilling, mandreling installation of drag wires and duct markers, capping, and the testing of the installation as a completed duct system ready for installation of conduit and/or cables, to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

305-2.1 GENERAL. Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300.

All equipment and materials covered by these specifications shall be new and meet applicable manufacturer's standards.

Polyethylene conduits shall conform to SDR 11 type. Innerduct conduits shall conform to SDR 13.5 type.

The Contractor shall submit a statement of qualifications including previous similar jobs experience in directional boring for the last three (3) years. Previous job description work shall include length, pipe type, pipe size(s) and soil type,

The Contractor shall submit complete shop drawings outlining his directional boring method (including drilling fluids, additives and mixtures), drill rod, bore size, materials, equipment and safety requirements to be utilized on this specific project, for review and approval by the RPR.

All materials shall be inspected at the job site for damage. Defective materials shall be removed from the job site and replaced with new materials prior to the work.

CONSTRUCTION METHODS

305-3.1 GENERAL. Boring shall be done by pilot hole method using fluid as a lubricant only and shall not undermine the surrounding ground. Jetting will not be permitted. The Contractor shall use a guidance system to assure knowledge of the bore location while making the bore. The Contractor will not be paid for unusable sections.

Locate and clearly mark all utilities prior to start of excavation or drilling. The Contractor will be responsible for damage to pavements, utilities, or other structures caused by his activity. The Contractor shall repair, at his own expense, any damaged pavement, utility, or other structure as directed by the RPR or the owner of the utility or structure. The Contractor shall not excavate to find a bored casing without specific approval and definitions of limits. No payments will be made for excavation and repair except as shown on drawings.

The Contractor shall inspect the locations where the encasement structures are to be installed and familiarize himself with the conditions under which the work will be performed and with all necessary details for orderly prosecution of the work. The omission of any details in the Plans and herein for the satisfactory installation of the easement in its entirety shall not relieve the Contractor of full responsibility for the installation.

Directional bores shall be a minimum 60" below the bottom of the new or existing pavement subbase unless otherwise noted in the plans.

For runway pavement, the runway's typical section shall be considered 42" in overall depth. Therefore, the overall depth of the directional boring under runways shall be a minimum 8'-6" below the surface of the pavement.

For taxiway pavement, the taxiway's typical section shall be considered 32" in overall depth. Therefore, the overall depth of the directional boring under runways shall be a minimum 7'-8" below the surface of the pavement.

Directional boring shall be a minimum 3'-0" below finished or final grade in earth areas unless otherwise noted in the plans.

The Contractor shall utilize a beacon or other depth-reading instrument to verify the depth below the runway, taxiway, or other paved surface.

The bore size shall be the minimum size for the work required. Upsizing the bore will not be allowed.

The Contractor shall perform all excavation required to complete the work regardless of the material encountered. Excavation from the access shafts (bore pits) more than the required to backfill the access shafts and open ditch portion of the line shall be disposed of by the Contractor off Airport Property.

Pits and trenches shall be constructed and maintained in accordance with the current edition of the OSHA Standard for Excavating and Trench Safety Systems. Restore ground to original conditions after work completion including seeding and topsoiling.

The access shafts (bore pits) for encasement installation shall be rectangular in plan view with the longest dimension being constructed with the direction of the pipe. The access shafts shall be constructed at a location shown on the plans.

Use a high-quality drilling fluid to ensure hole stability, cuttings transport, bit and electronics cooling, and hole lubrication to reduce drag on the drill pipe and the product pipe. Use only fluid with a composition that complies with all federal, state, and local environmental regulations. Mix the drilling fluid with potable water (of proper pH) to ensure no contamination is introduced into the soil during the drilling, reaming, or pipe installation process. The Contractor is responsible for any required pH adjustments.

Disposal of the drilling fluids is the responsibility of the Contractor. Conduct disposal in accordance with all relative environmental regulations and permit requirements. No excess drilling fluids shall remain in the bore access pit or receiving pit. Immediately clean up any drilling fluid spills or overflows from these pits. All excess drilling fluids and mud shall be disposed of off Airport Property daily. Bore pits and trenches shall be backfilled and compacted in 6" layers to 90% maximum density for cohesive soils and to 100% maximum density for non-cohesive soils, as determined by ASTM D1557. The in-place field density shall be determined in accordance with ASTM D1556, D2167, or D6938.

Assemble the entire pipe to be installed via directional boring prior to starting pull back operations. Support the pipe to enable it to move freely and prevent damage. Install the pipe in one continuous pull. Maximum allowable tensile force imposed on the pull section is not to exceed 90 percent of the pipe manufacturer's safe pull strength. If multiple pipe sizes or materials, the lowest safe strength shall govern. Damaged pipes shall be replaced at no additional cost to the Owner.

Extend and connect pipes to junction structures as indicated. When pipe is used as a sleeve, install interior conduits as indicated and terminate the conduits with end bells as shown in the plans or as required.

Upon completion of the work, immediately remove all debris from the job site and restore the areas to original condition acceptable to the RPR.

In the event of failure to install the directional bore pipe or conduit, the Contractor shall remove the pipe or conduit from the bore and remove it from the job site. The bore hole shall be completely filled with a flowable fill conforming to Item P-153, Controlled Low Strength Material, to prevent future problems. If the pipe or conduit cannot be removed, then it shall be cut off minimum 3 feet below the ground and the pipe/conduit and surrounding space filled with flowable fill. This remedial work shall be performed at no additional cost to the Owner. Any failure event shall be immediately coordinated with the RPR and Owner prior to the Contractor taking remedial action.

The Contractor shall record and document all drilling logs that provide drill bit locations, both horizontally and vertically. The person holding the tracker shall be able to see these values on the display and help steer the bore. The bore depths shall be recorded and shown to be consistent; U-shaped bores are not allowed.

The logged data shall include both pitch and depth, time stamped, GPS location, and downhole fluid pressure. In addition, as-built drawings shall be marked showing bore depths where the bore crosses other facilities or obstacles, including but not limited to existing/new/future pavement edges, pavement crowns/centerlines, beneath ditch center lines, and at other utility crossings.

These records and as-builts shall be submitted to the RPR and included in the O&M manual for the project.

All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

METHOD OF MEASUREMENT

305-4.1 The quantity of directional boring to be paid for under this item shall be the number of linear feet of conduit and directional boring installed with backfill, compaction, turf restoration, and appurtenances, measured in place, completed and accepted to the satisfaction of the RPR.

Directional boring will be measured by the horizontal linear foot along the approximate centerline of the bore from junction box center to junction box center. No measurement will be made for vertical segments or elevation changes.

BASIS OF PAYMENT

305-5.1 Payment will be made at the contract unit price per linear foot for each type and size of directional boring completed by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-305-5.1	Directional Boring, 1-Way 2"C Polyethylene Conduit – per Linear Foot
Item SS-305-5.2	Directional Boring, 2-Way 2"C Polyethylene Conduit – per Linear Foot

END OF ITEM SS-305

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ITEM SS-310 AIRPORT LIGHTING SYSTEMS

DESCRIPTION

310-1.1 This item shall consist of furnishing and installing airport runway and taxiway edge lighting systems, retroreflective markers, guidance signs, runway centerline and touchdown zone lighting systems, other taxiway lighting systems, and other approach lighting aid systems, in accordance with this specification, the referenced specifications and drawings, and applicable advisory circulars. The system shall be installed at the locations and in accordance with the dimensions, design and details shown on the plans. This work shall include the furnishing of all equipment, materials, services, and incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the RPR any conflict between plans and specifications that he observes or of which he is made aware.

EQUIPMENT AND MATERIALS

310-2.1 GENERAL.

a. Airport lighting equipment and materials shall meet the requirements outlined in Item SS-300 and the applicable Item L Series Specifications.

b. For pre-cast or prefabricated concrete encased light base installations, the Contractor shall submit and coordinate the construction of the proposed pre-cast units with the RPR onsite to review and approve the construction process. The Contractor shall submit his proposed installation process for review and approval by the RPR. The Contractor shall provide additional items and work if required and requested by the RPR for the construction and installation of the pre-cast units at no additional cost to the Owner.

Pre-cast or prefabricated concrete encased light bases may only be assembled at the Contactor's staging area at the airport to allow the RPR to check and approve all such construction items. Pre-cast bases assembled offsite will not be allowed.

310-2.2 LIGHT FIXTURES. Airfield lights shall be supplied with all features and accessories including isolation transformers, light bases, base covers, safety ground rods, concrete pads and incidentals required for a complete installation as defined in these Specifications and as shown on the plans.

310-2.3 LAMPS. Lamps for elevated edge lights shall be LED type as specified.

310-2.4 SPARE EQUIPMENT INCLUDING FIXTURES AND SPARE SIGN REPLACEMENT COMPONENTS. Provide 10 percent (rounded up to the next whole number) spare fixtures of each type installed for the taxiway and runway edge and runway threshold lights, add other types or new spare lamps as needed, minimum quantity of 2 required. Provide 10 percent (rounded up to the next whole number) spare sign replacement components of each type installed for signs, minimum quantity of 1 required. Spare fixtures and spare sign replacement components shall not be measured for separate payment but shall be considered subsidiary to the respective light fixture or sign pay items.

a. A spare elevated LED fixture unit shall be one complete, ready-to-install fixture, including the coupling, column, head housing assembly, cordset, LED power supply assembly, LED assembly, and lens assembly.
b. A spare elevated quartz fixture unit shall be one complete, ready-to-install fixture, including the

coupling, column, head housing assembly, cordset, lamp assembly, and lens assembly.

c. A spare in-pavement LED fixture unit shall be one complete, ready-to-install fixture, including the top cover assembly, bottom pan assembly, cordset, LED power supply assembly, and LED assembly.
d. A spare sign replacement component unit shall include the LED light tube assembly and LED power supply assembly.

Spare fixtures and sign replacement components shall be on-site and available for use by the Contractor prior to the final acceptance testing. Any fixtures or sign components installed new in this project and replaced as part of the final acceptance testing shall be shipped back to the manufacturer for repair or replacement, and then delivered back to the Owner at no additional cost.

The spare fixtures and spare sign replacement components shall be delivered and stored as directed by the Owner, with transmittal receipt signed by Owner's representative. A signed copy shall be forwarded to the RPR with an additional signed copy placed in the O&M manuals.

310-2.5 GUIDANCE SIGNS. Guidance signs shall be L-858(L), meeting the criteria set forth in AC 150/5345-44, Specification for Taxiway and Runway Signs, and suitable for base mounting. Each unit shall be furnished with the required panels, mounting assemblies, frangible couplings, transformer, intensity control, identification tag, metal tethers, fasteners, and safety ground rods.

Style 2 and Style 3 signs shall meet the luminance requirements in AC 150/5345-44 throughout the current ranges of the associated series circuit.

Guidance signs shall have an integral on/off switch for airport maintenance use.

Signs shall be furnished with permanent type nameplates that are both weather and sunlight resistant. Nameplates which are completed with ink markers or similar methods will not be accepted.

Refer to the guidance sign index in the Plans for information on each sign's size, style, class, and mode.

The complete sign installation shall be designed to withstand a 200-mph wind load.

310-2.6 VEHICULAR STOP SIGN. Vehicular stop signs shall be furnished and installed as indicated on the Plans. Sign verbiage shall comply with FAA AC 150/5340-18, Paragraph 11 for Roadway Signs, and associated Figure 14. Signs shall be retroreflective and comply with all applicable federal, state (AHTD), and local criteria for stop sign color, reflectivity, et. al.

310-2.7 ISOLATION TRANSFORMERS. New isolation transformers shall be Type L-830 and have a wattage rating suitable for the wattage of the fixture and sign lamps. The transformer shall be listed in FAA Circular AC 150/5345-47.

Provide 10 percent spare isolation transformers of each type installed for lights, signs, and other equipment. Spare transformers shall not be measured for separate payment but shall be considered subsidiary to the respective light fixture or sign pay items.

CONSTRUCTION METHODS

310-3.1 GENERAL. The installation and testing details for the lighting system shall be as specified in the applicable advisory circulars.

The Contractor is responsible for all surveying and measurement which is required to accurately position and aim airfield lighting systems and equipment.

Airfield lighting systems and equipment that are improperly installed shall be removed and re-installed correctly as directed by the RPR. No payment will be made for the removal and reinstallation of airfield lighting systems and equipment improperly installed. All remedial work shall be to the satisfaction of the RPR.

310-3.2 LIGHTING LAYOUT PLANS. The Contractor shall stake the airfield lighting systems, prior to installation of any trench, cable, or lighting apparatus. The intent is to stake the installation at the locations indicated, noting any deviation from plan dimensions to the RPR prior to installation. The Contractor shall obtain the services of an experienced and licensed surveyor to perform this work.

The RPR shall provide electronic CADD files to the Contractor for this staking work. The Contractor shall stake the items and his surveyor shall provide a CADD file submittal back to the RPR. Based upon this submittal, the RPR shall coordinate and provide directions on any adjustments necessary to meet existing field condition requirements and comply with FAA Advisory Circular requirements on the layout and spacing of equipment.

The Contractor and his surveyor shall then make any electronic CADD file spacing adjustments and/or field staking adjustments prior to installation at no additional cost to the Owner.

Refer to General Provisions Section 50 Control of Work for additional construction layout and staking requirements.

310-3.3 PLACING THE EQUIPMENT. The equipment shall be mounted on concrete pads as shown in the plans. Secure the equipment and make all final connections.

310-3.4 MOUNTING, LEVELING, AND AIMING. The concrete support to which the equipment is fastened shall be accurately leveled before mounting the equipment. The units shall be properly aimed, as recommended by the manufacturer of the supplied equipment. This adjustment shall be accomplished using factory-approved aiming devices and techniques.

310-3.5 PLACING LIGHTS. All equipment shall be installed at locations indicated in the plans. Lights shall be laid out by locating the two control points by station as indicated on the plans and measuring the indicated individual separation distances. Light bases shall be located within 1 inch +/- longitudinally and 0.5 inches +/- transversely of the location indicated unless deviation is approved by the RPR. Excavation for installation of light bases shall be backfilled with at least 4 inches of granular leveling course, as approved by the RPR. Fixture height shall be as indicated on the Drawings.

For pre-cast or prefabricated concrete encased light base installations, a leveling course of sand shall be placed in the bottom of the excavated hole, sufficient for accurately installing, leveling and placing the lights in accordance with the requirements in this specification and AC 150/5340-30. Concrete encased light bases shall be allowed to cure a minimum of 7 days prior to installation.

Utilize a bubble level device to level all light fixtures in the horizontal light plane during the day, and then check at night to ensure uniformity in light output.

Provide factory-approved alignment tools and aiming devices to properly level and align fixtures as required by the FAA Advisory Circulars and manufacturer's installation instructions. After all light fixture installations are completed and accepted by the RPR, these alignment tools and aiming devices shall become property of the Owner and shall be delivered and stored as directed by the Owner.

310-3.6 PLACING SIGNS. All signs shall be installed at the approximate location indicated in the plans. The specific requirements for sign location are specified in AC 150/5340-18, Standards for Airport Sign

Systems. Specific requirements of this AC are also shown on the Plans. Signs shall be located within 1 inch +/- longitudinally or 0.5 inches +/- transversely of the required location unless deviation is approved by the RPR. The locations for the signs shall be staked by the Contractor and approved by the RPR before installation begins.

Provide single module signs with one tether. Provide multiple module signs with a tether at both ends.

310-3.7 TRANSFORMER INSTALLATION. The transformer for base mounted fixtures shall be placed inside the base. The transformer for stake mounted fixtures shall be located uniformly as shown on the plans. The primary cable connections shall be made with L-823 connectors as described in Item L-108 and have 3 feet of slack cable. The secondary leads connected to the lamp leads by means of a disconnecting plug and receptacle provided with the unit, and this joint shall not be taped. The secondary joint shall be fastened with a holding ring provided for this purpose.

310-3.8 UNIT ASSEMBLY. All electrical equipment, including edge lights, guidance signs and other visual aid units shall be assembled in accordance with the manufacturer's installation procedures. Anti-seize compound shall be used on all screws, nuts, and threads, including frangible coupling threads. If coated bolts are used (ceramic metallic/fluoropolymer coating), then do not apply anti-seize compound.

Provide and install all spacers, shims, and gaskets as required, and verify they are in place before installing the light fixture on the base.

Bolts and washers for new and existing bases shall be new. Do not reuse existing hardware.

The minimum thread engagement into top flange of the base shall be 0.5 inches. For in-pavement light fixture assemblies, the bolt protrusion requirement shall be minimum 0.75 inch; maximum 1 inch.

310-3.9 IDENTIFICATION NUMBERS. An identifying number shall be assigned to each light and sign in accordance with the plans or as approved by the RPR and Owner. This number shall be imprinted with reflective black with 1/2" letters on a non-corrosive metal disc 2" minimum diameter and attached to the pavement side of the fixture with a metal screw.

310-3.10 TEMPORARY AIRFIELD LIGHTING. Refer to the Airfield Lighting Phasing Plans and Details for additional requirements. Existing lighting circuits shall remain operational by use of temporary circuits. New lighting circuits shall also be connected and remain operational by use of temporary circuits. This item shall include all work to maintain the existing and new lighting circuits during construction and allow all taxiways and runways in operation to remain lighted, including that portion through the construction area, as indicated in the Phasing Plans and as directed by the RPR.

The Contractor shall perform initial field work including location and verification of existing circuits and submit plans for the temporary airfield lighting required in each work phase, for review and approval by the RPR and Owner, prior to starting work of that phase. This work shall include megger testing of circuits and circuit segments before and after installation and connection of jumpers.

The Contractor shall install couplings and other required fittings/appurtenances in conduit systems at last pavement joint within each phase for connecting to conduit systems in the next phase, or for connecting to existing conduit systems to remain.

310-3.11 TESTING. The installation shall be tested in operation as a completed unit prior to acceptance. Tests shall include taking megger and voltage readings as outlined in Item SS-300 and Item L-108. Testing equipment shall be furnished by the Contractor. Refer to Item L-108 for additional test requirements.

Tests shall be conducted in the presence of the RPR and shall be to his/her satisfaction.

All installations shall be fully tested by continuous operation for not less than 24 hours as completed systems prior to acceptance. These tests shall include the functioning of each control not less than 10 times.

Equipment and materials covered by FAA Advisory Circulars are referred to by item numbers and approved equipment is listed within the AC 150/5345-53 Airport Lighting Equipment Certification Program's monthly Addendum, which contains a complete and updated listing of the certified equipment and manufacturers and is listed in the FAA Buy American Preference equipment list, which is also updated monthly. The Contractor shall provide and install new certified equipment that works reliably and efficiently with the existing equipment to remain in service. The Contractor shall provide any additional accessories and/or appurtenances required to provide fully functional electrical systems to the satisfaction of the Owner and RPR, at no additional cost to the Owner.

The Contractor shall ascertain that all lighting system components furnished (including FAA certified and approved equipment) are compatible in all respects with each other and the remainder of the new and existing systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.

METHOD OF MEASUREMENT

310-4.1 Temporary airfield lighting shall be measured as a lump sum complete item per each respective phase work area, including all work completed in place and ready for operation, and including the installation, protection, and removal of all temporary cables, conduits, lighting, grounding, marking, and associated items and appurtenances, as indicated in the Drawings and as directed by the RPR.

BASIS OF PAYMENT

310-5.1 Payment will be made at the contract unit price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

310-5.2 Payment will be made at the contract lump sum price for each complete item, measured as provided above, and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item to the satisfaction of the RPR.

Payment will be made under:

Item SS-310-5.1	Temporary Airfield Lighting (Phase 1) -- per Lump Sum
Item SS-310-5.2	Temporary Airfield Lighting (Phase 2A) -- per Lump Sum
Item SS-310-5.3	Temporary Airfield Lighting (Phase 2B) -- per Lump Sum

END OF ITEM SS-310

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ITEM C-100 CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction, *and may be held in conjunction with the preconstruction meeting.* The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

(3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning

to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description
(2) Compliance with approved submittals
(3) Proper storage of materials and equipment
(4) Proper operation of all equipment
(5) Adherence to plans and technical specifications
(6) Summary of any necessary corrective actions
(7) Safety inspection.
(8) Photographs and/or video

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description
(2) Test designation
(3) Location
(4) Date of test
(5) Control requirements
(6) Test results
(7) Causes for rejection
(8) Recommended remedial actions
(9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

a. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 20%.

d. When 75% or more of the original contract is earned, an additional 20%

e. After final inspection and acceptance of project, the final 10%.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-14.1 Contractor Quality Control Program (CQCP) – Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

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ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

102-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction.* The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

***102-1.2** This item covers the application of Temporary Erosion Control items at locations shown on the Plans, as directed by the Engineer, and as required for permit compliance, and the requirement of the Contractor to produce, execute, and maintain a specific Storm Water Pollution Prevention Plan (SWPPP) for the project. The Contractor will also be required to request and obtain all necessary federal, state, and local permits. The temporary erosion control measures shown in the Plans do not represent the extent of work and coordination required by the Contractor under this item.*

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

~~**102-2.2 Mulches.** Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.~~

~~**102-2.3 Fertilizer.** Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.~~

~~**102-2.4 Slope drains.** Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.~~

102-2.5 Silt fence. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project. *In addition, all other materials shall meet commercial grade standards and be in accordance with SECTION 506 - TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS of the Standard Specifications, except as modified or augmented herein. Heavy Duty silt fencing (with welded wire in the fabric) may be required on steep slopes if the Engineer determines that the silt fence used by the Contractor is not performing satisfactory.*

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The ~~*RPR*~~ *Contractor* shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance and removal of silt fence. Silt fences shall extend a minimum of 16 inches and a maximum of 34 inches above the ground surface. Posts shall be set no more than 10 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 4 inches deep by 4 inches wide

on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

102-3.5 Construction Methods. *Providing the temporary erosion control items and devices shown on the Plans is intended to minimize the erosion of soils during construction. However, the items and devices shown are not intended to represent all of the necessary items or procedures required to be implemented by the Contractor. The plans and specifications show the Engineer's estimate of a minimum effort needed to maintain proper erosion control during construction. Additional effort and materials may be required by the Contractor to minimize the erosion of soils during construction. It shall be the Contractor's responsibility to install and maintain all the items shown in the Plans and to coordinate, submit, obtain, and comply with all necessary Federal, State, and local permits. The coordination with governing agencies shall include, but not limited to the following:*

- *Filing the Notice of Intent with the Texas Commission on of Environmental Quality (TCEQ),*
- *Producing and maintaining an approved Storm Water Pollution Prevention Plan,*
- *Coordinating and obtaining all local permits regarding grading operations for the proposed improvements, Contractor's staging area, spoil placement and any other grading operations related to the project as directed by the local governing agency.*

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured ~~as follows:~~ *as one complete item. This work includes obtaining all necessary federal, state, and local permits required to complete this project.*

~~**a.** Temporary seeding and mulching will be measured by the square yard.~~

~~**b.** Temporary slope drains will be measured by the linear foot.~~

~~**c.** Temporary benches, dikes, dams, and sediment basins will be measured by the cubic yard (cubic meter) of excavation performed, including necessary cleaning of sediment basins, and the cubic yard (cubic meter) of embankment placed as directed by the RPR.~~

~~**d.** All fertilizing will be measured by the ton (kg).~~

~~**e.** Installation and removal of silt fence will be measured by the [linear foot] [Lump sum].~~

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 *Temporary erosion control acceptably completed will be paid for at the contract lump sum price bid for "TEMPORARY EROSION CONTROL," which shall be full compensation for furnishing all materials, tools, equipment, labor, and incidentals necessary to complete the work. Periodic payments will be made under this item in proportion to the amount of work accomplished, as determined by the Engineer. Payment for "TEMPORARY EROSION CONTROL" will also include obtaining and compliance with the SWPPP, which shall include compensation for drainage-way inspections, report preparation, housekeeping practices, cleaning and maintenance, and other actions outlined in the SWPPP prepared by the Contractor necessary to execute the Plan. This item consists of all erosion control items not listed as a separate pay item in the Unit Price Schedule. Any fines issued to the Owner as a result of the Contractor's insufficient execution of the SWPPP will be assessed to the Contractor. Such deductions shall not be limited to the lump sum price of this item. Payment will be made under:*

Item C-102-5.1 Temporary Erosion Control—per Lump Sum

~~**102-5.1** Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:~~

~~Item C-102-5.1a Temporary seeding and mulching - per square yard~~

~~Item C-102-5.1b Temporary slope drains - per linear foot~~

~~Item C-102-5.1c Temporary benches, dikes, dams and sediment basins - per cubic yard~~

~~Item C-102-5.1d Fertilizing - per ton~~

~~Item C-102-5.1e Installation and removal of silt fence [per linear foot (meter)] [lump sum]~~

~~Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.~~

~~Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, paragraph 90-05 Payment for Extra Work.~~

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

ITEM C-105 MOBILIZATION

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 5 percent of the total bid exclusive of mobilization.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4.1 Engineer/RPR field office. The building for the temporary field office shall be for the exclusive use by the Engineer as a field office and shall conform to the requirements listed below. The dimensions and other requirements specified herein are minimums and the building may be built by the Contractor for the specific purposes noted herein. It is not intended, however, to prohibit the use of commercially built trailers or prefabricated buildings which may deviate in minor dimension or detail from the requirements listed herein but may in some features exceed the listed requirements and in all major respects be entirely suitable for the purpose intended. The Engineer will determine the suitability of any building furnished. It shall be the responsibility of the Contractor to coordinate and obtain also necessary permits and install all required temporary facilities to provide a complete and usable temporary field office.

Minimum requirements for offices:

a. *The building may be portable or other suitable type with 7-ft minimum ceiling height; must be floored, weatherproof and reasonably dustproof; must have at least two glazed sliding windows provided with window latches; must have at least one door provided with a substantial lock and all keys placed in the possession of the Engineer. Doors and windows shall be screened. The building need not be new but the facility furnished under this item shall be neat, clean, sound and usable for the purpose intended.*

b. *The building shall be provided with electric lights and power outlets arranged as directed by the Engineer. The building shall be provided with equipment in good working order. In cold weather the building shall be provided with adequate vented space heating facilities and fuel for heating. In hot weather the building shall be equipped with adequate air conditioning units. Heating and cooling and telephone utility service will be furnished at no cost to the Owner or Engineer.*

c. *The building for the field office shall provide not less than 240 sq. ft. of floor space. At least two tables each suitable for desk and drafting table work shall be provided with approximate dimensions of 30" x 48". These tables may be movable, attached to a wall, or built-in. Each table will be provided with at least two drawers (minimum dimensions: 8" deep x 12" wide by 24" long) or equivalent cabinet or shelf space for storing field books and records.*

d. *The building shall be provided with internet access with a minimum download speed of 24 megabits per second. This service shall be provided for the length of the contract or construction project, whichever is greater.*

105-4.2 Contractor's access / haul routes. *The Contractor shall layout, construct, maintain, and repair all access/haul roads needed to construct the work. The existing access roads shown on the plans shall be repaired, as determined necessary by the Engineer, at the close of the project. All such work, including all materials and labor, involved in the layout, construction, maintenance, and repair of the Contractor's access/haul roads will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization." Temporary pipe culverts shall be installed and maintained as required and shall be of the size as directed by the Engineer. The type of pipe used for temporary pipe shall be at the option of the*

Contractor. Temporary pipe culverts will not be measured for separate payment, but will be considered subsidiary to the access/haul road. All temporary pipe culverts shall be removed by the Contractor and shall remain his property at the close of the project.

105-4.3 Contractor's Staging Area. *The areas designated in the plans or by the Engineer as the Contractor's staging area shall be cleared and graded by the Contractor as needed for use by the Contractor in constructing the work on this project. All areas used or otherwise occupied by the Contractor for his operations shall be cleaned, regraded, and seeded, as directed by the Engineer, prior to the final acceptance of the project by the Airport. All work involved in the preparation and restoration of areas used or occupied by the Contractor, including clearing, grubbing, regrading, seeding, and installing and removing fence, will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization."*

105-4.4 ***Instrument Control.*** *The Contractor will be furnished survey baselines and benchmarks to control the work as shown on the Plans. The Contractor shall be responsible for the additional instrument control necessary to layout and construct the work. The Contractor shall provide the instrument control as provided for in the General Requirements of the Standard Specifications. The Contractor's instrument control of the work shall not be measured for separate payment, but will be considered subsidiary to the bid item "Mobilization".*

105-4.5 ***Clean-Up.*** *From time to time, the Contractor shall clean up the site in order that the site presents a neat appearance and that the progress of work will not be impeded. One such clean up shall immediately precede final inspection.*

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials, the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1 Mobilization (Maximum 5% of Total Bid Exclusive Mobilization)– per Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

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ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

DESCRIPTION

101-1.1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

101-1.2 *Limits of pavement removal, pavement repair, joint and crack repair, paint and rubber removal, and cold milling are estimated in the plans. Actual limits of these items shall be coordinated with the Engineer prior to construction.*

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size of **2 inches**. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. If the material is to be wasted on the airport site, it shall be broken to a maximum size of 2 inches.

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

d. Disposal. *All existing pavement removed shall be disposed of off-site. All hauling will be considered a necessary and incidental part of the work. Its costs shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.*

~~**101-3.2 Preparation of joints and cracks prior to overlay/surface treatment.** Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch wide with a crack sealant **[** per ASTM D6690 **]**. The crack sealant, preparation, and application~~

~~shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.~~

101-3.3 Removal of Foreign Substances/contaminates prior to remarking. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

For areas to be repainted, the existing painted surface shall be cleaned by high-pressure water blasting or sand blasting, as required, to remove all foreign material that would reduce the bond between the new paint and the old paint.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

~~**a. Repair of concrete spalls in areas to be overlaid with asphalt.** The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches in depth. This method of repair applies only to pavement to be overlaid.~~

~~**b. Asphalt pavement repair.** The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.~~

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed off Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. **Patching.** The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The ~~RPR~~ *Contractor* shall layout the area to be milled with a straightedge in increments of 1-foot widths. *The Contractor's layout shall be approved by the RPR prior to beginning milling operations.* The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

~~**b. Profiling, grade correction, or surface correction.** The milling machine shall have a minimum width of [7] feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to [windrow the millings or cuttings] [remove the millings or cuttings from the pavement and load them into a truck]. All millings shall be removed and disposed of [off the airport] [in areas designated on the plans].~~

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep ~~and/or blow~~ the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

101-3.6. ~~Preparation of asphalt pavement surfaces prior to surface treatment.~~ ~~Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:~~

~~**a.** Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.~~

~~**b.** Repair joints and cracks in accordance with paragraph 101-3.2.~~

~~**c.** Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.~~

~~**d.** Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.~~

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

~~101-3.8 Preparation of Joints in Rigid Pavement prior to resealing.~~ ~~Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the joint and does not damage the joint.~~

~~101-3.8.1 Removal of Existing Joint Sealant.~~ ~~All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.~~

~~101-3.8.2 Cleaning prior to sealing.~~ ~~Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface dry prior to installation of sealant.~~

~~101-3.8.3 Joint sealant.~~ ~~Joint material and installation will be in accordance with [Item P-605] [Item P-604].~~

~~101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing.~~ ~~Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, the method used cleans the cracks and does not damage the pavement.~~

~~101-3.9.1 Preparation of Crack.~~ ~~Widen crack with [router] [random crack saw] by removing a minimum of 1/16 inch from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water free compressed air.~~

~~**101-3.9.2 Removal of Existing Crack Sealant.** Existing sealants will be removed by [routing] [random crack saw]. Following [routing] [sawing] any remaining debris will be removed by use of a hot lance combined with oil and water free compressed air.~~

~~**101-3.9.3 Crack Sealant.** Crack sealant material and installation will be in accordance with [Item P-605].~~

101-3.9.4 Removal of Pipe and other Buried Structures.

a. **Removal of Existing Pipe Material.** Not used.

b. **Removal of Inlets/Manholes.** Not used.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

~~**101-4.2 Joint and crack repair.** The unit of measurement for joint and crack repair shall be the linear foot of joint.~~

101-4.3 Removal of Foreign Substances/contaminates (*Pavement Marking Removal*). The unit of measurement for foreign Substances/contaminates removal shall be the square foot.

~~**101-4.4 Spalled and failed asphalt pavement repair.** The unit of measure for failed asphalt pavement repair shall be square foot.~~

~~**101-4.5 Concrete Spall Repair.** The unit of measure for concrete spall repair shall be the number of square feet. The location and average depth of the patch shall be determined and agreed upon by the RPR and the Contractor.~~

~~**101-4.6 Cold milling.** The unit of measure for cold milling shall be [___] inches of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.]~~

101-4.7 Removal of Pipe and other Buried Structures. Not required.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P-101-5.1	Concrete Pavement Removal - per square yard
Item P-101-5.2	Pavement Marking Removal – per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

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ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

b. Borrow excavation. Borrow excavation shall consist of approved material required for the construction of embankments or for other portions of the work in excess of the quantity of usable material available from required excavations. Borrow material shall be obtained from areas designated by the Resident Project Representative (RPR) within the limits of the airport property but outside the normal limits of necessary grading, or from areas outside the airport boundaries.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed *of off-site or as directed by the RPR.* ~~in designated waste areas as shown on the plans.~~ Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR. *Undercutting of material unsatisfactory for subgrade foundation, roads, shoulders, or areas intended for turfing shall be considered unsuitable excavation and shall be excavated to the depth specified by the Engineer below the subgrade.*

CONSTRUCTION METHODS

152-2.1 General. ~~Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.~~

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of *off site* ~~in waste areas as shown on the plans.~~ All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of

the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Volumetric quantities were calculated using design cross sections which were created for this project using the DTM files of the applicable design surfaces and generating End Area Volume Reports. Paper copies of design cross sections and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor *may* ~~shall~~ verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of *as described in paragraph 152-1.3* ~~shown on the plans~~.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When *the quality of material varies significantly* ~~selective grading is indicated on the plans~~, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be *disposed of as directed in paragraph 152-1.3.* This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable Excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a *necessary part of Unsuitable Excavation* ~~part of the embankment~~. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as Unsuitable Excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of *some* existing structures and utilities required to permit the orderly progress of work *may* ~~will~~ be accomplished by someone other than the Contractor. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans. *All work associated with the excavation, removal, backfill, disposal, and/or stockpiling of existing structures and culverts will not be measured for separate payment but will be considered subsidiary to "Unclassified Excavation".*

~~**152-2.3 Borrow excavation.** Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the RPR. All unsuitable material shall be disposed of by the Contractor as shown on the plans. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.~~

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 95% of maximum density for non-cohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been

accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The Contractor will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D 1557. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the Contractor for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for non-cohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D1557. Under all areas to be paved, the embankments shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 20 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 100 psi in the presence of the RPR. Apply a minimum of 50% coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D1557. Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. **Smoothness.** The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-footstraightedge for the full length of each line on a 50-foot grid.

b. **Grade.** The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the average end areas of design cross sections for computation of neat line design quantities. The end area is that bound by the original ground line established by *the design survey* ~~field cross-sections~~ and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

In cut sections, the additional cut required to construct the topsoil layer to the plan grade has not been measured and will not be measured for separate payment but will be subsidiary to "Unclassified Excavation". In fill sections, the additional fill required to replace the stripped material has not been measured and will not be measured for payment but will be subsidiary to "Unclassified Excavation".

No allowance has been made in the measurement for shrink/swell. The Contractor shall make his own determination as to the amount of shrink/swell involved in the construction of the embankment.

The Contractor shall make his/her own determination as to the suitability of the excavated material to be placed in embankments and the resulting additional off-site material required for the construction of the embankment. Additional off-site material required for the formation of embankment shall not be measured for separate payment but shall be considered subsidiary to "Unclassified Excavation".

Measurement of unclassified and borrow excavation shall be based on ***plan quantities****. These quantities are believed to be correct and shall be utilized for final payment not withstanding any adjustments to the project by written direction of the Engineer. Should the contractor find discrepancies and/or errors, he/she shall bring the discrepancy and/or error to the attention of the Engineer immediately and corrections shall be made to the quantity of excavation to be paid for by change order. It is expressly understood by the contractor that upon disturbance of the existing ground and no notification to the Engineer of possible errors, that the contractor accepts as final payment the quantities of excavation as detailed on the plans and laid out in the proposal.*

No adjustment has been made to the plan quantities for the construction or demolition of existing drainage structures. The Contractor shall make his/her own determination as to the amount of unsuitable excavated material which may be encountered and the resulting additional borrow material required for the construction of the embankment. There will be no adjustment for additional embankment required to construct the project if the excavated material is deemed unsuitable.

152-3.2 The quantity of unclassified excavation to be paid for shall be the number of cubic yards measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.3 The quantity of borrow excavation to be paid for shall be the number of cubic yards measured in its *final* ~~original~~ position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

~~**152-3.4** The quantity of embankment in place shall be the number of cubic yards measured in its final position.~~

152-3.5 Stockpiled material shall not be measured for payment in the stockpiled position.

152-3.6 *Unsuitable excavation shall be measured from the surface of the ground, after stripping has been accomplished, or from the bottom of the planned excavation, to the depth of the excavation as directed by the Engineer. Measurements will be taken by the Engineer, and the volume of excavation will be calculated by the average end area method. The necessary refilling of unsuitable areas will not be measured for separate payment but will be subsidiary to "Unsuitable Excavation". Only that amount of excavation directed by the Engineer will be measured for payment.*

BASIS OF PAYMENT

152-4.1 Unclassified excavation payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

~~**152-4.2** For embankment-in-place, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.~~

~~**152-4.3** Stockpiled material shall be paid for on the basis of the number of cubic yards measured in the stockpiled position.~~

152-4.4 *Unsuitable excavation shall be paid for at the contract unit price bid per cubic yard for "Unsuitable Excavation", which price shall be full compensation for all excavation; for disposal or placement of unsuitable material (in accordance with section 152-1.3), including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.*

Payment will be made under:

Item P-152-4.1	Unclassified Excavation – per cubic yard
Item P-152-4.2	Unsuitable Excavation – per cubic yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

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ITEM P-155 LIME-TREATED SUBGRADE

DESCRIPTION

155-1.1 This item shall be used for soil modification that require strength gain to a specific level. This item shall consist of constructing one or more courses of a mixture of soil, lime, and water in accordance with this specification, and in conformity with the lines, grades, thicknesses, and typical cross-sections shown on the plans. *Dry placing of lime shall not be used. Slurry placement of lime will be the only acceptable method of placement.*

MATERIALS

155-2.1 Lime. Quicklime, hydrated lime, and either high-calcium dolomitic, or magnesium lime, as defined by ASTM C51, shall conform to the requirements of ASTM C977. Lime not produced from calcining limestone is not permitted.

155-2.2 Commercial lime slurry. Commercial lime slurry shall be a pumpable suspension of solids in water. The water or liquid portion of the slurry shall not contain dissolved material injurious or objectionable for the intended purpose. The solids portion of the mixture, when considered on the basis of "solids content," shall consist principally of hydrated lime of a quality and fineness sufficient to meet the following chemical composition and residue requirements.

a. Chemical composition. The "solids content" of the lime slurry shall consist of a minimum of 70%, by weight, of calcium and magnesium oxides.

b. Residue. The percent by weight of residue retained in the "solids content" of lime slurry shall conform to the following requirements:

- Residue retained on a No. 6 (3.35 µm) sieve = maximum 0.0%
- Residue retained on a No. 10 (2.00 µm) sieve = maximum 1.0%
- Residue retained on a No. 30 (600 µm) sieve = maximum 2.5%

c. Grade. Commercial lime slurry shall conform to one of the following two grades:

- Grade 1. The "dry solids content" shall be at least 31% by weight, of the slurry.
- Grade 2. The "dry solids content" shall be at least 35%, by weight, of the slurry.

d. Submittals. *The Contractor shall submit to the Engineer certified test results or manufacturer's certification on the quicklime or lime slurry mix to be used before construction. No work shall begin nor shall any lime or lime slurry be placed for payment until the contractor has submitted samples of the materials intended for use and the materials have been approved by the Engineer.*

155-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

155-2.4 Soil. The soil for this work shall consist of on-site materials free of roots, sod, weeds, and stones larger than 2-1/2 inches and have a sulfate content of less than 0.3%.

COMPOSITION

155-3.1 Soil-lime mixture. Lime shall be applied at 10% dry unit weight of soil for the depth of subgrade treatment as shown on the plans.

155-3.2 Tolerances. At final compaction, the lime and water content for each course of subgrade treatment shall conform to the following tolerances:

TOLERANCES

Material	Tolerance
Lime	+ 0.5%
Water	+ 2%, -0%

WEATHER LIMITATIONS

155-4.1 Weather limitation. Subgrade shall not be constructed when weather conditions detrimentally affect the quality of the materials. Lime shall not be applied unless the air temperature is at least 40°F and rising. Lime shall not be applied to soils that are frozen or contain frost. Protect completed lime-treated areas by approved methods against the detrimental effects of freezing if the air temperature falls below 35°F. Remove and replace any damaged portion of the completed soil-lime treated area with new soil-lime material in accordance with this specification.

EQUIPMENT

155-5.1 Equipment. All equipment necessary to grade, scarify, spread, mix and compact the material shall be provided. The Resident Project Representative (RPR) must approve the Contractor's proposed equipment prior to the start of the treatment.

CONSTRUCTION METHODS

155-6.1 General. This specification is to construct a subgrade consisting of a uniform lime mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth, and have a smooth surface suitable for placing subsequent lifts. The Contractor shall be responsible to meet the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The mixing equipment must give visible indication at all times that it is cutting, pulverizing and mixing the material uniformly to the proper depth over the full width of the cut.

155-6.2 Application. Lime shall be uniformly spread only over an area where the initial mixing operations can be completed during the same work day. Lime shall not be applied when wind conditions are detrimental to proper application. A motor grader shall not be used to spread the lime. Adequate moisture shall be added to the cement/soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

155-6.3 Mixing. The mixing procedure shall be as described below:

a. Preliminary mixing. The full depth of the treated subgrade shall be mixed with an approved mixing machine. Lime shall not be left exposed for more than six (6) hours. The mixing machine shall make two coverages. Water shall be added to the subgrade during mixing to provide a moisture content approximately 3% to 5% above the optimum moisture of the material and to ensure chemical reaction of the lime and subgrade. After mixing, the subgrade shall be lightly rolled to seal the surface and help prevent evaporation of moisture. The water content of the subgrade mixture shall be maintained at a moisture content above the optimum moisture content for a minimum of 4 to 24 hours or until the material becomes friable. During the mellowing period, the material shall be sprinkled as directed by the RPR.

b. Final mixing. After the required mellowing time, the material shall be uniformly mixed by approved methods. Any clods shall be reduced in size by blading, discing, harrowing, scarifying, or by the use of other approved pulverization methods. After curing, pulverize lime treated material until 100% of soil particles pass a one-inch (25.0 mm) sieve and 60% pass the No. 4 (4.75 mm) sieve when tested dry by laboratory sieves. If resultant mixture contains clods, reduce their size by scarifying, remixing, or pulverization to meet specified gradation.

155-6.4 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction

processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

155-6.5 Treatment Application and Depth Checks. The depth and amount of stabilization shall be measured by the Contractor with no less than 2 tests per day of material placed; test shall be witnessed by the RPR. Measurements shall be made in test holes excavated to show the full depth of mixing and the pH checked by spraying the side of the test hole with a pH indicator such as phenolphthalein. Phenolphthalein changes from clear to red between pH 8.3 and 10. The color change indicates the location of the bottom of the mixing zone. pH indicators other than phenolphthalein can be used to measure pH levels. If the pH is not at least 8.3 and/or if the depth of the treated subgrade is more than 1/2 inch deficient, additional lime treatment shall be added and the material remixed. The Contractor shall correct all such areas in a manner satisfactory to the RPR.

155-6.6 Compaction. Compaction of the mixture shall immediately follow the final mixing operation with the mixture compacted within 1 to 4 hours after final mixing. The material shall be at the moisture content specified in paragraph 155-3.2 during compaction. The field density of the compacted mixture shall be at least 93% of the maximum density as specified in paragraph 155-6.10. Perform in-place density test to determine degree of compaction between 24 and 72 hours after final compaction and the 24-hour moist cure period. If the material fails to meet the density requirements, it shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

155-6.7 Finishing and curing. After the final lift or course of lime-treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. The completed section shall then be finished by rolling, as directed by the RPR, with a pneumatic or other suitable roller sufficiently light to prevent hairline cracking. The finished surface shall not vary more than 1/2-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the pavement centerline. Any variations in excess of this tolerance shall be corrected by the Contractor at the Contractor's expense in a manner satisfactory to the RPR.

The completed section shall be moist-cured for a minimum of seven (7) days before further courses are added or any traffic is permitted, unless otherwise directed by the RPR. The final lift should not be exposed for more than 14 days without protection or the placement of a base course material.

155-6.8 Maintenance. The Contractor shall protect and maintain the lime-treated subgrade from yielding until the lime-treated subgrade is covered by placement of the next lift. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The maintenance cost shall be incidental to this item.

155-6.9 Surface tolerance. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

155-6.10 Acceptance sampling and testing. The lime treated subgrade shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one compaction and thickness test per 1,000 square yards of lime treated subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

a. Density. All testing shall be done by the Contractor's laboratory in the presence of the RPR and density test results shall be furnished upon completion to the RPR for acceptance determination.

The field density of the compacted mixture shall be at least 93% of the maximum density of laboratory specimens prepared from samples taken from the material in place. The specimens shall be compacted and tested in accordance with ASTM D698 to determine maximum density and optimum moisture content. The in-place field density shall be determined in accordance with ASTM D6938, Procedure A, direct transmission method. If the material fails to meet the density requirements, the area represented by the failed test shall be reworked to meet the density requirements. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. The thickness of the course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost The Contractor shall replace, at his expense, material where depth tests have been taken.

155-6.11 Handling and safety. The Contractor shall obtain and enforce the lime supplier's instructions for proper safety and handling of the lime to prevent physical eye or skin contact with lime during transport or application.

METHOD OF MEASUREMENT

155-7.1 Lime-treated subgrade shall be paid for by the square yard in the completed and accepted work.

155-7.2 Lime shall be paid by the number of tons of Hydrated Lime applied at the application rate specified in paragraph 155-3.1.

a. Hydrated lime delivered to the project in dry form will be measured according to the actual tonnage either spread on the subgrade or batched on site into a slurry, whichever is applicable.

b. Quicklime delivered to the project in dry form will be measured for payment on the basis of the tons of equivalent hydrated lime using the following formula:

$$\text{Equivalent Hydrated Lime } (Ca(OH)_2) = \text{Total Quicklime } (CaO) \times 1.32$$

c. Lime delivered to the project in slurry form will be measured for payment in tons, dry weight of hydrated lime or equivalent hydrated lime in accordance with paragraph b above.

BASIS OF PAYMENT

155-8.1 Payment shall be made at the contract unit price per square yard for the lime-treated subgrade at the thickness specified. The price shall be full compensation for furnishing all material, except the lime, and for all preparation, delivering, placing and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

155-8.2 Payment shall be made at the contract unit price per ton. This price shall be full compensation for furnishing, delivery, and placing this material.

Payment will be made under:

Item P-155-8.1	Lime-Treated Subgrade (12") - per square yard
Item P-155-8.2	Lime - per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C51	Standard Terminology Relating to Lime and Limestone (as used by the Industry)
ASTM C977	Standard Specification for Quicklime and Hydrated Lime for Soil Stabilization
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3)
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

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ITEM P-208 AGGREGATE BASE COURSE

DESCRIPTION

208-1.1 This item shall consist of a base course composed of course aggregate bonded with fine aggregate base. It shall be constructed on a prepared subgrade or subbase course per these specifications and shall conform to the dimensions and typical cross-section shown on the plans.

MATERIALS

208-2.1 Aggregate base. The aggregate base material shall consist of both fine and coarse aggregate. Material shall be clean, sound, durable particles and fragments of stone or gravel, crushed stone, or crushed gravel mixed or blended with sand, screenings, or other materials. Materials shall be handled and stored in accordance with all federal, state, and local requirements. The aggregate shall be free from clay lumps, organic matter, or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as nearly constant and uniform as practicable. The fine aggregate portion, defined as the portion passing the No. 4 (4.75 mm) sieve produced in crushing operations, shall be incorporated in the base material to the extent permitted by the gradation requirements. Aggregate base material requirements are listed in the following table.

AGGREGATE BASE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 50% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 60% by weight of particles with at least two fractured faces and 75% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

208-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. *The fraction of material passing the No. 200 (75 µm) sieve shall not exceed two-thirds the fraction passing the No. 40 (425 µm) sieve.*

Gradation of Aggregate Base

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances for Contractor's Final Gradation[1] Percent
2 inch (50 mm)	**100**		±0
1-1/2 inch (37.5 mm)	**70-100**		±5
1 inch (25.0 mm)	**55-85**		±8
3/4 inch (19.0 mm)	**50-80**		±8
No. 4 (4.75 mm)	**30-60**		±8
No. 40 (425 µm)	**10-30**		±5
No. 200 (75 µm)	**5-15**		±3

1 The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

208-2.3 Sampling and testing.

a. **Aggregate base materials.** The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraphs 208-2.1 and 208-2.2. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least **two** aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 208-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

208-2.4 Separation Geotextile. Not used.

CONSTRUCTION METHODS

208-3.1 Control strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

208-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage,

the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

208-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 208-3.5, the approved material may be transported directly to the placement.

208-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course layer shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

208-3.5 Compaction. Immediately upon completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least **100%** of the maximum density of laboratory specimens prepared from samples of the subbase material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D1557. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

208-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

208-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at their expense.

208-3.8 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

208-3.9 Acceptance sampling and testing. Aggregate base course shall be accepted for density and thickness on an area basis. Two tests will be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis per ASTM D3665.

a. **Density.** The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

208-4.1 The quantity of aggregate base course shall be measured by the number of square yards of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

208-5.1 Payment shall be made at the contract unit price per square yards for aggregate base course. This price shall be full compensation for furnishing all materials and for all operations, hauling, placing, and compacting of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-208-5.1	6" Aggregate Base Course - per square yards

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

American Association of State Highway and Transportation Officials (AASHTO)

M288	Standard Specification for Geosynthetic Specification for Highway Applications

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ITEM P-501 CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of cement concrete with reinforcement **or** without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross-sections shown on the plans. The terms cement concrete, hydraulic cement concrete, and concrete are interchangeable in this specification.

MATERIALS

501-2.1 Aggregates.

a. Reactivity. Fine and Coarse aggregates to be used in PCC on this project shall be tested and evaluated by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Tests must be representative of aggregate sources which will be providing material for production. ASTM C1260 and ASTM C1567 tests may be run concurrently.

(1) Coarse aggregate and fine aggregate shall be tested separately in accordance with ASTM C1260, however, the length of test shall be extended to 28 days (30 days from casting). Tests must have been completed within 6 months of the date of the concrete mix submittal.

(2) The combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

(3) If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) Concrete Research Division (CRD) C662 in lieu of ASTM C1567. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

b. Fine aggregate. Grading of the fine aggregate, as delivered to the mixer, shall conform to the requirements of ASTM C33 and the parameters identified in the fine aggregate material requirements below. Fine aggregate material requirements and deleterious limits are shown in the table below.

Fine Aggregate Material Requirements		
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Sand Equivalent	45 minimum	ASTM D2419
Fineness Modulus (FM)	2.50 ≤ FM ≤ 3.40	ASTM C136
Limits for Deleterious Substances in Fine Aggregate for Concrete		
Clay lumps and friable particles	1.0% maximum	ASTM C142
Coal and lignite	0.5% using a medium with a density of Sp. Gr. of 2.0	ASTM C123
Total Deleterious Material	1.0% maximum	

c. Coarse aggregate. The maximum size coarse aggregate shall be 1-1/2-inch.

Aggregates delivered to the mixer shall be clean, hard, uncoated aggregates consisting of crushed stone, crushed or uncrushed gravel, air-cooled iron blast furnace slag, crushed recycled concrete pavement, or a combination. The aggregates shall have no known history of detrimental pavement staining. Steel blast furnace slag shall not be permitted. Coarse aggregate material requirements and deleterious limits are shown in the table below; washing may be required to meet aggregate requirements.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 for any size group coarser than 3/8 (9.5 mm) sieve [1]	ASTM D4791
Bulk density of slag [2]	Weigh not less than 70 pounds per cubic foot (1.12 Mg/cubic meter)	ASTM C29
D-cracking (Freeze-Thaw)[3]	Durability factor ≥ 95	ASTM C666

[1] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

[2] Only required if slag is specified.

[3] Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification

and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

The amount of deleterious material in the coarse aggregate shall not exceed the following limits:

Limits for Deleterious Substances in Coarse Aggregate

Deleterious material	ASTM	Percentage by Mass
Clay Lumps and friable particles	ASTM C142	1.0
Material finer than No. 200 sieve (75 µm)	ASTM C117	1.0[1]
Lightweight particles	ASTM C123 using a medium with a density of Sp. Gr. of 2.0	0.5
Chert[2] (less than 2.40 Sp Gr.)	ASTM C123 using a medium with a density of Sp. Gr. of 2.40)	1.0
Total of all deleterious Material		3.0[1]

[1] The limit for material finer than 75-µm is allowed to be increased to 1.5% for crushed aggregates consisting of dust of fracture that is essentially free from clay or shale. Test results supporting acceptance of increasing limit to 1.5% with statement indicating material is dust of fracture must be submitted with Concrete mix. Acceptable techniques to characterizing these fines include methylene blue adsorption or X-ray diffraction analysis. The total of all deleterious materials increases up to 3.5%.

[2] Chert and aggregates with less than 2.4 specific gravity.

[3] The limit for chert may be limited to 0.1 percent by mass in areas subject to severe freeze and thaw.

d. Combined aggregate gradation. This specification is targeted for a combined aggregate gradation developed following the guidance presented in United States Air Force Engineering Technical Letter (ETL) 97-5: Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements. Base the aggregate grading upon a combination of all the aggregates (coarse and fine) to be used for the mixture proportioning. Three aggregate sizes may be required to achieve an optimized combined gradation that will produce a workable concrete mixture for its intended use. Use aggregate gradations that produce concrete mixtures with well-graded or optimized aggregate combinations. The Contractor shall submit complete mixture information necessary to calculate the volumetric components of the mixture. The combined aggregate grading shall meet the following requirements:

(1) The materials selected and the proportions used shall be such that when the Coarseness Factor (CF) and the Workability Factor (WF) are plotted on a diagram as described in paragraph 501-2.1d(4) below, the point thus determined shall fall within the parallelogram described therein.

(2) The CF shall be determined from the following equation:

CF = (cumulative percent retained on the 3/8 in. (9.5 mm) sieve)(100) / (cumulative percent retained on the No. 8 (2.36 mm) sieve)

(3) The WF is defined as the percent passing the No. 8 (2.36 mm) sieve based on the combined gradation. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds (42 kg) of cementitious material per cubic meter yard greater than 564 pounds per cubic yard (335 kg per cubic meter).

(4) A diagram shall be plotted using a rectangular scale with WF on the Y-axis with units from 20 (bottom) to 45 (top), and with CF on the X-axis with units from 80 (left side) to 30 (right side). On this diagram a parallelogram shall be plotted with corners at the following coordinates (CF-75, WF-28), (CF-75, WF-40), (CF-45, WF-32.5), and (CF-45, WF-44.5). If the point determined by the intersection of the computed CF and WF does not fall within the above parallelogram, the grading of each size of aggregate used and the proportions selected shall be changed as necessary. The point determined by the plotting of

the CF and WF may be adjusted during production ±3 WF and ±5 CF. Adjustments to gradation may not take the point outside of the parallelogram.

e. Contractors combined aggregate gradation. The Contractor shall submit their combined aggregate gradation using the following format:

Contractor's Combined Aggregate Gradation

Sieve Size	Contractor's Concrete mix Gradation (Percent passing by weight)
2 inch (50 mm)	*
1-1/2 inch (37.5 mm)	*
1 inch (25.0 mm)	*
3/4 inch (19.0 mm)	*
1/2 inch (12.5 mm)	*
3/8 inch (9.5 mm)	*
No. 4 (4.75 mm)	*
No. 8 (2.36 mm)	*
No. 16 (1.18 mm)	*
No. 30 (600 µm)	*
No. 50 (300 µm)	*
No. 100 (150 µm)	*

501-2.2 Cement. Cement shall conform to the requirements of ASTM **C150** Type **II**.

501-2.3 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total alkali content less than 3% per ASTM C311. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Resident Project Representative (RPR).

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

c. Raw or calcined natural pozzolan. Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

501-2.4 Joint seal. The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-605 and shall be of the type specified in the plans.

501-2.5 Isolation joint filler. Premolded joint filler for isolation joints shall conform to the requirements of ~~*ASTM D1751 or*~~ ASTM D1752, *Type II* and shall be where shown on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified

by the RPR. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the RPR.

501-2.6 Steel reinforcement. Reinforcing shall consist of deformed and plain carbon steel bars conforming to the requirements of ASTM A615.

501-2.7 Dowel and tie bars. Dowel bars shall be plain steel bars conforming to ASTM A615 and shall be free from burring or other deformation restricting slippage in the concrete.

a. Dowel Bars. Before delivery to the construction site each dowel bar shall be epoxy coated per ASTM A1078, Type 1, with a coating thickness after curing greater than 10 mils. Patched ends are not required for Type 1 coated dowels. The dowels shall be coated with a bond-breaker recommended by the manufacturer. Dowel sleeves or inserts are not permitted. Grout retention rings shall be fully circular metal or plastic devices capable of supporting the dowel until the grout hardens.

b. Tie Bars. Tie bars shall be deformed steel bars and conform to the requirements of ASTM A615. Tie bars designated as Grade 60 in ASTM A615 or ASTM A706 shall be used for construction requiring bent bars.

501-2.8 Water. Water used in mixing or curing shall be potable. If water is taken from other sources considered non-potable, it shall meet the requirements of ASTM C1602.

501-2.9 Material for curing concrete. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C309, Type 2, Class A, or Class B.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C171.

501-2.10 Admixtures. Admixtures shall conform to the following specifications:

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entraining agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D.

c. Other admixtures. The use of set retarding and set-accelerating admixtures shall be approved by the RPR prior to developing the concrete mix. Retarding admixtures shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating admixtures shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

d. Lithium Nitrate. The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

Lithium Admixture

Constituent	Limit (Percent by Mass)
LiNO3 (Lithium Nitrate)	30 ±0.5
SO4 (Sulfate Ion)	0.1 (max)
Cl (Chloride Ion)	0.2 (max)
Na (Sodium Ion)	0.1 (max)
K (Potassium Ion)	0.1 (max)

The lithium nitrate admixture dispensing and mixing operations shall be verified and certified by the lithium manufacturer's representative.

501-2.11 Epoxy-resin. All epoxy-resin materials shall be two-component materials conforming to the requirements of ASTM C881, Class as appropriate for each application temperature to be encountered, except that in addition, the materials shall meet the following requirements:

a. Material for use for embedding dowels and anchor bolts shall be Type IV, Grade 3.

b. Material for use as patching materials for complete filling of spalls and other voids and for use in preparing epoxy resin mortar shall be Type III, Grade as approved.

c. Material for use for injecting cracks shall be Type IV, Grade 1.

d. Material for bonding freshly mixed Portland cement concrete or mortar or freshly mixed epoxy resin concrete or mortar to hardened concrete shall be Type V, Grade as approved.

501-2.12 Bond Breaker. Choke stone shall be an ASTM C33 Number 89 stone.

CONCRETE MIX

501-3.1. General. No concrete shall be placed until an acceptable concrete mix has been submitted to the RPR for review and the RPR has taken appropriate action. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

501-3.2 Concrete Mix Laboratory. The laboratory used to develop the concrete mix shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix must be included in the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the RPR prior to start of construction.

501-3.3 Concrete Mix Proportions. Develop the mix using the procedures contained in Portland Cement Association (PCA) publication, "Design and Control of Concrete Mixtures." Concrete shall be proportioned to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-6.6 for a flexural strength of **650** psi per ASTM C78.

The minimum cementitious material shall be adequate to ensure a workable, durable mix. The minimum cementitious material (cement plus fly ash, or slag cement) shall be **470** pounds per cubic yard. The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall be between 0.38 – 0.45 by weight.

Flexural strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM C78. At the start of the project, the Contractor shall determine an allowable slump as determined by ASTM C143 not to exceed 2 inches for slip-form placement. For fixed-form placement, the slump shall not exceed 3 inches. For hand placement, the slump shall not exceed 4 inches.

The results of the concrete mix shall include a statement giving the maximum nominal coarse aggregate size and the weights and volumes of each ingredient proportioned on a one cubic yard (meter) basis. Aggregate quantities shall be based on the mass in a saturated surface dry condition.

If a change in source(s) is made, or admixtures added or deleted from the mix, a new concrete mix must be submitted to the RPR for approval.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

501-3.4 Concrete Mix submittal. The concrete mix shall be submitted to the RPR at least 30 days prior to the start of operations. The submitted concrete mix shall not be more than 180 days old and must use the materials to be used for production for the project. Production shall not begin until the concrete mix is approved in writing by the RPR.

Each of the submitted concrete mixes (i.e, slip form, side form machine finish and side form hand finish) shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items and quantities as a minimum:

- Certified material test reports for aggregate in accordance with paragraph 501-2.1. Certified reports must include all tests required; reporting each test, test method, test result, and requirement specified (criteria).
- Combined aggregate gradations and analysis; and including plots of the fine aggregate fineness modulus.
- Reactivity Test Results.
- Coarse aggregate quality test results, including deleterious materials.
- Fine aggregate quality test results, including deleterious materials.
- Mill certificates for cement and supplemental cementitious materials.
- Certified test results for all admixtures, including Lithium Nitrate if applicable.
- Specified flexural strength, slump, and air content.
- Recommended proportions/volumes for proposed mixture and trial water-cementitious materials ratio, including actual slump and air content.
- Flexural and compressive strength summaries and plots, including all individual beam and cylinder breaks.
- Correlation ratios for acceptance testing and Contractor QC testing, when applicable.
- Historical record of test results documenting production standard deviation, when applicable.

501-3.5 Cementitious materials.

a. Fly ash. When fly ash is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If fly ash is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement may be used. The slag cement, or slag cement plus fly ash if both are used, may constitute between 25 to 55% of the total cementitious material by weight.

c. Raw or calcined natural pozzolan. Natural pozzolan may be used in the concrete mix. When pozzolan is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If pozzolan is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

501-3.6 Admixtures.

a. Air-entraining admixtures. Air-entraining admixture are to be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be **4.5%**. Air content shall be determined by testing in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag and other highly porous coarse aggregate.

b. Water-reducing admixtures. Water-reducing admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

c. Other admixtures. Set controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

d. Lithium nitrate. Lithium nitrate shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements in accordance with paragraph 501-2.10d.

CONSTRUCTION METHODS

501-4.1 Control Strip. The control strip(s) shall be to the next planned joint after the initial 250 feet of each type of pavement construction (slip-form pilot lane, slip-form fill-in lane, or fixed form). The Contractor shall demonstrate, in the presence of the RPR, that the materials, concrete mix, equipment, construction processes, and quality control processes meet the requirements of the specifications. The concrete mixture shall be extruded from the paver meeting the edge slump tolerance and with little or no finishing. Pilot, fill-in, and fixed-form control strips will be accepted separately. Minor adjustments to the mix design may be required to place an acceptable control strip. The production mix will be the adjusted mix design used to place the acceptable control strip. Upon acceptance of the control strip by the RPR, the Contractor must use the same equipment, materials, and construction methods for the remainder of concrete paving. Any adjustments to processes or materials must be approved in advance by the RPR. The acceptable control strip shall be paid for in accordance with paragraph 501-6.6.

501-4.2 Equipment. The Contractor is responsible for the proper operation and maintenance of all equipment necessary for handling materials and performing all parts of the work to meet this specification.

a. Plant and equipment. The plant and mixing equipment shall conform to the requirements of ASTM C94 and/or ASTM C685. Each truck mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades. The truck mixers shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

Equipment for transferring and spreading concrete from the transporting equipment to the paving lane in front of the finishing equipment shall be provided. The equipment shall be specially manufactured, self-propelled transfer equipment which will accept the concrete outside the paving lane and will spread it evenly across the paving lane in front of the paver and strike off the surface evenly to a depth which permits the paver to operate efficiently.

b. Finishing equipment.

(1) Slip-form. The standard method of constructing concrete pavements shall be with an approved slip-form paving equipment designed and operated to spread, consolidate, screed, and finish the freshly

placed concrete in one complete pass of the machine so that the end result is a dense and homogeneous pavement which is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements.

(2) Fixed-form. On projects requiring less than 10,000 cubic yard of concrete pavement or irregular areas at locations inaccessible to slip-form paving equipment, concrete pavement may be placed with equipment specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR. Hand screeding and float finishing may only be used on small irregular areas as allowed by the RPR.

c. Vibrators. Vibrator shall be the internal type. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation or voids. The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of American Concrete Institute (ACI) 309R, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The Contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the RPR.

Hand held vibrators may only be used in irregular areas and shall meet the recommendations of ACI 309R, Guide for Consolidation of Concrete.

d. Concrete saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

e. Fixed forms. Straight side fixed forms shall be made of steel and shall be furnished in sections not less than 10 feet in length. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the RPR. The top face of the form shall not vary from a true plane more than 1/8 inch in 10 feet, and the upstanding leg shall not vary more than 1/4 inch. The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the RPR. The forms shall extend the full depth of the pavement section.

501-4.3 Form setting. Forms shall be set to line and grade as shown on the plans, sufficiently in advance of the concrete placement, to ensure continuous paving operation. Forms shall be set to withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the concrete placement.

501-4.4 Base surface preparation prior to placement. Any damage to the prepared base, subbase, and subgrade shall be corrected full depth by the Contractor prior to concrete placement. The underlying surface shall be entirely free of frost when concrete is placed. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete.

501-4.5 Handling, measuring, and batching material. Aggregate stockpiles shall be constructed and managed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Store and maintain all aggregates at a uniform moisture content prior to use. A continuous supply of materials shall be provided to the work to ensure continuous placement.

501-4.6 Mixing concrete. The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time

all materials are placed into the drum until the drum is emptied into the truck. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C94 or ASTM C685.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is discharged from the truck should not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. In no case shall the temperature of the concrete when placed exceed 90°F. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified is not exceeded.

501-4.7 Weather Limitations on mixing and placing. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold weather. Unless authorized in writing by the RPR, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50°F at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150°F. The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

Curing during cold weather shall be in accordance with paragraph 501-4.13d.

b. Hot weather. During periods of hot weather when the maximum daily air temperature exceeds 85°F, the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90°F. The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The concrete placement shall be protected from exceeding an evaporation rate of 0.2 per hour. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. If the Contractor's measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

Curing during hot weather shall be in accordance with paragraph 501-4.13e.

c. Temperature management program. Prior to the start of paving operation for each day of paving, the Contractor shall provide the RPR with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. (Federal Highway Administration HIPERPAV 3 is one example of a temperature management program.) As a minimum, the program shall address the following items:

(1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

(2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity; and anticipated evaporation rate using Figure 19-9, PCA, Design and Control of Concrete Mixtures.

(3) Anticipated timing of initial sawing of joint.

(4) Anticipated number and type of saws to be used.

d. **Rain.** The Contractor shall have available materials for the protection of the concrete during inclement weather. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.8 Concrete Placement. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet. The finished concrete product must be dense and homogeneous, without segregation and conforming to the standards in this specification. Backhoes and grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used. All concrete shall be consolidated without voids or segregation, including under and around all load-transfer devices, joint assembly units, and other features embedded in the pavement. Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards concrete placed. The Contractor must determine that the above minimum strengths are adequate to protection the pavement from overloads due to the construction equipment proposed for the project.

The Contractor shall have available materials for the protection of the concrete during cold, hot and/or inclement weather in accordance with paragraph 501-4.7.

a. Slip-form construction. The concrete shall be distributed uniformly into final position by a self-propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well-defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms. The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 for slip form and at the end of the dowels for the fill-in lanes. The spacing of internal units shall be uniform and shall not exceed 18 inches.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without, segregation, voids, or vibrator trails and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one foot. The frequency of vibration or amplitude should be adjusted proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible and all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

Not more than 15% of the total free edge of each 500-foot segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch, and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch. (The total free edge of 500 feet of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet of paving lane originally constructed as a separate lane will have 1,000 feet of free edge, 500 feet of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches from the edge.

When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump will be removed the full width of the slip form lane and replaced at the expense of the Contractor as directed by the RPR.

b. Fixed-form construction. Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars / dowel bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and coated with a release agent each time they are used and before concrete is placed against them.

Concrete shall be spread, screed, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross-section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery. The equipment must be specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR.

Concrete for the full paving width shall be effectively consolidated by internal vibrators. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation, voids, or leaving vibrator trails.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

c. Consolidation. Concrete shall be consolidated with the specified type of lane-spanning, gang-mounted, mechanical, immersion type vibrating equipment mounted in front of the paver, supplemented, in rare instances as specified, by hand-operated vibrators. The vibrators shall be inserted into the concrete to a depth that will provide the best full-depth consolidation but not closer to the underlying material than 2 inches. Vibrators shall not be used to transport or spread the concrete. For each paving train, at least one additional vibrator spud, or sufficient parts for rapid replacement and repair of vibrators shall be maintained at the paving site at all times. Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) or over-consolidation (vibrator trails, segregation, or any other evidence) shall require the immediate stopping of the paving operation and adjustment of the equipment or procedures as approved by the RPR.

If a lack of consolidation of the hardened concrete is suspected by the RPR, referee testing may be required. Referee testing of hardened concrete will be performed by the RPR by cutting cores from the finished pavement after a minimum of 24 hours curing. The RPR shall visually examine the cores for evidence of lack of consolidation. Density determinations will be made by the RPR based on the water content of the core as taken. ASTM C642 shall be used for the determination of core density in the saturated-surface dry condition. When required, referee cores will be taken at the minimum rate of one for

each 500 cubic yards of pavement, or fraction. The Contractor shall be responsible for all referee testing cost if they fail to meet the required density.

The average density of the cores shall be at least 97% of the original concrete mix density, with no cores having a density of less than 96% of the original concrete mix density. Failure to meet the referee tests will be considered evidence that the minimum requirements for vibration are inadequate for the job conditions. Additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete conforms to the above requirements.

501-4.9 Strike-off of concrete and placement of reinforcement. Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the plans and to an elevation that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screed. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 Joints. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2-inch from their designated position and shall be true to line with not more than 1/4-inch variation in 10 feet. The surface across the joints shall be tested with a 12-foot straightedge as the joints are finished and any irregularities in excess of 1/4 inch shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch wide and to the depth shown on the plans.

c. Isolation (expansion). Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint. The filler shall be fastened uniformly along the hardened joint face with no buckling or debris between the filler and the concrete interface, including a temporary filler for the sealant reservoir at the top of the slab. The edges of the joint shall be finished and tooled while the concrete is still plastic

d. Dowels and Tie Bars for Joints

(1) Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth and within the tolerances in paragraph 501-4.10(f.). When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. Tie bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed.

(2) Dowel bars. Dowel bars shall be placed across joints in the proper horizontal and vertical alignment as shown on the plans. The dowels shall be coated with a bond-breaker or other lubricant recommended by the manufacturer and approved by the RPR. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

(3) Placing dowels and tie bars. Horizontal spacing of dowels shall be within a tolerance of ±3/4 inch. The vertical location on the face of the slab shall be within a tolerance of ±1/2 inch. The method used to install dowels shall ensure that the horizontal and vertical alignment will not be greater than 1/4 inch per feet, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge. The portion of each dowel intended to move within the concrete or expansion cap shall be wiped clean and coated with a thin, even film of lubricating oil or light grease before the concrete is placed. Dowels shall be installed as specified in the following subparagraphs.

(a) Contraction joints. Dowels and tie bars in longitudinal and transverse contraction joints within the paving lane shall be held securely in place by means of rigid metal frames or basket assemblies of an approved type. The basket assemblies shall be held securely in the proper location by means of suitable pins or anchors. Do not cut or crimp the dowel basket tie wires.

At the Contractor's option, dowels and tie bars in contraction joints may be installed by insertion into the plastic concrete using approved equipment and procedures per the paver manufacturer's design. Approval of installation methods will be based on the results of the control strip showing that the dowels and tie bars are installed within specified tolerances as verified by cores or non-destructive rebar location devices approved by the RPR.

(b) Construction joints. Install dowels and tie bars by the cast-in- place or the drill-and-dowel method. Installation by removing and replacing in preformed holes will not be permitted. Dowels and tie bars shall be prepared and placed across joints where indicated, correctly aligned, and securely held in the proper horizontal and vertical position during placing and finishing operations, by means of devices fastened to the forms.

(c) Joints in hardened concrete. Install dowels in hardened concrete by bonding the dowels into holes drilled into the concrete. The concrete shall have cured for seven (7) days or reached a minimum flexural strength of 450 psi before drilling begins. Holes 1/8 inch (3 mm) greater in diameter than the dowels shall be drilled into the hardened concrete using rotary-core drills. Rotary-percussion drills may be used, provided that excessive spalling does not occur. Spalling beyond the limits of the grout retention ring will require modification of the equipment and operation. Depth of dowel hole shall be within a tolerance of ±1/2 inch of the dimension shown on the drawings. On completion of the drilling operation, the dowel hole shall be blown out with oil-free, compressed air. Dowels shall be bonded in the drilled holes using epoxy resin. Epoxy resin shall be injected at the back of the hole before installing the dowel and extruded to the collar during insertion of the dowel so as to completely fill the void around the dowel. Application by buttering the dowel will not be permitted. The dowels shall be held in alignment at the collar of the hole by means of a suitable metal or plastic grout retention ring fitted around the dowel.

e. Sawing of joints. Sawing shall commence, without regard to day or night, as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs and shall continue without interruption until all joints have been sawn. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing. Curing compound or system shall be reapplied in the initial saw-cut and maintained for the remaining cure period.

Joints shall be cut in locations as shown on the plans. The initial joint cut shall be a minimum 1/8 inch wide and to the depth shown on the plans. Prior to placement of joint sealant or seals, the top of the joint shall be widened by sawing as shown on the plans.

501-4.11 Finishing. Finishing operations shall be a continuing part of placing operations starting immediately behind the strike-off of the paver. Initial finishing shall be provided by the transverse screed or extrusion plate. The sequence of operations shall be transverse finishing, longitudinal machine floating if used, straightedge finishing, edging of joints, and then texturing. Finishing shall be by the machine method. The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum. Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Compensation shall be made for surging behind the screeds or extrusion plate and settlement during hardening and care shall be taken to ensure that paving and finishing machines are properly adjusted so that the finished surface of the concrete (not just the cutting edges of the screeds) will be at the required line and grade. Finishing equipment and tools shall be maintained clean and in an approved condition. At no time shall water be added to the surface of the slab with the finishing equipment or tools, or in any other way. Fog (mist) sprays or other surface applied finishing aids specified to prevent plastic shrinkage cracking, approved by the RPR, may be used in accordance with the manufacturers requirements.

a. Machine finishing with slipform pavers. The slipform paver shall be operated so that only a very minimum of additional finishing work is required to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary. A self-propelled non-rotating pipe float may be used while the concrete is still plastic, to remove minor irregularities and score marks. Only one pass of the pipe float shall be allowed. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Remove excessive slurry from the surface with a cutting straightedge and wipe off the edge. Any slurry which does run down the vertical edges shall be immediately removed by hand, using stiff brushes or scrapers. No slurry, concrete or concrete mortar shall be used to build up along the edges of the pavement to compensate for excessive edge slump, either while the concrete is plastic or after it hardens.

b. Machine finishing with fixed forms. The machine shall be designed to straddle the forms and shall be operated to screed and consolidate the concrete. Machines that cause displacement of the forms shall be replaced. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operation shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary.

c. Other types of finishing equipment. Clary screeds, other rotating tube floats, or bridge deck finishers are not allowed on mainline paving, but may be allowed on irregular or odd-shaped slabs, and near buildings or trench drains, subject to the RPR's approval.

Bridge deck finishers shall have a minimum operating weight of 7500 pounds and shall have a transversely operating carriage containing a knock-down auger and a minimum of two immersion vibrators. Vibrating screeds or pans shall be used only for isolated slabs where hand finishing is permitted as specified, and only where specifically approved.

d. Hand finishing. Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade and (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical.

e. Straightedge testing and surface correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a 12-foot finishing straightedge swung from handles capable of spanning at least one-half the width of the slab. The straightedge shall be held in contact

with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross-section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

501-4.12 Surface texture. The surface of the pavement shall be finished as designated below for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. The texture shall be uniform in appearance and approximately 1/16 inch (2 mm) in depth. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the RPR.

a. Brush or broom finish. Shall be applied when the water sheen has practically disappeared. The equipment shall operate transversely across the pavement surface.

b. Burlap drag finish. Not used.

c. Artificial turf finish. Not used.

501-4.13 Curing. Immediately after finishing operations are completed and bleed water is gone from the surface, all exposed surfaces of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-saw-cut method is used to construct the contraction joint, the curing compound shall be applied to the saw-cut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious membrane method. Curing with liquid membrane compounds should not occur until bleed and surface moisture has evaporated. All exposed surfaces of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of one gallon to not more than 150 square feet. The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application, the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the RPR, a double application rate shall be used to ensure coverage. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. White burlap-polyethylene sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for seven (7) days after the concrete has been placed.

~~**c. Water method.** The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for seven (7) days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.~~

d. Concrete protection for cold weather. Maintain the concrete at a temperature of at least 50°F for a period of 72 hours after placing and at a temperature above freezing for the remainder of the 7-day curing period. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather; and any concrete damaged shall be removed and replaced at the Contractor's expense.

e. Concrete protection for hot weather. Concrete should be continuous moisture cured for the entire curing period and shall commence as soon as the surfaces are finished and continue for at least 24 hours. However, if moisture curing is not practical beyond 24 hours, the concrete surface shall be protected from drying with application of a liquid membrane-forming curing compound while the surfaces are still damp. Other curing methods may be approved by the RPR.

501-4.14 Removing forms. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured in accordance with paragraph 501-4.13.

If honeycombed areas are evident when the forms are removed, materials, placement, and consolidation methods must be reviewed and appropriate adjustments made to assure adequate consolidation at the edges of future concrete placements. Honeycombed areas that extend into the slab less than approximately 1 inch, shall be repaired with an approved grout, as directed by the RPR. Honeycombed areas that extend into the slab greater than a depth of 1 inch shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-4.19.

501-4.15 Saw-cut grooving. If shown on the plans, grooved surfaces shall be provided in accordance with the requirements of Item P-621.

501-4.16 Sealing joints. The joints in the pavement shall be sealed in accordance with Item P-605.

501-4.17 Protection of pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents until accepted by the RPR. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

Aggregates, rubble, or other similar construction materials shall not be placed on airfield pavements. Traffic shall be excluded from the new pavement by erecting and maintaining barricades and signs until the concrete is at least seven (7) days old, or for a longer period if directed by the RPR.

In paving intermediate lanes between newly paved pilot lanes, operation of the hauling and paving equipment will be permitted on the new pavement after the pavement has been cured for seven (7) days, the joints are protected, the concrete has attained a minimum field cured flexural strength of 450 psi (3100 kPa), and the slab edge is protected.

All new and existing pavement carrying construction traffic or equipment shall be kept clean and spillage of concrete and other materials shall be cleaned up immediately.

Damaged pavements shall be removed and replaced at the Contractor's expense. Slabs shall be removed to the full depth, width, and length of the slab.

501-4.18 Opening to construction traffic. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a flexural strength of 450 pounds per square inch when tested in accordance with ASTM C78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion

of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion.

501-4.19 Repair, removal, or replacement of slabs. New pavement slabs that are broken or contain cracks or are otherwise defective or unacceptable as defined by acceptance criteria in paragraph 501-6.6 shall be removed and replaced or repaired, as directed by the RPR, at the Contractor's expense. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The RPR will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be have a diameter of 2 inches to 4 inches, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with a bonding agent, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the Owner. Repair of cracks as described in this section shall not be allowed if in the opinion of the RPR the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of cracks shall be allowed in any panel that demonstrates segregated aggregate with an absence of coarse aggregate in the upper 1/8 inch of the pavement surface.

a. Shrinkage cracks. Shrinkage cracks which do not exceed one-third of the pavement depth shall be cleaned and either high molecular weight methacrylate (HMWM) applied; or epoxy resin (Type IV, Grade 1) pressure injected using procedures recommended by the manufacturer and approved by the RPR. Sandblasting of the surface may be required following the application of HMWM to restore skid resistance. Care shall be taken to ensure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the RPR. Shrinkage cracks which exceed one-third the pavement depth shall be treated as full depth cracks in accordance with paragraphs 501-4.19b and 501-19c.

b. Slabs with cracks through interior areas. Interior area is defined as that area more than 6 inches (150 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the Owner, when there are any full depth cracks, or cracks greater than one-third the pavement depth, that extend into the interior area.

c. Cracks close to and parallel to joints. All full-depth cracks within 6 inches either side of the joint and essentially parallel to the original joints, shall be treated as follows.

(1) Full depth cracks and original joint not cracked. The full-depth crack shall be treated as the new joint and the original joint filled with an epoxy resin.

i. Full-depth crack. The joint sealant reservoir for the crack shall be formed by sawing to a depth of 3/4 inches, ±1/16 inch, and to a width of 5/8 inch, ±1/8 inch. The crack shall be sawed with equipment specially designed to follow random cracks. Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent raveling or spalling. The joint shall be sealed with sealant in accordance with P-605 or as directed by the RPR.

ii. Original joint. If the original joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures.

Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full depth cracks and original joint cracked. If there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced.

d. Removal and replacement of full slabs. Make a full depth cut perpendicular to the slab surface along all edges of the slab with a concrete saw cutting any dowels or tie-bars. Remove damaged slab

protecting adjacent pavement from damage. Damage to adjacent slabs may result in removal of additional slabs as directed by the RPR at the Contractor's expense.

The underlying material shall be repaired, re-compacted and shaped to grade.

Dowels of the size and spacing specified for other joints in similar pavement on the project shall be installed along all four (4) edges of the new slab in accordance with paragraph 501-4.10d.

Placement of concrete shall be as specified for original construction. The joints around the new slab shall be prepared and sealed as specified for original construction.

e. Spalls along joints.

(1) Spalls less than one inch wide and less than the depth of the joint sealant reservoir, shall be filled with joint sealant material.

(2) Spalls larger than one inch and/or deeper than the joint reservoir, but less than ½ the slab depth, and less than 25% of the length of the adjacent joint shall be repaired as follows:

i. Make a vertical saw cut at least one inch (25 mm) outside the spalled area and to a depth of at least 2 inches (50 mm). Saw cuts shall be straight lines forming rectangular areas surrounding the spalled area.

ii. Remove unsound concrete and at least 1/2 inch (12 mm) of visually sound concrete between the saw cut and the joint or crack with a light chipping hammer.

iii. Clean cavity with high-pressure water jets supplemented with compressed air as needed to remove all loose material.

iv. Apply a prime coat of epoxy resin, Type III, Grade I, to the dry, cleaned surface of all sides and bottom of the cavity, except any joint face.

v. Fill the cavity with low slump concrete or mortar or with epoxy resin concrete or mortar.

vi. An insert or other bond-breaking medium shall be used to prevent bond at all joint faces.

vii. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints.

(3) Spalls deeper than 1/2 of the slab depth or spalls longer than 25% of the adjacent joint require replacement of the entire slab.

f. Diamond grinding of Concrete surfaces. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding of the hardened concrete should not be performed until the concrete is at least 14 days old and has achieved full minimum strength. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. The depth of diamond grinding shall not exceed 1/2 inch and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified.

Diamond grinding shall be performed with a machine specifically designed for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with sufficient number of flush cut blades that create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The Contractor shall determine the number and type of blades based on the hardness of the aggregate. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces.

Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. All grinding shall be at the expense of the Contractor.

CONTRACTOR QUALITY CONTROL (CQC)

501-5.1 Quality control program. The Contractor shall develop a Quality Control Program in accordance with Item C-100. No partial payment will be made for materials that are subject to specific quality control requirements without an approved quality control program.

501-5.2 Contractor Quality Control (CQC). The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

501-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to this specification and as set forth in the CQCP. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content. A QC Testing Plan shall be developed and approved by the RPR as part of the CQCP.

The RPR may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

a. Fine aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C70 or ASTM C566.

(3) Deleterious substances. Fine aggregate as delivered to the mixer shall be tested for deleterious substances in fine aggregate for concrete as specified in paragraph 501-2.1b, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C566.

(3) Deleterious substances. Coarse aggregate as delivered to the mixer shall be tested for deleterious substances in coarse aggregate for concrete as specified in paragraph 501-2.1c, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

c. Slump. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

d. Air content. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

e. Unit weight and Yield. One test shall be made for each sublot. Unit weight and yield tests shall be in accordance with ASTM C138. The samples shall be taken in accordance with ASTM C172 and at the same time as the air content tests.

f. Temperatures. Temperatures shall be checked at least four times per lot at the job site in accordance with ASTM C1064.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot straightedge or a rolling inclinometer meeting the requirements of ASTM E2133. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer is used, the data may be evaluated using the FAA profile program, ProFAA, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 ft or greater.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 501-6.6.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade will be evaluated prior to and after placement of the concrete surface.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch (12 mm) vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR by the end of the following working day.

Areas with humps or depression that that exceed grade or smoothness and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the

thickness specified on the plans. If these areas cannot be corrected with grinding then the slabs that are retaining water must be removed and replaced in accordance with paragraph 501-4.19d. Grinding shall be in accordance with paragraph 501-4.19f. All corrections will be at the Contractors expense.

501-5.4 Control charts. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, slump, and air content. The Contractor shall also maintain a control chart plotting the coarseness factor/workability factor from the combined gradations in accordance with paragraph 501-2.1d.

Control charts shall be posted in a location satisfactory to the RPR and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the RPR may halt production or acceptance of the material.

a. Fine and coarse aggregate gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Superimposed on the control charts shall be the action and suspension limits. Gradation tests shall be performed by the Contractor per ASTM C136. The Contractor shall take at least two samples per lot to check the final gradation. Sampling shall be per ASTM D75 from the flowing aggregate stream or conveyor belt.

b. Slump and air content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

c. Combined gradation. The Contractor shall maintain a control chart plotting the coarseness factor and workability factor on a chart in accordance with paragraph 501-2.1d.

Control Chart Limits[1]

Control Parameter	Individual Measurements	
	Action Limit	Suspension Limit
Gradation[2]	*[3]	*[3]
Coarseness Factor (CF)	±3.5	±5
Workability Factor (WF)	±2	±3
Slump	+0.5 to -1 inch (+13 to -25 mm)	+1 to -1.5 inch (+25 to -38 mm)
Air Content	±1.5%	±2.0%

[1] Control charts shall developed and maintained for each control parameter indicated.

[2] Control charts shall be developed and maintained for each sieve size.

[3] Action and suspension limits shall be determined by the Contractor.

501-5.5 Corrective action at Suspension Limit. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of control. The CQCP shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and coarse aggregate gradation. When two consecutive averages of five tests are outside of the suspension limits, immediate steps, including a halt to production, shall be taken to correct the grading.

b. Coarseness and Workability factor. When the CF or WF reaches the applicable suspension limits, the Contractor, immediate steps, including a halt to production, shall be taken to correct the CF and WF.

c. Fine and coarse aggregate moisture content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher and water batcher shall be adjusted.

d. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

e. Air content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

MATERIAL ACCEPTANCE

501-6.1 Quality Assurance (QA) Acceptance sampling and testing. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the RPR. The Contractor shall provide adequate facilities for the initial curing of beams. The Contractor shall bear the cost of providing initial curing facilities and coring and filling operations, per paragraph 501-6.5b(1).

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60° to 80°F, and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

501-6.2 Quality Assurance (QA) testing laboratory. Quality assurance testing organizations performing these acceptance tests will be accredited in accordance with ASTM C1077. The quality assurance laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods will be submitted to the RPR prior to start of construction.

501-6.3 Lot size. Concrete will be accepted for strength and thickness on a lot basis. A lot will consist of a day's production not to exceed 6,000 square yards. Each lot will be divided into approximately equal sublots with individual sublots between 1000 to 1500 square yards. Where three sublots are produced, they will constitute a lot. Where one or two sublots are produced, they will be incorporated into the previous or next lot. Where more than one plant is simultaneously producing concrete for the job, the lot sizes will apply separately for each plant.

501-6.4 Partial lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot or for overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they will constitute a lot. Where one or two sublots have been produced, they will be incorporated into the next lot or the previous lot and the total number of sublots will be used in the acceptance criteria calculation, that is, n=5 or n=6.

501-6.5 Acceptance Sampling and Testing.

a. Strength.

(1) Sampling. One sample will be taken for each sublot from the concrete delivered to the job site. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. The concrete will be sampled in accordance with ASTM C172.

(2) Test Specimens. The RPR will be responsible for the casting, initial curing, transportation, and curing of specimens in accordance with ASTM C31. Two (2) specimens will be made from each sample and slump, air content, unit weight, and temperature tests will be conducted for each set of strength specimens. Within 24 to 48 hours, the samples will be transported from the field to the laboratory while in the molds. Samples will be cured in saturated lime water.

The strength of each specimen will be determined in accordance with ASTM C78. The strength for each sublot will be computed by averaging the results of the two test specimens representing that sublot.

(3) Acceptance. Acceptance of pavement for strength will be determined by the RPR in accordance with paragraph 501-6.6b(1). All individual strength tests within a lot will be checked for outliers in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded and the remaining test values will be used to determine acceptance in accordance with paragraph 501-6.5b.

b. Pavement thickness.

(1) Sampling. One core will be taken by the Contractor for each sublot in the presence of the RPR. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. Areas, such as thickened edges, with planned variable thickness, will be excluded from sample locations.

Cores shall be a minimum 4 inch in diameter neatly cut with a core drill. The Contractor will furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes will be filled by the Contractor with a non-shrink grout approved by the RPR within one day after sampling.

(2) Testing. The thickness of the cores will be determined by the RPR by the average caliper measurement in accordance with ASTM C174. Each core shall be photographed and the photograph included with the test report.

(3) Acceptance. Acceptance of pavement for thickness will be determined by the RPR in accordance with paragraph 501-6.6.

501-6.6 Acceptance criteria.

a. General. Acceptance will be based on the following characteristics of the completed pavement discussed in paragraph 501-6.5b:

(1) Strength

(2) Thickness

(3) Grade

(4) Profilograph smoothness

(5) Adjustments for repairs

Acceptance for strength, thickness, and grade, will be based on the criteria contained in accordance with paragraph 501-6.6b(1), 501-6.6b(2), and 501-6.6b(3), respectively. Acceptance for profilograph smoothness will be based on the criteria contained in paragraph 501-6.6b(4).

Production quality must achieve 90 PWL or higher to receive full payment.

Strength and thickness will be evaluated for acceptance on a lot basis using the method of estimating PWL. Production quality must achieve 90 PWL or higher to receive full pavement. The PWL will be determined in accordance with procedures specified in Item C-110.

The lower specification tolerance limit (L) for strength and thickness will be:

Lower Specification Tolerance Limit (L)

Strength	0.93 × strength specified in paragraph 501-3.3
Thickness	Lot Plan Thickness in inches, - 0.50 in

b. Acceptance criteria.

(1) Strength. If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(2) Thickness. If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(3) Grade. The final finished surface of the pavement of the completed project will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically or 0.1 feet laterally. The documentation, stamped and signed by a licensed surveyor shall be in accordance with paragraph 501-5.3h. Payment for sublots that do not meet grade for over 25% of the sublot shall reduced by 5% and not be more than 95%.

(4) Profilograph roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hrs of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline. Any areas that indicate "must grind" shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing full depth of surface course. as directed by the RPR. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

(5) Adjustments for repair. Sublots with spall repairs, crack repairs, or partial panel replacement, will be limited to no more than 95% payment.

(6) Adjustment for grinding. For sublots with grinding over 25% of a sublot, payment will be reduced 5%.

METHOD OF MEASUREMENT

501-7.1 Concrete pavement shall be measured by the number of square yards of **either** plain **or** reinforced pavement as specified in-place, completed and accepted.

BASIS OF PAYMENT

501-8.1 Payment. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-6.6. Acceptance Criteria shall be based on results of strength smoothness, and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness; 501-8.1b for repairs; 501-8.1c for grinding; and 501-8.1d for smoothness, subject to the limitation that:

The total project payment for concrete pavement shall not exceed **100** percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under the Price Adjustment Schedule table below).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings.

a. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with the Price Adjustment Schedule table below. A pay factor shall be calculated for both strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both strength and thickness are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either strength or thickness is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both strength and thickness are less than 100%.

Price Adjustment Schedule[1]

Percentage of Materials Within Specification Limits (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96 – 100	106
90 – 95	PWL + 10
75 – 90	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject[2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment in excess of 100% shall be subject to the total project payment limitation specified in paragraph 501-8.1.

[2] The lot shall be removed and replaced unless, after receipt of FAA concurrence, the Owner and Contractor agree in writing that the lot will remain; the lot paid at 50% of the contract unit price; and the total project payment limitation reduced by the amount withheld for that lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100% for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100%; except for rejected lots which remain in place and/or sublots with adjustments for repairs.

b. Adjusted payment for repairs. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots which contain repairs in accordance with paragraph 501-4.19 on more than 20% of the slabs within the sublot. Payment factors greater than 100 percent for the strength and thickness cannot be used to offset adjustments for repairs.

c. Adjusted payment for grinding. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots with grinding over 25% of a sublot.

d. Profilograph Roughness. The Contractor will receive full payment when the profilograph average profile index is in accordance with paragraph 501-6.6b(4). When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the contract unit price for the completed pavement.

e. Payment. Payment shall be made under:

Item P-501-8.1 11.5" Portland Cement Concrete Pavement – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A996	Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM A1035	Standard Specification for Deformed and Plain, Low-Carbon, Chromium, Steel Bars for Concrete Reinforcement
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM A1078	Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement
ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C70	Standard Test Method for Surface Moisture in Fine Aggregate
ASTM C78	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement

ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C123	Standard Test Method for Lightweight Particles in Aggregate
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C174	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
ASTM C227	Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C295	Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregates by Drying
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C642	Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C881	Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064	Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber and Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Concrete Institute (ACI)

ACI 305R	Guide to Hot Weather Concreting
ACI 306R	Guide to Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

Federal Highway Administration (FHWA)

HIPERPAV 3, version 3.2

Portland Concrete Association (PCA)

PCA	Design and Control of Concrete Mixtures, 16th Edition

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD)

CRD C662	Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

United States Air Force Engineering Technical Letter (ETL)

ETL 97-5	Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements

END ITEM P-501

ITEM P-605 JOINT SEALANTS FOR PAVEMENTS

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of ASTM D5893 Type SL.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch wider than the nominal width of the joint and shall not bond to the joint sealant.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

Prior to beginning the sealing operation, the Contractor shall have the sealant supplier demonstrate, to the satisfaction of the Engineer, the cleaning and installation procedures for the joint sealant to be installed on the project.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 14 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. The Contractor must demonstrate sandblasting equipment including the air compressor, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.

d. Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with

paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications.

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by sandblasting as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

c. Backer Rod. When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a backer rod in accordance with paragraph 605-2.2 to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-separating tape breaker in accordance with paragraph 605-2.3 to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch ±1/16 inch below the top of

pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealing *shall not be measured for separate payment.* ~~material shall be measured by the [gallon] [pound] [linear foot] of sealant in place, completed, and accepted.~~

BASIS OF PAYMENT

605-5.1 *Joint sealing shall be considered subsidiary to the item in which it is contained.* ~~Payment for joint sealing material shall be made at the contract unit price per [gallon] [pound] [linear foot]. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D5893	Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids

END ITEM P-605

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ITEM P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

~~**a. Reactivity.** Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.~~

~~If the expansion is greater than 0.20% the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.~~

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
¾ inch (19 mm)	67
½ inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the

material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified in Item P-501.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 Type I.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751 or ASTM D1752.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615.

610-2.11 Materials for curing concrete. Curing materials shall conform to ASTM C171 (Waterproof paper) or ASTM C309 (White-pigmented liquid membrane-forming compound, Type 2, Class B).

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4,000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85°F, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY *CONTROL (QC)* ~~ASSURANCE (QA)~~

610-4.1 Quality *Control* ~~Assurance~~ sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The *Contractor* ~~RPR~~ will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The *QC* ~~QA~~ testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate payment shall be made. This shall be full compensation for furnishing all materials including reinforcement and embedded items and for all preparation, delivery, installation, and curing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
Waterborne Type II	White	37925	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Yellow	33538 or 33655	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Red	31136	115 ft²/gal	Type I-A	10 lb/gal
Waterborne Type II	Black	37038	115 ft²/gal	N/A	N/A

[1] **See paragraph 620-2.2a**

[2] **See paragraph 620-2.2b**

a. **Paint.** Paint shall be waterborne and preformed thermoplastic *(where specified in the construction drawings)* in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

~~**Preformed Thermoplastic Airport Pavement Markings.** Markings must be composed of ester modified resins in conjunction with aggregates, pigments, and binders that have been factory produced as a finished product. The material must be impervious to degradation by aviation fuels, motor fuels, and lubricants.~~

~~(1) The markings must be able to be applied in temperatures as low as 35°F without any special storage, preheating, or treatment of the material before application.~~

~~(a) The markings must be supplied with an integral, non-reflectorized black border.~~

~~(2) Graded glass beads.~~

~~(a) The material must contain a minimum of 30% intermixed graded glass beads by weight. The intermixed beads shall conform to Federal Specification TT-B-1325D, Type I, gradation A and Federal Specification TT-B-1325D, Type IV.~~

~~(b) The material must have factory applied coated surface beads in addition to the intermixed beads at a rate of one (1) lb (±10%) per 10 square feet. These factory applied coated surface beads shall have a minimum of 90% true spheres, minimum refractive index of 1.50, and meet the following gradation.~~

~~Preformed Thermoplastic Bead Gradation~~

~~Size Gradation~~		~~Retained, %~~	~~Passing, %~~
~~U.S. Mesh~~	~~µm~~		
~~12~~	~~1700~~	~~0 – 2~~	~~98 – 100~~
~~14~~	~~1400~~	~~0 – 3.5~~	~~96.5 – 100~~
~~16~~	~~1180~~	~~2 – 25~~	~~75 – 98~~
~~18~~	~~1000~~	~~28 – 63~~	~~37 – 72~~
~~20~~	~~850~~	~~63 – 72~~	~~28 – 37~~
~~30~~	~~600~~	~~67 – 77~~	~~23 – 33~~
~~50~~	~~300~~	~~89 – 95~~	~~5 – 11~~
~~80~~	~~200~~	~~97 – 100~~	~~0 – 3~~

~~(3) Heating indicators. The material manufacturer shall provide a method to indicate that the material has achieved satisfactory adhesion and proper bead embedment during application and that the installation procedures have been followed.~~

~~(4) Pigments. Percent by weight.~~

~~(a) White:~~

~~Titanium Dioxide, ASTM D476, type II shall be 10% minimum.~~

~~(b) Yellow and Colors:~~

~~Titanium Dioxide, ASTM D476, type II shall be 1% minimum.~~

~~Organic yellow, other colors, and tinting as required to meet color standard.~~

~~(5) Prohibited materials. The manufacturer shall certify that the product does not contain mercury, lead, hexavalent chromium, halogenated solvents, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant federal regulations.~~

~~(6) Daylight directional reflectance.~~

~~(a) White: The daylight directional reflectance of the white paint shall not be less than 75% (relative to magnesium oxide), when tested in accordance with ASTM E2302.~~

~~(b) Yellow: The daylight directional reflectance of the yellow paint shall not be less than 45% (relative to magnesium oxide), when tested in accordance with ASTM E2302. The x and y values shall be consistent with the federal Hegman yellow color standard chart for traffic yellow standard 33538, or shall be consistent with the tolerance listed below:~~

~~x—.462~~	~~x—.470~~	~~x—.479~~	~~x—.501~~
~~y—.438~~	~~y—.455~~	~~y—.428~~	~~y—.452~~

~~(7) Skid resistance. The surface, with properly applied and embedded surface beads, must provide a minimum resistance value of 45 BPN when tested according to ASTM E303.~~

~~(8) Thickness. The material must be supplied at a nominal thickness of 65 mil.~~

~~(9) Environmental resistance. The material must be resistant to deterioration due to exposure to sunlight, water, salt, or adverse weather conditions and impervious to aviation fuels, gasoline, and oil.~~

~~(10) Retroreflectivity. The material, when applied in accordance with manufacturer's guidelines, must demonstrate a uniform level of nighttime retroreflection when tested in accordance to ASTM E1710.~~

~~(11) Packaging. Packaging shall protect the material from environmental conditions until installation.~~

~~(12) Preformed thermoplastic airport pavement marking requirements.~~

~~(a) The markings must be a resilient thermoplastic product with uniformly distributed glass beads throughout the entire cross-sectional area. The markings must be resistant to the detrimental effects of aviation fuels, motor fuels and lubricants, hydraulic fluids, deicers, anti-icers, protective coatings, etc. Lines, legends, and symbols must be capable of being affixed to asphalt and/or Portland cement concrete pavements by the use of a large radiant heater. Colors shall be available as required.~~

~~(b) The markings must be capable of conforming to pavement contours, breaks, and faults through the action of airport traffic at normal pavement temperatures. The markings must be capable of fully conforming to grooved pavements, including pavement grooving per advisory circular (AC) 150/5320-12, current version. The markings shall have resealing characteristics, such that it is capable of fusing with itself and previously applied thermoplastics when heated with a heat source per manufacturer's recommendation.~~

~~(c) Multicolored markings must consist of interconnected individual pieces of preformed thermoplastic pavement marking material, which through a variety of colors and patterns, make up the desired design. The individual pieces in each large marking segment (typically more than 20 feet long) must be factory assembled with a compatible material and interconnected so that in the field it is not necessary to assemble the individual pieces within a marking segment. Obtaining multicolored effect by overlaying materials of different colors is not acceptable due to resulting inconsistent marking thickness and inconsistent application temperature in the marking/substrate interface.~~

~~(d) The marking material must set up rapidly, permitting the access route to be re-opened to traffic after application.~~

~~(e) The marking material shall have an integral color throughout the thickness of the marking material.~~

b. Reflective media. Glass beads for white, yellow *and red* paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

Type III glass beads shall not be used in red and pink paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface

temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. ~~A period of 30 days shall elapse between placement of surface course or seal coat and application of the permanent paint markings~~. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

~~**620-3.6 Application--preformed thermoplastic airport pavement markings.**~~

~~To ensure minimum single-pass application time and optimum bond in the marking/substrate interface, the materials must be applied using a variable speed self-propelled mobile heater with an effective heating width of no less than 16 feet and a free span between supporting wheels of no less than 18 feet. The heater must emit thermal radiation to the marking material in such a manner that the difference in temperature of 2 inches wide linear segments in the direction of heater travel must be within 5% of the overall average temperature of the heated thermoplastic material as it exits the heater. The material must be able to be applied at ambient and pavement temperatures down to 35°F without any preheating of the pavement to a specific temperature. The material must be able to be applied without the use of a thermometer. The pavement shall be clean, dry, and free of debris. A non-volatile organic content (non-VOC) sealer with a maximum applied viscosity of 250 centiPoise must be applied to the pavement shortly before the markings are applied. The supplier must enclose application instructions with each box/package.~~

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other. *The contractor shall be responsible for this test.*

Minimum Retro-Reflectance Values

Material	Retro-reflectance mcd/m²/lux		
	White	Yellow	Red
Initial Type I	300	175	35
Initial Type III	600	300	35
Initial Thermoplastic	225	100	35
All materials, remark when less than[1]	100	75	10

[1] 'Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

~~**620-4.1a** The quantity of surface preparation shall be measured by the number of square feet of surface preparation.~~

620-4.1b The quantity of markings shall be paid for shall be measured by the number of square feet of painting.

~~**620-4.1c** The quantity of reflective media shall be paid for by [the number of pounds] [lump sum] of reflective media.~~

~~**620-4.1d** [The quantity of temporary markings to be paid for shall be [the number of square feet of painting] [lump sum price] performed in accordance with the specifications and accepted by the RPR. Temporary marking includes surface preparation, application and complete removal of the temporary marking.] [Temporary markings not required.]~~

~~**620-4.1e** The quantity of preformed markings to be paid for shall be the number of square feet of preformed markings.~~

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.

~~**620-5.1a** Payment for surface preparation shall be made at the contract price for the number of square feet of surface preparation.~~

620-5.2b Payment for markings shall be made at the contract price for the number of square feet of painting.

~~**620-5.3c** Payment for reflective media shall be made at the contract unit price for [the number of pounds of reflective media] [lump sum].~~

~~**620-5.4d** Payment for temporary markings shall be made at the contract price for [the number of square feet of painting] [lump sum price]. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item. [Temporary markings are not required.]~~

~~**620-5.5e** Payment for preformed markings shall be made at the contract price for the number of square feet of preformed markings.~~

Payment will be made under:

Item P-620-5.1a	Pavement Markings (White) with Reflective Media - per square foot
Item P-620-5.1b	Pavement Markings (Yellow) with Reflective Media – per square foot
Item P-620-5.1c	Pavement Markings (Red) with Reflective Media - per square foot
Item P-620-5.1d	Pavement Markings (Black) without Reflective Media - per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR	Part 60, Appendix A-7, Method 24 Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29 CFR Part 1910.1200	Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B	Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1	Standards for Airport Markings
AC 150/5320-12	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

ITEM D-701 PIPE FOR STORM DRAINS AND CULVERTS

DESCRIPTION

701-1.1 This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans. *All reinforced concrete pipe shall be Class III pipe unless otherwise denoted on the plans. No pick-eye holes will be allowed.*

MATERIALS

701-2.1 Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

701-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe

701-2.3 Concrete. Not used.

701-2.4 Rubber gaskets. Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the "RE" closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

701-2.5 Joint mortar. Not used.

701-2.6 Joint fillers. Not used.

701-2.7 Plastic gaskets. Not used.

701-2.8. Controlled low-strength material (CLSM). Not used.

701-2.9 Precast box culverts. Manufactured in accordance with and conforming to ASTM C1433.

701-2.10 Precast concrete pipe. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification program.

CONSTRUCTION METHODS

701-3.1 Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch or 1/2 inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

701-3.2 Bedding. The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

a. Rigid pipe. The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be *number 57 stone as defined in ASTM C 33 or approved equal.* ~~loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.~~

~~**b. Flexible pipe.** For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:~~

~~**Flexible Pipe Bedding**~~

~~Pipe Corrugation Depth~~		~~Minimum Bedding Depth~~	
~~inch~~	~~mm~~	~~inch~~	~~mm~~
~~1/2~~	~~12~~	~~1~~	~~25~~
~~1~~	~~25~~	~~2~~	~~50~~
~~2~~	~~50~~	~~3~~	~~75~~
~~2-1/2~~	~~60~~	~~3-1/2~~	~~90~~

~~**c. Other pipe materials.** For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of 3/4 inches. For pipes installed under paved areas, no more than 12% of the material shall pass the No. 200 (0.075 mm) sieve. For all other areas, no more than 50% of the material shall pass the No. 200 (0.075 mm) sieve. The bedding shall have a thickness of at least 6 inches below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.~~

701-3.3 Laying pipe. The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

701-3.4 Joining pipe. Joints shall be made with ~~(1) cement mortar, (2) cement grout~~, (3) rubber gaskets, ~~(4) plastic gaskets, (5) coupling bands~~

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

a. Concrete pipe. Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. Concrete pipe joints shall be sealed with rubber gaskets meeting ASTM C443 when leak resistant joints are required.

~~**b. Metal pipe.** Metal pipe shall be firmly joined by form-fitting bands conforming to the requirements of ASTM A760 for steel pipe and AASHTO M196 for aluminum pipe.~~

~~**c. PVC, Polyethylene, or Polypropylene pipe.** Joints for PVC, Polyethylene, or Polypropylene pipe shall conform to the requirements of ASTM D3212 when leak resistant joints are required. Joints for PVC and Polyethylene pipe shall conform to the requirements of AASHTO M304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252 or ASTM M294. Fittings for polypropylene pipe shall conform to ASTM F2881, ASTM F2736, or ASTM F2764.~~

~~**d. Fiberglass pipe.** Joints and fittings shall be as detailed on the plans and in accordance with the manufacturers recommendations. [Joints shall meet the requirements of ASTM D4161 for flexible elastomeric seals.] [Enter manufacturers joint installation requirements.]~~

701-3.5 Embedment and Overfill. Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

701-3.5-1 Embedment Material Requirements

a. Concrete Pipe. Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

~~**b. Plastic and fiberglass Pipe.** Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.~~

~~**c. Metal Pipe.** Embedment material shall be granular as specified in the contract document and specifications, and shall be free of organic material, rock fragments larger than 1.5 inches in the greatest dimension and frozen lumps. As a minimum, backfill materials shall meet the requirements of ASTM D3282, A-1, A-2, or A-3. Embedment material shall extend to 12 inches above the top of the pipe.~~

701-3.5-2 Placement of Embedment Material. The embedment material shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall be brought up one foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on each side of the pipe to one foot above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

701-3.6 Overfill. Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D1557. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

701-3.7 Inspection Requirements

An initial post installation inspection shall be performed by the RPR no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

The Contractor shall use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe interior. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

METHOD OF MEASUREMENT

701-4.1 The length of pipe shall be measured in linear feet of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. Each class, types and size of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

701-4.2 Not used.

701-4.3 Not used.

701-4.4 Not used.

701-4.5 *The volume of bedding will not be measured for separate payment but will be considered subsidiary to pipe installation.*

BASIS OF PAYMENT

701-5.0 These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

701-5.1 Payment will be made at the contract unit price per linear foot for Each class and size of pipe.

701-5.2 Not used.

701-5.3 Not used.

701-5.4 Not used.

Payment will be made under:

Item D-701-5.1	18" Reinforced Concrete Pipe, Class III - per linear foot
Item D-701-5.2	24" Reinforced Concrete Pipe, Class III - per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M167	Standard Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
AASHTO M190	Standard Specification for Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches
AASHTO M196	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
AASHTO M219	Standard Specification for Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches
AASHTO M243	Standard Specification for Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches
AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M294	Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
AASHTO M304	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO MP20	Standard Specification for Steel Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 900-mm (12- to 36-in.) Diameter

ASTM International (ASTM)

ASTM A760	Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A761	Standard Specification for Corrugated Steel Structural Plate, Zinc Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
ASTM A762	Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains
ASTM A849	Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe
ASTM B745	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
ASTM C14	Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C94	Standard Specification for Ready Mixed Concrete
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement

ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C507	Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe
ASTM C655	Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe
ASTM C990	Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM D1056	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber
ASTM D3034	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3262	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Sewer Pipe
ASTM D3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
ASTM D4161	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F667	Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings
ASTM F714	Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter
ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F894	Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F2435	Standard Specification for Steel Reinforced Polyethylene (PE) Corrugated Pipe
ASTM F2562	Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage

ASTM F2736	Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe
ASTM F2764	Standard Specification for 30 to 60 in. (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
ASTM F2881	Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

National Fire Protection Association (NFPA)

NFPA 415	Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways

END ITEM D-701

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ITEM D-751 MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

DESCRIPTION

751-1.1 This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

~~**751-2.1 Brick.** The brick shall conform to the requirements of ASTM C32, Grade MS.~~

~~**751-2.2 Mortar.** Mortar shall consist of one part Portland cement and two parts sand. The cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.~~

751-2.3 Concrete. Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

751-2.4 Precast concrete pipe manhole rings. Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches nor more than 48 inches. There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole. Gaskets shall conform to the requirements of ASTM C443.

751-2.5 Corrugated metal. Corrugated metal shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M36.

751-2.6 Frames, covers, and grates. The castings shall conform to one of the following requirements:

~~**a.** ASTM A48, Class 35B: Gray iron castings~~

~~**b.** ASTM A47: Malleable iron castings~~

~~**c.** ASTM A27: Steel castings~~

~~**d.** ASTM A283, Grade D: Structural steel for grates and frames~~

e. ASTM A536, Grade 65-45-12: Ductile iron castings

~~**f.** ASTM A897: Austempered ductile iron castings~~

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

751-2.7 Steps. The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of asphalt paint, when directed.

751-2.8 Precast inlet structures. Manufactured in accordance with and conforming to ASTM C913.

CONSTRUCTION METHODS

751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and footings to the lines and grades or elevations, shown on the plans, or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximately only; and the RPR may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage finished masonry. The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

~~**751-3.2 Brick structures.**~~

~~**a. Foundations.** A prepared foundation shall be placed for all brick structures after the foundation excavation is completed and accepted. Unless otherwise specified, the base shall consist of reinforced concrete mixed, prepared, and placed in accordance with the requirements of Item P-610.~~

~~**b. Laying brick.** All brick shall be clean and thoroughly wet before laying so that they will not absorb any appreciable amount of additional water at the time they are laid. All brick shall be laid in freshly made mortar. Mortar not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted. An ample layer of mortar shall be spread on the beds and a shallow furrow shall be made in it that can be readily closed by the laying of the brick. All bed and head joints shall be filled solid with mortar. End joints of stretchers and side or cross joints of headers shall be fully buttered with mortar and a shoved joint made to squeeze out mortar at the top of the joint. Any bricks that may be loosened after the mortar has taken its set, shall be removed, cleaned, and re-laid with fresh mortar. No broken or chipped brick shall be used in the face, and no spalls or bats shall be used except where necessary to shape around irregular openings or edges; in which case, full bricks shall be placed at ends or corners where possible, and the bats shall be used in the interior of the course. In making closures, no piece of brick shorter than the width of a whole brick shall be used; and wherever practicable, whole brick shall be used and laid as headers.~~

~~**c. Joints.** All joints shall be filled with mortar at every course Exterior faces shall be laid up in advance of backing. Exterior faces shall be plastered or parged with a coat of mortar not less than 3/8 inch thick before the backing is laid up. Prior to parging, all joints on the back of face courses shall be cut flush. Unless otherwise noted, joints shall be not less than 1/4 inch nor more than 1/2 inch wide and the selected joint width shall be maintained uniform throughout the work.~~

~~**d. Pointing.** Face joints shall be neatly struck, using the weather struck joint. All joints shall be finished properly as the laying of the brick progresses. When nails or line pins are used, the holes shall be immediately plugged with mortar and pointed when the nail or pin is removed.~~

~~**e. Cleaning.** Upon completion of the work all exterior surfaces shall be thoroughly cleaned by scrubbing and washing with water. If necessary to produce satisfactory results, cleaning shall be done with a 5% solution of muriatic acid which shall then be rinsed off with liberal quantities of water.~~

~~**f. Curing and cold weather protection.** The brick masonry shall be protected and kept moist for at least 48 hours after laying the brick. Brick masonry work or pointing shall not be done when there is frost on the brick or when the air temperature is below 50°F unless the Contractor has, on the project ready to use, suitable covering and artificial heating devices necessary to keep the atmosphere surrounding the masonry at a temperature of not less than 60°F for the duration of the curing period.~~

751-3.3 Concrete structures. Concrete structures which are to be cast-in-place within the project boundaries shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

751-3.4 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program.

Precast concrete structures shall conform to ASTM C478. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall: (1) be smoothed to a uniform surface on both interior and exterior of the structure or (2) utilize a rubber gasket per ASTM C443. The top of the upper precast concrete section shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required. Provision shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal or metal encapsulated steps that are embedded or built into the side walls shall be aligned and placed in accordance to ASTM C478. When a metal ladder replaces the steps, it shall be securely fastened into position.

751-3.5 Corrugated metal structures. Corrugated metal structures shall be prefabricated. All standard or special fittings shall be furnished to provide pipe connections or branches with the correct dimensions and of sufficient length to accommodate connecting bands. The fittings shall be welded in place to the metal structures. The top of the metal structure shall be designed so that either a concrete slab or metal collar may be attached to allow the fastening of a standard metal frame and grate or cover. Steps or ladders shall be furnished as shown on the plans. Corrugated metal structures shall be constructed on prepared foundations, conforming to the dimensions and locations as shown on the plans. When indicated, the structures shall be placed on a reinforced concrete base.

751-3.6 Inlet and outlet pipes. Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete or brick structures, mortar shall be placed around these pipes to form a tight, neat connection.

751-3.7 Placement and treatment of castings, frames, and fittings. All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the RPR, and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the RPR. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

751-3.8 Installation of steps. The steps shall be installed as indicated on the plans or as directed by the RPR. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures they shall meet the requirements of ASTM C478. The steps shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

When steps are required with corrugated metal structures, they shall be welded into aligned position at a vertical spacing of 12 inches.

Instead of steps, prefabricated ladders may be installed. For brick or concrete structures, the ladder shall be held in place by grouting the supports in drilled holes. For metal structures, the ladder shall be secured by welding the top support to the structure and grouting the bottom support into drilled holes in the foundation or as directed by the RPR.

751-3.9 Backfilling.

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth, and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

b. Backfill shall not be placed against any structure until approved by the RPR. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

751-3.10 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

751-4.1 Manholes, catch basins, inlets, and inspection holes shall be measured by the unit, completed and accepted.

751-4.2 *Reinforcing steel shall not be measured for separate payment but shall be considered subsidiary to the structure in which it is contained.*

BASIS OF PAYMENT

751-5.1 The accepted quantities of manholes, catch basins, inlets, and inspection holes will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item D-751-5.1	5' x 5' Airfield Rated Grate Inlet - per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C913	Standard Specification for Precast Concrete Water and Wastewater Structures.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M36	Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains

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ITEM D-752 CONCRETE CULVERTS, HEADWALLS, AND MISCELLANEOUS DRAINAGE STRUCTURES

DESCRIPTION

752-1.1 This item shall consist of reinforced concrete culverts, headwalls, and miscellaneous drainage structures constructed in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

752-2.1 Concrete. Reinforced concrete shall meet the requirements of Item P-610.

752-2.2 END SECTIONS. *Concrete end sections shall be reinforced concrete conforming to the requirements of ASTM C76 and conform to the TxDOT Standard Drawings, Precast Safety End Treatment. Reinforced concrete curtain walls are required. Jointing and bedding for end sections will be as stated for other pipe.*

CONSTRUCTION METHODS

752-3.1 Unclassified excavation.

a. Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the RPR may approve, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing steel is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to perform and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for excavation.

d. All bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage the finished concrete. The cost of removal shall be included in the unit price bid for excavation.

e. After each excavation is completed, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

752-3.2 Backfilling.

a. After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill in horizontal layers not to exceed 8 inches in loose depth, and compacted. The field density of the compacted material shall be at least 90% of the maximum density for cohesive soils and 95% of the maximum density for noncohesive soils. The maximum density shall be determined in accordance with ASTM D698. The field density shall be determined in accordance with ASTM D1556.

b. No backfilling shall be placed against any structure until approved by the RPR. For concrete, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill or the placement methods.

c. Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

d. Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the *item which it is contained.* ~~contract unit price for "unclassified excavation for structures."~~

752-3.3 Weep holes. Weep holes shall be constructed as shown on the plans.

752-3.4 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankment, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

~~**752-4.1** The quantity of unclassified excavation for structures shall be the number of cubic yards measured in original position, of material excavated in accordance with the plans, or as approved by the RPR; but in no case shall any yardage be included in the measurement for payment which is outside of a volume bounded by vertical planes 18 inches outside of and parallel to the neat lines of the footings.~~

~~**752-4.2** Concrete shall be measured by the number of cubic yards of concrete, complete in place and accepted. In computing the yardage of concrete for payment, the dimensions used shall be those shown on the plans or approved by the RPR. No measurements or other allowances shall be made for forms, false work, cofferdams, pumping, bracing, expansion joints, or finishing of the concrete. No deductions in yardage shall be made for the volumes of reinforcing steel or embedded items.~~

~~**752-4.3** The quantity of reinforcing steel shall be the calculated theoretical number of pounds placed as shown on the plans, complete in place and accepted. The unit weight used for deformed bars shall be the weight of plain square or round bars, as the case may be, of equal nominal size.~~

752-4.4 *Concrete culverts, headwalls, and miscellaneous drainage structures shall be measured by the unit, completed in place and accepted.*

752-4.5 *Reinforcing steel shall not be measured for separate payment but shall be considered subsidiary to the structure in which it is contained.*

BASIS OF PAYMENT

~~**752-5.1** Payment will be made at the contract unit price per cubic yard for unclassified excavation for structures.~~

~~**752-5.2** Payment will be made at the contract unit price per cubic yard for concrete for the structures.~~

~~**752-5.3** Payment will be made at the contract unit price per pound for reinforcing steel.~~

752-5.4 *Payment will be made at the contract unit price per each for concrete culverts, headwalls, and miscellaneous drainage structures. These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and placing the materials, furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plan; and for all labor, equipment, tools, and incidentals necessary to complete the structure.*

Payment will be made under:

Item D-752-5.1	24" Reinforced Concrete Safety End Treatment — per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

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ITEM T-901 SEEDING

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding, fertilizing, and liming the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied *as specified in the TxDOT Standard Specification, Item 164 – Seeding for Erosion Control.* ~~follows:~~

~~**Seed Properties and Rate of Application**~~

~~Seed~~	~~Minimum Seed Purity (Percent)~~	~~Minimum Germination (Percent)~~	~~Rate of Application lb/acre (or lb/1,000 S.F.)~~
*	*	*	*
*	*	*	*

~~Seeding shall be performed during the period between [___] and [___] inclusive, unless otherwise approved by the RPR.~~

901-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate *specified by the tests furnished in T-905* ~~of [___]~~. All liming materials shall conform to the requirements of ASTM C602.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 10-20-10 commercial fertilizer and shall be spread at the rate of 600 lbs/acre. *Contractor may utilize another commercial fertilizer and apply at at rate equal to at least 60 lbs of nitrogen per acre.*

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods shall be broken and the top 3 inches of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Liming. Lime shall be applied separately and prior to the application of any fertilizer or seed and only on seedbeds that have previously been prepared as described above. The lime shall then be worked into the top 3 inches of soil after which the seedbed shall again be properly graded and dressed to a smooth finish.

b. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3.

c. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the

tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 lb / sq inches. The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime shall be added to and mixed with each 100 gallons of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches, after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of acres measured on the ground surface, completed and accepted. *Seeding shall be measured to the nearest tenth (0.1) of an acre. Lime and fertilizer will not be measured for separate payment but will be considered subsidiary to seeding.*

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per acre or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item T-901-5.1	Seeding - per acre

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Federal Specifications (FED SPEC)

FED SPEC	JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

ITEM T-904 SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

904-2.1 Sod. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the *TxDOT Standard Specifications, Item 162 – Sodding for Erosion Control* ~~special provisions~~, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the *TxDOT Standard Specifications, Item 162 – Sodding for Erosion Control.* ~~special provisions~~. *Type of sod shall be the type specified in the Standard Specifications, Item 162.*

904-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate *specified by the tests furnished in T-905* ~~of [ ]~~. All liming materials shall conform to the requirements of ASTM C602.

904-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 10-20-10 commercial fertilizer and shall be spread at the rate of 600 lbs/acre.

Contractor can utilize another commercial fertilizer and apply at a rate equal to at least 60 lbs of nitrogen per acre.

904-2.4 Water. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass.

904-2.5 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

904-3.1 General. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the RPR before the various operations are started. The Contractor shall demonstrate to the RPR before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 Preparing the ground surface. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 Applying fertilizer and ground limestone. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other suitable methods. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 Obtaining and delivering sod. After inspection and approval of the source of sod by the RPR, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 Laying sod. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the RPR, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch below the pavement edge. Where the flow will be over the

sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 sq inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 Watering. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 Establishing turf. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

904-3.8 Repairing. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the RPR, and shall then be sodded as specified in paragraph 904-3.5.

METHOD OF MEASUREMENT

904-4.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

BASIS OF PAYMENT

904-5.1 This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

Item T-904-5.1	Sodding - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

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ITEM T-905 TOPSOIL

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 µm) sieve as determined by the wash test in accordance with ASTM C117. *Topsoil testing shall be completed and paid for by the Contractor.*

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the RPR. The Contractor shall notify the RPR sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 4 inches after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT

905-4.1 Topsoil obtained on the site *or off site* shall be measured by the *area in square yards of the specified thickness of topsoil rehandled and placed from the topsoil stockpiled under Item P-152-2.14 as accepted by the RPR. Topsoiling measured for payment shall only be the planned limits of construction.* ~~number of cubic yards of topsoil measured in its original position and stripped or excavated. Topsoil stockpiled by others and removed for topsoil by the Contractor shall be measured by the number of cubic yards of topsoil measured in the stockpile. Topsoil shall be measured by volume in cubic yards computed by the method of end areas.~~

905-4.2 ~~Topsoil obtained off the site shall be measured by the number of *square yards at the specified thickness* cubic yards of topsoil measured in its *final* original position and stripped or excavated. Topsoil shall be measured by volume in cubic yards computed by the method of end areas.~~

BASIS OF PAYMENT

905-5.1 Payment will be made at the contract unit price per *square yard of the specified thickness* ~~cubic yard~~ for topsoil (obtained on the site *or off site*). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

905-5.2 ~~Payment will be made at the contract unit price per *square yard of the specified thickness* cubic yard for topsoil (obtained off the site). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

Payment will be made under:

Item T-905-5.1	Topsoil (Obtained On-Site or Off-Site 4" Thickness) - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C117	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

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ITEM L-108 UNDERGROUND POWER CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. ~~Conductors for use on 20 ampere primary airfield~~

~~lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 [Type B][Type C], 5,000 volts, non-shielded, with [ethylene propylene insulation][cross-linked polyethylene insulation].~~ L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be bare copper wire. ~~For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.~~

Ground rods shall be copper. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 10 feet long and 3/4 inch in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal *are* acceptable.

c. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. The taped or heat-shrink splice. Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a

thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 Splicer qualifications. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

108-2.7 Flowable backfill. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 Cable identification tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 Tape. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 Electrical coating. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 Existing circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual. Refer to specification SS-300 for additional megger testing requirements.

108-2.12 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to

carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in duct banks or conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

a. **Trenching.** Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches below finished grade per NEC Table 300.5, except as follows:

- When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches unless otherwise specified.
- Minimum cable depth when crossing under a railroad track, shall be 42 inches unless otherwise specified.

The Contractor shall excavate all cable trenches to a width not less than 6 inches. Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill material may alternatively be used. *The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under subsidiary to the respective trenching or conduit or duct bank pay item.*

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed, with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.

b. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables; be 3 deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. This layer shall not be compacted. The second layer shall be 5 inches deep, loose measurement, and shall contain no particles that would be retained on a one inch (25.0 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the RPR. If not shown on the plans, the warning tape shall be located 6 inches) above the direct-buried cable or the counterpoise wire if present. A 3-6 inch wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches minimum below finished grade.

c. Restoration. Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the sodding and seeding as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557. Restoration shall be considered incidental to the pay item of which it is a component part.

108-3.4 Cable markers for direct-buried cable. The location of direct buried circuits shall be marked by a concrete slab marker, 2 feet square and 4-6 inch thick, extending approximately one inch above the surface. Each cable run from a line of lights and signs to the equipment vault shall be marked at approximately every 200 feet along the cable run, with an additional marker at each change of direction of cable run. All other direct-buried cable shall be marked in the same manner. Cable markers shall be installed directly above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 4 inches high and 3 inches wide, with width of stroke 1/2 inch and 1/4 inch deep. Stencils shall be used for cable marker lettering; no hand lettering shall be permitted.

At the location of each underground cable connection/splice, except at lighting units, or isolation transformers, a concrete marker slab shall be installed to mark the location of the connection/splice. The

Contractor shall impress the word "SPLICE" on each slab. The Contractor also shall impress additional circuit identification symbols on each slab as directed by the RPR. All cable markers and splice markers shall be painted international orange. Paint shall be specifically manufactured for uncured exterior concrete. After placement, all cable or splice markers shall be given one coat of high-visibility aviation orange paint as approved by the RPR. Furnishing and installation of cable markers is incidental to the respective cable pay item.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean

all surfaces at least 1/4 inch beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid No. 6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

a. **Equipotential.** – The counterpoise size is shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components - are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches minimum or 12 inches maximum above the raceway or cable to be protected, except as permitted below:

(1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

(2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.

b. Isolation – Not used

c. **Common Installation requirements.** When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

~~**d. Parallel Voltage Systems.** Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.~~

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise installation at existing duct banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter.

The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

d. That all affected circuits (existing and new) are free from unspecified grounds.

e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 500 megohms. Verify continuity of all series airfield lighting circuits prior to energization.

f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

h. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

i. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Trenching shall be measured by the linear feet of trench, including the excavation, backfill, and restoration, completed, measured as excavated, and accepted as satisfactory. When specified, separate measurement shall be made for trenches of various specified widths.

The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall include additional quantities required for slack.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit - per Linear Foot
Item L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed in Trench, Above the Duct Bank or Conduit, Including Connections/Terminations - per Linear Foot
Item L-108-5.3	Trenching for Direct-Buried Bare Counterpoise Wire, 8" Minimum Depth – per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive
MIL-P-21035	*Paint High Zinc Duct Content, Galvanizing Repair*

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

ITEM L-110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

~~**110-2.2 Steel conduit.** Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10 mil thick coat of asphaltum sealer or shall have a factory bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."~~

110-2.3 Plastic conduit. Plastic conduit and fittings shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

a. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II–Schedule 40 PVC suitable for either above ground or underground use.

c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.

d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

~~**110-2.4 Split conduit.** Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.~~

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

~~**110-2.8 Flowable backfill.** Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.~~

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches below the

subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet.

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill may alternatively be used. *The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under [Item P-152] [subsidiary to the respective trenching or conduit or duct bank pay item].*

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables) cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet beyond the edges of the pavement or 3 feet beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches apart measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the

plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches wide tape, 8 inches minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch wide tape only for single conduit runs. Utilize the 6-inch wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches nor more than 12 inches wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

110-3.4 Markers. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet square and 4 - 6 inches thick extending approximately one inch above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word "DUCT" or "CONDUIT" on each marker slab. Impression of letters shall be done in a manner, approved by the RPR, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high-visibility orange paint,

as approved by the RPR. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the RPR. The letters shall be 4 inches high and 3 inches wide with width of stroke 1/2 inch and 1/4 inch deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for conduits. For conduits, 8 inches of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include seeding as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. Jack Brooks Regional Airport shall have the first right of refusal for any copper cable removed from the airfield during the project.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1	Non-Encased Electrical Conduit, 1-Way 2-inch - per Linear Foot
Item L-110-5.2	Concrete Encased Electrical Duct Bank, 2-Way 2-inch – per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

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ITEM L-115 ELECTRICAL MANHOLES AND JUNCTION STRUCTURES

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. Cast-in-place concrete structures shall be as shown on the plans.

115-2.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand 100,000 lb. aircraft *wheel* loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in as shown on the plans.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch thickness for L-867 and 3/4-inch thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

115-2.7 Frames and covers. The frames shall conform to one of the following requirements:

a. ASTM A48 Gray iron castings

b. ASTM A47 Malleable iron castings

c. ASTM A27 Steel castings

d. ASTM A283, Grade D Structural steel for grates and frames

e. ASTM A536 Ductile iron castings

f. ASTM A897 Austempered ductile iron castings

All castings specified shall withstand a maximum tire pressure of 250 psi and maximum *aircraft* load of 100,000 lbs.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

~~**115-2.8 Ladders.** Ladders, if specified, shall be galvanized steel or as shown on the plans.~~

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

~~**115-2.11 Flowable backfill.** Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.~~

~~**115-2.12 Cable trays.** Cable trays shall be of [galvanized steel][plastic][aluminum]. Cable trays shall be located as shown on the plans.~~

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

~~**115-2.14 Conduit terminators.** Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.~~

~~**115-2.15 Pulling-in irons.** Pulling-in irons shall be manufactured with 7/8-inch diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7-strand, 1/2-inch diameter with an ultimate strength of 270,000 psi). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.~~

115-2.16 Ground rods. Ground rods shall be one piece, copper clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 8 feet long nor less than 5/8 inch in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within one foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

~~**115-3.13 Manhole elevation adjustments.** The Contractor shall adjust the tops of existing manholes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise or lower the top of each manhole to the new elevations. The existing top elevation of each manhole to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.~~

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. The Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

~~**115-4.2 Manhole elevation adjustments** shall be measured by the completed unit installed, in place, completed, and accepted. Separate measurement shall not be made for the various types and sizes.~~

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

115-5.2 Payment shall be made at the contract unit price for manhole elevation adjustments. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary, including but not limited to, spacers, concrete, rebar, dewatering, excavating, backfill, topsoil, sodding and pavement restoration, where required, to complete this item as shown in the plans and to the satisfaction of the RPR.

Payment will be made under:

Item L-115-5.1	2-Can Junction Can Plaza - Per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

EB #83	In Pavement Light Fixture Bolts

Mil Spec

MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

END OF ITEM L-115

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ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not required.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861T(L)	2	1	N/A	4	L-867B	Blue	L-830-16	N/A

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858(L)	2	2	2	2	N/A

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet. ~~The circuit selector cabinet shall meet the requirements of AC 150/5345-5, Type L-847, [one][two][three][four] circuit control [as indicated], Class [A, indoor][B, outdoor], Rating [1, for 6.6 amperes][2, for 20 amperes].~~ *Not Required.*

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

See the Supplemental Specifications for additional equipment installation, mounting, and testing requirements.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system *lump sum* installed as a completed unit in place, ready for operation, and accepted by the RPR.

Precision Approach Path Indicator shall be measured by each system *lump sum* installed as a completed unit, in place, ready for operation, and accepted by the RPR. Abbreviated Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125-5.1	L-861T(L) Base Mounted Taxiway Edge Light, Installed -- per Each
Item L-125-5.2	L-858(L) Base Mounted, Size 2, 1-Module Guidance Sign, Installed -- per Each
Item L-125-5.3	L-858(L) Base Mounted, Size 2, 2-Module Guidance Sign, Installed -- per Each
Item L-125-5.4	L-858(L) Base Mounted, Size 2, 3-Module Guidance Sign, Installed -- per Each
Item L-125-5.5	Vehicular Stop Sign, Installed -- per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125

TEXAS MATERIALS GROUP, INC.

DUNS Unique Entity ID
039939236

SAM Unique Entity ID
F8HFSQYTF6X7

CAGE/NCAGE
3VJW5

Expiration Date: Aug 9, 2022

Registration Status: ● Active

Purpose of Registration
All Awards

Physical Address
1320 Arrow Point DR STE 600
Cedar Park, Texas
78613-2189, United States

Mailing Address
1320 Arrow Point DR. STE 600
Cedar Park, Texas
78613-2189, United States

*The DUNS number is currently the official Unique Entity ID

Aldo Lopez

12907 US 90, Beaumont, TX 77713 | (409) 284-3650 | aldo.lopez@gc-texas.com

Objective

Committed to provide the owner with a quality project by leading a team of courteous, safety oriented and highly qualified group of professionals during the execution and finalization of the project.

Skills & Abilities

MANAGEMENT

- Highly capable professional in the construction industry with the ability to lead, coordinate, schedule, troubleshoot and execute projects on time and on budget.

LEADERSHIP

- General Superintendent for the Beaumont Area leading a group of 2 Construction Superintendents, 13 Foremen and 85 crew members in the private, commercial, heavy highway and industrial sectors.

ACCOMPLISHMENTS

- Successfully completed critical highway construction milestones under allotted timeframe.
- Managed over 250 projects in heavy civil construction career.

Experience

GENERAL SUPERINTENDENT | 2021-PRESENT

- Coordinate and provide crews for all construction in the area.

SUPERINTENDENT | 2017-2021

- Providing crews to assist in the construction of various projects.

PROJECT MANAGER | 2010-2017

- Responsible for managing and scheduling multiple projects.

ASSISTANT PROJECT MANAGER | 2008-2010

- Provided support to the project management team on a variety of projects.

Johnathan Murphy

(409) 284-4124

7630 Homer Drive Beaumont, TX 77708

Jonathan.Murphy@apac.com

Professional Profile

Endeavored as an employee for 5 years with APAC with multiple roles and responsibilities in construction.

- Skilled in Microsoft Excel
- Proficient Use of several survey and design programs including AutoCAD and Trimble based software
- Primavera Scheduling software knowledgeable
- Skilled user of Construction survey equipment including robotic/standard total stations, GPS units, and laser based equipment
- Experienced in equipment operation and capabilities
- Adept use of financial software and incorporation into daily operations

Professional Accomplishments

Safety

- NCCER Certified
- OSHA 30 Certified
- First Aid & CPR Certified
- Flagger Certified

Project Management

- OPS Project Management Training
- Oracle Primavera Training
- Heavy Bid Tool Training

Survey

- Trimble Business Center-HCE Training
- Trimble/Cat-Accugrade Proficient
- TDS/COGO & Survey Pro Competent
- AutoCAD Adept

Work History

Project Lead	APAC-Texas, Inc. Beaumont, TX	4/11 to Current
Party Chief Surveyor	APAC-Texas, Inc. Beaumont, TX	4/09 to 4/11
Instrument Person	APAC-Texas, Inc. Beaumont, TX	4/07 to 4/09

Education

General Studies	Lamar University, Beaumont, TX	Currently Pursuing

Johnathan Murphy•(409) 284-4124•Jonathan.Murphy@apac.com

High School Diploma	Spurger High School, Spurger, TX	Graduated Magna Cum Laude

References

References are available upon request.

Current Projects and Work History

2022

Date	Job No.	Owner	Project Name	Job Description	Estimator	Est. No.	Contract Amount
1/3/2022	3304	Port of Beaumont	Port of Beaumont Lot 5 & 13 Paving	Demo, base stabilization, RCC Paving, Drainage	JL	7523FINAL	$ 8,634,251.49
1/3/2022	3305	TxDOT	Libery Co. FM 770 Bridge Replacements	Birdge Demo, Road Overlay, Bridge Construction	JL	7527FINAL	$ 5,883,531.46
1/10/2022	3306	Port of Beaumont	Port of Beaumont Truck Staging Area	Asphalt Overlay	JH	7521_FNL	$ 396,437.50
1/12/2022	3307	TxDOT	Select Maintenance - Jefferson SH 347 TOM	TOM - Asphalt Overlay	JH	7528_FNL	$ 335,980.50
1/31/2022	3308	Iron Horse Terminal	Iron Horse Terminal - Railbed for Tracks	Site Stabilization and Base Placement	AT	7490IH_REV1	$ 154,152.00
2/3/2022	3309	City of Beaumont	City of Beaumont Spindletop Ave Roadway and Drainage	Road Stabilization, Drainage Pipe, Asphalt Overlay	JL	7543A	$ 508,223.00
2/4/2022	3310	TxDOT	Jefferson Co. PW	Milling, ASB Placement, Asphalt Overlay	JL	7537FINAL	$ 151,736.30
3/3/2022	3311	City of Nederland	City of Nederland 2021-2022 Flexible Pavement Rehab		JL	7550FINAL	$ 1,704,166.50
1/4/2022	5030	Iron Horse Terminal	Iron Horse Terminal - Road Realignment	Pipe Excavation, Base Prep	JL	7526	$ 38,500.00
1/27/2022	5031	Drainage District No. 6	8th Street Asphalt Repair		JL	7538_FNL	$ 48,503.00

2021

Date	Job No.	Owner	Project Name	Job Description	Estimator	Est. No	Contract Amount
1/29/2021	3278	City of Beaumont	City of Beaumont Phase III Street Rehab.	Cement Treat Roads, Asphalt Overlay	JL	7397FINAL	$ 1,458,594.97
3/22/2021	3279	City of Groves	City of Groves GLO Street Improvement Project		AT	7407FINAL	$ 827,528.00
4/7/2021	3280	TxDOT	Liberty County SH 146	Lime Stabilization and Road Widening	AT	7429FINAL	$ 389,911.26
4/7/2021	3281	TxDOT	Jefferson Co. SH 124	Safety Improvement Project	AT	7431FINAL	$ 426,698.65
4/8/2021	3282	TxDOT	Hardin Co. FM 770	Road Widening, Seal Coat and Drainage	JL	7430FINAL1	$ 2,206,601.53
	3283	TxDOT	MC Jasper Co. SH 62 Material Only	Asphalt Material Only	RR	7448MCFINAL	$ 104,900.00
5/7/2021	3284	TxDOT	COPASA INC. - SealCoat FM 3180 & FM 2354	Seal Coat	AWT	7418FINAL1	$ 117,538.60
4/1/2021	3285	City of Orange	City of Orange Riverside Pavilion	Paving and Drainage Improvements	AT	7422FINAL	$ 215,561.00
4/23/2021	3286	City of Pinehurst	City of Pinehurst Street Improvements	Lime / Cement Treat and Overlay	AWT	7432FNL_JM	$ 2,373,842.15
	3287	City of Port Arthur	Port Arthur Rail Terminal	Asphalt Level Up and Surface and Rail Crossings	JL	7455FINAL	$ 203,784.00
6/2/2021	3288	City of Nederland	City of Nederland 2020-2021 Flexible Pavement Project	Milling Asphalt, Flex Pavement Repairs, Joint Re-Seal and Asphalt Overlay	JL	7459FINAL	$ 728,703.42
5/12/2021	3289	City of Port Arthur	City of Port Arthur 5th Street Rehabilitation Project	Concrete Base Repair, 2" Overlay, Drainage	AT	7444FINAL	$ 1,483,845.00
6/29/2021	3290	Little Cypress-Mauriceville Consolidated Independent School District	Mauriceville Middle School Back Drive HMAC Rehabilitation	Rework Existing Base, Geo-Grid Placement, Asphalt Overlay	JL	7472FINAL1	$ 111,960.00
7/1/2021	3291	TxDOT	Hardin County FM 943	Rehabilitation of Existing Road	JL	7464FINAL	$ 1,940,016.00
7/2/2021	3292	TxDOT	Liberty County FM 1010	Safety Improvement Project	JL	7466FINAL	$ 311,513.00
7/1/2021	3293	TxDOT	Orange County SH 87	Overlay	AT	7469FINAL	$ 1,985,537.00
	3294	Cityof Port Arthur	City of Port Arthur 6th Street Rehabilitation Project		AT	7444FINAL6TH	$ 1,483,845.00
8/5/2021	3295	TxDOT	Liberty County SH 105	Road Widening, Seal Coat, Cement Treat Base	JL	7487FINAL	$ 856,006.00
8/5/2021	3296	TxDOT	Orange County FM 1442	Road Widening, Cement and Lime Stabilization	JL	7488FINAL	$ 7,694,479.00
8/4/2021	3297	TxDOT	Hardin County SH 105	Road Widening, Seal Coat, Drainage	JH	7484FINAL	$ 645,518.00
8/4/2021	3298	TxDOT	Jefferson County US 69	Install Roundabout	AT	7485-FINAL	$ 1,241,805.00
8/5/2021	3300	TxDOT	Jefferson County US 69	Mill and Overlay	AT	7486-FINAL	$ 7,063,405.00
	3301	TxDOT	Jefferson County US 69	Asphalt Overlay	SB	7053ANG	
	3302	Iron Horse Terminal	Martin Marietta Laydown Yard	Site Excavation, Road Development	JL	7490FINAL	$ 1,051,571.20
	3303	City of Port Arthur	60th Street Pavement Rehabilitation Project	Overlay, Pot Hole Fill, Level-Up	AT	7492-FINAL	$ 183,494.79
3/15/2021	5005	Louisiana Dept. of Transportation and Development	Johnson Brothers Labor & Equipment	Mill, Labor and Equipment	AWT	7416FINAL1	$ 27,725.00
4/20/2021	5006	Cedar Port Site Maintenance	Cedar Port Site Maintenance				
3/17/2021	5007	Jefferson County Drainage District #7	Asphalt Paving Levee DD7 (Primoris)	Asphalt Paving	AWT	7321FINAL	$ 44,550.00
4/21/2021	5008	City of Beaumont	Excavators Street Overlay City of Beaumont	Asphalt Overlay	SB	7435FINAL	$ 23,790.00
4/29/2021	5009	Bill Pope	Bill Pope Pleasure Island Project	Shoreline Protection	SB	7450	$ 47,000.00
5/11/2021	5010	TxDOT	COPOSA Part2 FM 2354 OCST	Seal Coat	AWT	7418FINAL2	$ 38,577.20
5/26/2021	5011	Port of Sabine Pass	Port of Sabine Pass Base & Fabric		SB	7461	$ 69,465.00
10/11/2021	5027	Orange Co SH 87 - Widgeon Asphalt Driveways	Orange Co SH 87 - Widgeon Asphalt Driveways	Orange Co SH 87 - Widgeon Asphalt Driveways	JL	7441Final	$ 71,186.50
10/18/21	5028	Cattail Marsh Visitors Parking Rehab	Cattail Marsh Visitors Parking Rehab	Cattail Marsh Visitors Parking Rehab	JH	7508Final	$ 77,980.00
12/21/21	5029	Mason Construction Tack Spray	Mason Construction Tack Spray	Mason Construction Tack Spray	JM	7532	$ 1,700.00
1/5/2021	6151	MCI / Corps of Engineers	Town Bluff Structure Access Dam B		WS	7360ws	$ 303,644.12
1/7/2021	6152	TxDOT	Tyler County FM 92	Mill and Overlay	WS	7387ws	$ 387,405.92
2/11/2021	6153	Weaver Brothers Dodge	Weaver Brothers Dodge Jasper	Level and Overlay Parking Area	WS	7355ws	$ 133,771.43
2/4/2021	6154	TxDOT	Newton County SH 87		WS		$ 1,498,772.65
4/6/2021	6155	Coburn's	Coburn's	Level and Patch Parking Area	WS	7277	$ 78,350.00

	6156	Jasper County, Texas Precinct 1	Blueshore Lane, Bayview Drive Edgewood		WS	7336ws	$ 49,977.45
	6157	Jasper County, Texas	Jasper County GLO DR CDBG 2017 Harvey DR 20-065-013-C049	Precinct 3 & 4 Drainage Improvements	AWT	7403FINAL	$ 172,872.76
	6166	City of Ivanhoe	Ivanhoe Drive Entrance Improvements	Entrance Improvements	WS	7457wsch01	$ 330,550.40
	6167	Jasper County, Texas Precinct 4	Jasper County Precinct 4	1" Level Up Course; 1.5" Final Course - CR 758, 759, 882	WS	7445ws	$ 210,035.59
	6168	City of Woodville, Texas	MLK & Hyde Patch Work	Mill and Overlay 2"	WS	7398ws	$ 29,964.12
	6169	City of Woodville, Texas	Cobb Mill Road	Mill and Overlay 2"	WS	7471ws	$ 39,603.44
	6170	Newton County, Texas	Newton County 2017 GLO DR 4223 Harvey Road Improvements Project		WS	7477wsfinal	$ 986,895.29
	6173	TxDOT	Jasper County RE 255		WS		
9/10/2021	6174	City of Ivanhoe	City of Ivanhoe 2021 Road Bond Project		WS	7506ws	$ 562,559.33
10/26/2021	6178	Jasper County	Jasper County Precinct 2 Road IMP	Road Improvement Type F Hot Mix; Level Up; Overlay	WS	7517WS	$ 276,541.98
	6179	Jasper County	Jasper County Precinct 1 Road IMP		WS		

2020

Date	Job No	Owner	Project Name	Job Description	Estimator	Est No	Contract Amount
11/5/2020	6150	TxDOT	Jasper County FM 1013	Flexible Pavement Structure Repairs	WS	7339ws	$ 394,674.08
8/12/2020	6149	Jasper County	Jasper County - Precinct 2	Various Road Repairs	WS	7335WS	$ 304,938.67
9/3/2020	6148	Newton County	Newton Municipal Airport	Pavement Rehabilitation	WS	7316ws	$ 687,173.88
	6147	City of Ivanhoe	Hurricane Harvey Round 1				
7/27/2020	6144	Jasper County, Texas	Pinto Construction	1408 Resurface Highway	WS	7298-2	$ 1,073,510.91
	6142	City of Ivanhoe	Durwood Drive	Reclaim Road Asphalt Overlay	JL	7310B	$ 197,374.10
11/10/2020	1148	Bechtel Oil, Gas and Chemicals, Inc.	Bechtel/Cheniere - Phase 4		JH	608	$ 953,295.56
10/22/2020	1147	ExxonMobil Oil Corp	3 Areas Road Repair	Mill and/or Scarify Existing Roads	JB	620_FINAL	$ 203,568.20
11/19/2020	1146	Zachry	Golden Pass LNG Parking Phase 3	Overlay Phase 3 Lot & Roads	JH	606D2	$ 1,072,216.79
8/11/2020	1145	Zachry	Golden Pass LNG Parking Phase 1	Parking Lot Overlay	JH	606-R1	$ 992,867.84
7/28/2020	1143	Petroleum Wholesale	Gulf Oil - Parking Lot Repair & Overlay	Base Repairs and Overlay	JH	587R2	$ 337,100.00
7/9/2020	1142	Triple S Energy	Triple S Energy Transfer Paving	Paving	JH	456-R2	$ 183,180.20
4/7/2020	1138	Zachry	Zachry Golden Pass Paving	Paving	JH	559R1	$ 175,382.40
2/19/2020	1131	DOW	DOW Bubble Building Drainage	Bubble Building Drainage	JH	507R1	$ 34,830.24
1/7/2020	4997	Excavation and Construction	Excavation and Construction	Milling	AT	7244C	$ 7,650.00
3/16/2020	4998	Elite Contractors and Equipment	Vibratory Hammer Rental	Elite Vibratory Hammer Rental	SB	7271	$ 10,000.00
	4999	Cheniere	Road Milling Work	Road Milling Work	JL	7304	$ 19,251.00
12/28/2020	3277	City of China (Ramtex as GC)	City of China Road Rehabilitation	HMA	AT	7377FINAL	$ 103,998.00
12/3/2020	3276	TXDOT	Jefferson Co. Fm 365 Overlay	Milling & Asphalt Overlay , Flexible Pavement Repair	AT	7378FINAL	$ 797,913.00
12/3/2020	3275	City of Beaumont	Helbig Road Asphalt Resurfacing Project	Mill, Base Repair, Level-Up, Overlay	AWT	7374FINAL	$ 1,250,757.33
12/3/2020	3274	City of Beaumont	Street Rehabilitation Resurfacing Project	Cement Stabilization, Asphalt Level-Up & Surface	JL	7376FINAL	$ 931,571.50
9/3/2020	3272	TxDOT	Hardin County FM 3513	Mill and Inlay	AT	7346FINAL	$ 223,049.69
9/14/2020	3271	Sabine Pass Port Authority	Port of Sabine Pass	Rock Placement/Erosion Control	BM	7345FINAL	$ 118,924.80
8/6/2020	3270	TxDOT	Liberty County CR 2307	Bridge Replacement	JL	7324FINAL	$ 777,585.00
8/6/2020	3269	TxDOT	Jefferson County US 69	Mill and Inlay	AWT	7323FINAL	$ 2,558,236.00
	3268	TxDOT	Williams Brothers - Jefferson County IH 10	Detour Removal	SB	6896WB	
7/9/2020	3267	TxDOT	Orange County FM 105	Road Widening; New Drainage; SMA Overlay	JL	7313FINAL	$ 1,226,989.00
7/23/2020	3266	SVEA Real Estate	Jimmy Johnson Blvd Parking Lot	Concrete Parking Lot	SB	7243R-1FNL	$ 415,650.00
7/20/2020	3265	Golden Pass LNG	Golden Pass LNG - SH 87 Widening	Widen Road Overlay	AT	7272FINAL	$ 675,439.90
6/22/2020	3263	Vidor Independent School District	Vidor Independent School District Paving Improvements	Base Rework; Concrete Paving/Asphalt Overlay	JL	7312FINAL	$ 995,098.80
5/21/2020	3262	Jefferson County Drainage District No. 6	Jefferson County Drainage District No. 6 Breakwater Rock	Rock Placement/Erosion Control	BM	7301FINAL	$ 999,855.80

6/5/2020	3261	TxDOT	Orange County FM 1130	Flexbase Repair, Mill and Overlay, Crackseal	AT	7299FINAL	$ 660,008.86
	3260	N/A					
5/19/2020	3259	City of Nederland	Bourque and Hodgson	Concrete and Base	AT	7284FINAL	$ 1,347,168.00
5/8/2020	3258	TxDOT	Chambers County FM 565	Mill, Overlay, Backfill Edge, Drainage	AT	7289FINAL	$ 206,938.90
2/27/2020	3257	City of Nederland	City of Nederland Asphalt Rehab 2020	Mill & Overlay ASB Repair Drainage	AT	7268AFINAL	$ 971,308.00
2/7/2020	3256	TxDOT	Liberty Co. FM 787 Bank Stabbilization	Bank Stabilization	AWT	7259FINAL	$ 15,552,095.94
2/6/2020	3255	City of Beaumont	Pine Street Asphalt Resurfacing Project	Mill, base repairs, Superpave Overlay	AT		$ 475,073.26
1/16/2020	3254	Port of Beaumont	Carroll Street Bridge Project		AWT	7238FINAL	$ 8,545,891.69
2/6/2020	3253	City of Beaumont	Old Voth Road Resurfacing Project	Mill,base repairs, Superpave Overlay	JL	7247FINAL	$ 646,090.55

2019

Date	Job No	Owner	Project Name	Job Description	Estimator	Est No	Contract Amount
7/10/2019	6134	TxDOT	Jasper County SH 63	Mill and Overlay	DB		$ 769,167.00
4/25/2019	6130	Newton County PCT 1	County Road Improvements	Road Improvements	DB	7163P1	$ 2,432,040.50
4/25/2019	6127	Newton County PCT 4	County Road Improvements	Road Improvements	DB	7163P4SCH	$ 2,353,309.94
4/25/2019	6126	Newton County PCT 3	County Road Improvements	Road Improvements	DB	256126SCH	$ 1,788,201.20
4/25/2019	6125	Newton County PCT 2	County Road Improvements	Road Improvements	DB	7163P2SCH	$ 959,704.25
2/5/2019	6124	TxDOT	Newton County FM 2829	Overlay	DB	7135sch	$ 735,833.54
2/5/2019	6123	TxDOT	Tyler County US 69	Mill and Overlay	DB	7134SCH	$ 3,070,400.30
2/22/2019	6122	Jasper County	Jasper County Precinct 1 Road Repairs	Road Repairs	DB		$ 21,148.50
12/6/2019	4996	Eastex Utility Construction	Eastex Utility Construction	Mill and Fill	AT	7233FINAL	$ 27,470.00
8/22/2019	4995	Sabine Pass Port Authority	SPPA Parking Lot	Overlay	AT	7206	$ 28,769.25
8/2/2019	4994	Martin Marietta	Martin Marietta Milling	Milling	JL	7210	$ 7,500.00
7/17/2019	4993	City of Orange	West Bluff Road Seal Coat	Seal Coat Existing Road	JL	7116FINAL	$ 84,293.50
6/11/2019	4992	Walker Arena	Excavators & Constructors Asphalt Road	Asphalt Overlay	JL	7189	$ 36,272.00
4/1/2019	4991	City of Orange	City of Orange Dawnwood Drive	Cement Treat and 2CST	AT	7157 Final	$ 99,100.00
1/22/2019	4988	Lamar Institute of Technology	LIT Asphalt Overlay	Asphalt Overlay	SB	7039A	$ 75,168.50
12/3/2019	3252	TxDOT	Hardin County FM 1293	Cement Stabilization,Drainage Improvement, Asphalt Overlay	JL	7229Final	$ 5,560,806.23
10/4/2019	3251	City of Beaumont	Old Dowlen Road Asphalt Resurfacing Project	Asphalt Overlay	JL	7218FINAL	$ 295,779.00
9/6/2019	3250	TxDOT	Tyler County FM 92	Mill and Overlay	AT	7213FINAL	$ 921,180.09
9/6/2019	3249	TxDOT	Hardin County US 69	Flexible Pavement Structure Repair	AT		$ 712,026.00
5/9/2019	3248	City of Silsbee	2019 Road Rehabilitation Project	Reclaim Road and Asphalt Overlay	AT	7180FINAL	$ 338,513.40
4/12/2019	3247	TxDOT	Jefferson Co. SH 73 Seal Coat	Seal Coat	SB	7000B	$ 347,576.80
4/2/2019	3246	TxDOT	Jefferson Co. SH 73 Micro-Mill and Overlay	Micro-Mill, Full Depth Repairs, Overlay	JL	7160FINAL	$ 2,402,166.15
3/6/2019	3245	TxDOT	Jefferson Co. US 69 Reconstruct Existing Concrete Road	Concrede Demo, Lime Stabilization, Cement Treat Base, Concrete Pavement	JL	7152FINAL	$ 2,395,589.00
2/13/2019	3244	City of Port Arthur	Nashville Avenue Pavement Improvements	Milling,Lime Stabilization, Concrete Pavement	JL	7144FINAL	$ 913,289.50
3/19/2019	3243	TxDOT	Chambers County SH 124, GR, BS, AACP, STFO	Seal Coat, Level-Up Overlay	AT	7149 Final	$ 1,919,055.95
1/9/2019	3242	TxDOT	Hardin County US 69 Widening Project	Widening of Northbound and Southbound Lanes; Asphalt Overlay	JL	7124 Final	$ 2,191,839.00
1/11/2019	3241	Port of Port Arthur Navigation District	Lakeshore Drive Widening Project	Lime Stabilization, Full Depth Repairs, Drainage Improvements, Asph. Overlay	JL		$ 937,234.00
1/10/2019	3240	City of Vidor	City of Vidor Street Rehabilitation Project	Base Repairs & Asphalt Overlay, Reclaim Existing Base	JL	7108 Final	$ 315,460.50
12/10/2019	1120	DOW	DOW - 6th Street Bridge Rail Removal		ZL	485-CO1	$ 12,520.50
12/4/2019	1119	Natgasoline	Natgasoline - Parking Lot Repairs		JH	494R1	$ 39,701.40
12/2/2019	1118	Sabine Pass Port Authority	Sabine Pass Port Authority - Heavy Parking Lot		JH	497	$ 49,924.00
11/20/2019	1117	Exxon Mobil	Exxon Mobil - Wharf Area		JH	505	$ 18,297.00
10/28/2019	1116	DOW	DOW - 6th Street Bridge		JB	485	$ 116,248.00
10/28/2019	1115	DOW	DOW - 2019 Road Repairs		JB	405	$ 712,186.14
10/17/2019	1114	Exxon Mobil	Exxon Chemical - 4th Street Repair		JB	499	$ 38,612.25
10/14/2019	1113	Lucite	Lucite Exploration - DOW Sinkhole		JB	495A	$ 7,400.00
10/14/2019	1112	Lucite	Lucite - 3rd St. Edge Repair	Edge Repair	JB	495B	$ 7,950.00
10/4/2019	1111	Beaumont Electrical J.A.T.C.	JATC Mill and Overlay (Half Lot)	Mill and Overlay	JH	453R1	$ 96,050.10
10/2/2019	1110	Sabine River Authority of Texas	Sabine River Authority - Sites 1 and 2		JH	488	$ 68,972.00
10/1/2019	1109	Lucite	Lucite - OCI CT Washout	Washout	JB	495	$ 40,700.00
10/1/2019	1108	Colonial Pipeline	Colonial Pipeline - Hebert Station Paving	Paving	JH	480	$ 165,902.00
9/6/2019	1106	NatGasoline	Entrance Ramp to Parking Lot	Excavating existing material and replacing with Limestone base	JH	484	$ 26,308.75
9/4/2019	1105	ExxonMobil	Signal Removal	Signal Removal	JH	321-01	$ 48,561.50
7/24/2019	1104	Valero Port Arthur Refinery	Parking Lot Grading and Repairs	Grading and Repairs	JB	470	$ 20,500.00
7/11/2019	1102	Sabine Pass LNG	APTIM Road Repairs	Asphalt Road Repairs	JH	465	$ 13,305.80
5/20/2019	1099	Lucite	Lucite - Patch	Patch	JH	451	$ 7,740.80
4/25/2019	1098	Chevron Phillips	Zachry/CPChem Parking Lot Repairs	Parking Lot Repairs	JB	4198/421	$ 84,148.64
4/5/2019	1097	TOTAL	Deshiell - Total Mill & Overlay	Mill and Overlay	JH	427R1	$ 31,580.00
3/26/2019	1096	BNSF Railway	BNSF - Parking Lot	Asphalt Parking Lot	JH	6963 INDUSTRIAL	$ 367,480.00
3/20/2019	1095	Exxon Mobil	BTEC - Concrete Road Repair	Entry Road Repair	JB	401	$ 49,480.00
3/15/2019	1094		Progressive Pipeline - Sulfur LA Repairs		JH	424	$ 15,370.00
3/14/2019	1093	Exxon Mobil	BOP - Quarterly Parking Maintenance	Parking Maintenance	JB	428	$ 33,832.00

		2018					
Date	Job No	Owner	Project Name	Job Description	Estimator	Est No	Contract Amount
11/6/2018	6121	TxDOT	Jasper County FM 1131	Milling, Base Repair, SMA	DB	7094-SCH	$ 519,343.00
11/6/2018	6120	TxDOT	Jasper County USO 190	Flexible Pavement Repairs	DB	7093-SCH	$ 571,387.00
7/11/2018	6115	TxDOT	Jasper County US 96	Cold Plan, SMAR Inlay, Rubbilization of PCCP	DB	7044	$ 10,694,241.70
6/5/2018	6114	TxDOT	Jasper County US 190	Mill / Inlay / Level Up / Overlay	DB	7013_SCH	$ 1,990,001.87
3/23/2018	6113	Newton County	Precinct 4 County Road Repairs	Road Repairs	DB	6936SCH	$ 167,745.00
4/3/2018	6112	TxDOT	Tyler County FM 0092	Rehab Roadway and Re-Surface	DB	7003SCH	$ 1,927,852.00
3/6/2018	6111	TxDOT	Tyler County FM 2992	Surface Widening	DB	6981SCH	$ 509,224.00
11/12/2018	3238	TxDOT	Jefferson County US 69	Flexible Pavement Repair and Taper Shoulders	SB	7036C_FINAL	$ 2,446,266.00
9/21/2018	3237	TxDOT	Jefferson County FM 365 Asphalt	Asphalt Detours & Surface	AT	7037 Final	$ 179,880.00
7/31/2018	3236	City of Silsbee	2018 Road Rehabilitation Project	Road Reconstruction	AT	7062 Final	$ 204,971.70
7/10/2018	3235	TxDOT	Hardin County US 96	Mill & Overlay Existing Roadway	JL	7052 Final	$ 9,802,253.00
7/10/2018	3234	TxDOT	Jefferson County US 69	Add Additional Lanes	AT	7053 Final	$ 25,497,125.00
5/2/2018	3233	TxDOT	Galveston County SH 87	Rehabilitation and Raise Roadway	SB	7020 Final	$ 20,817,021.00
	3232	Adlong Johnson					
5/1/2018	3231	TxDOT	Chambers County FM 565		JL	7018 Final	$ 1,803,181.00
5/2/2018	3230	TxDOT	Jefferson County US 90	Bridge Maintenance	JL	7019 Final	$ 237,658.00
5/2/2018	3229	TxDOT	Orange County FM 105	Widen, Stabilize and Overlay	AT	7016 Final	$ 1,139,721.00
4/24/2018	3228	City of Orange	Sunset Drive and 28th Street	Road Overlay	AT	7008 Final	$ 244,038.80
3/6/2018	3227	TxDOT	Chambers County IH-10	Bridge & Rail Upgrade	JL	6986 Final	$ 335,275.50
3/22/2018	3226	City of Lumberton	Park Road Widening	Park Road Widening	JL	6999 Final	$ 694,642.92
3/6/2018	3225	City of Nederland	Nederland Avenue Overlay	Paving, Drainage and Utility Improvements	AT	6973 Final	$ 4,976,268.61
2/2/2018	3224	TxDOT	Orange County SH 62	Overlay	AT	6957 Final	$ 999,987.47
2/2/2018	3223	TxDOT	Orange County SH 12	Install Turn Lane	AT	6956 Final	$ 6,632,538.48
1/4/2018	3222	TxDOT	Jefferson County FM 364	Road Widening	AT	6937 Final	$ 3,523,494.71
11/5/2018	1087	Cheniere	S&S - Cheniere Lighthouse Road		JB	380	$ 104,327.00
12/10/2018	1086	Flint Hills Resources	TX-LA Resources (TCR) - Flint Hills Overlay		JH	375-R2	$ 78,378.00
	1085	Total	Cajun - Total Plant Paving		JH	326-R1	$ 26,300.00
9/20/2018	1084	Motiva	Bomac - Motiva PNT Asphalt Paving		JH	361	$ 157,900.00
11/8/2018	1083	Total	Total - Tent Pad		JH	382	$ 24,442.00
11/9/2018	1082	Exxon Mobil	Jacobs Sweeping Maintenance		RK	386	$ 260,000.00
6/22/2018	1081	Jefferson Energy	STI / Jefferson - 2307 Tank Ring		JB	331-1D	$ 71,500.00
6/21/2018	1080	Jefferson Energy	STI / Jefferson - 2306 Tank Ring		JB	331-1C	$ 71,500.00
6/20/2018	1079	Jefferson Energy	STI / Jefferson - 2305 Tank Ring		JB	331-1B	$ 71,500.00
9/12/2018	1078	Exxon Mobil	CBRE - Exxon Mobil BOP Parking Maintenance		JB	339R1	$ 109,900.00
4/4/2018	1077	Valero	Valero - 2018 Road Work Repairs	Road Work Repairs	JB	236R2	$ 164,756.25
	1076	City of Port Arthur	8th Street Rehabilitation		SB	7054JOB	$ 1,137,449.00
7/25/2018	1075	Optimus	Optimus - Entry Road and Gate Striping		JB	325A	$ 134,912.50
3/5/2018	1072	CBI	MC30 Spray	MC30 Spray	GT	283	$ 223,056.00
5/15/2018	1069	BPEX	Zachry/BPEX Asphalt Paving	Asphalt Paving	BF	314	$ 496,400.00
5/8/2018	1066	Jefferson Energy	STI / Jefferson - Tank Rings	STI / Jefferson - Tang Rings	CL	242R1	$ 147,500.00
4/25/2018	1065	Sempra LNG	Sempra LNG - Project Site Cleanup	Sempra LNG - Project Site Cleanup	GT		$ 65,190.00
	1064	TOTAL	RECON/TOTAL - Ethane Cracker	RECON/TOTAL - Ethane Cracker	BF		$ 148,991.00
4/26/2018	1063	Valero	Valero-Various Items 2018	Valero-Various Items 2018	JB		$ 34,230.50
4/25/2018	1062	Cheniere	Bechtel/Cheniere Stage 3	Bechtel/Cheniere Stage 3	RK	307	$ 2,275,927.50
4/17/2018	1061	Natgasoline	NatGas - Sulphur Plant Road	NatGas - Sulphur Plant Road	RK	311	$ 95,920.00
3/20/2018	1060	Flint Hills Resources	Flint Hills - Miscellaneous Patching	Flint Hills - Miscellaneous Patching	BS		$ 49,122.50
3/13/2018	1059	Golden Triangle Landfill	Golden Triangle Landfill - Repair Driveway	Golden Triangle Landfill - Repair Driveway	BS		$ 67,262.50
3/14/2018	1058	Sunoco	PLS/Sunoco - 47x 19 Patch	PLS/Sunoco - 47x 19 Patch			$ 16,400.00
3/15/2018	1057	Natgasoline	Orascom/NatGas - Access Road	Orascom/NatGas - Access Road	BS		$ 290,840.00
2/28/2018	1056	Flint Hills Resources	FHR - AU Base Repair and Overlay	FHR - AU Base Repair and Overlay	BS	264	$ 66,408.60
2/27/2018	1055	P66	P66/Excel - Warehouse Ramp	P66/Excel - Warehouse Ramp	BS	282	$ 17,893.75
1/5/2018	1052	Valero	Valero - Crane Pad Repairs	Crane Pad Repairs	CL		$ 63,972.50

		2017					
Date	Job No	Owner	Project Name	Job Description	Estimator	Est No	Contract Amount
	4961	KBR	Jefferson County KBR Pipeline	Patching	AT	6754A	$ 36,598.00
11/2/2017	3221	Port of Beaumont	Port of Beaumont Old Highway 90 Widening Project	Widening Existing Roadway	AT	6921 Final	$ 537,175.42
10/17/2017	3220	TXDOT	Jefferson County Highway 87	Roadway and Canal Repairs	SB	6928 Final	$ 19,225,096.80
9/29/2017	3219	TXDOT	Jefferson County IH-10 Project	Slope and Road Repair	JL	6916 Final	$ 1,924,807.20
9/15/2017	3217	Jefferson County	Jack Brooks TaxiWay D Ware Ramp	Jack Brooks TaxiWay D to Ware Ramp	AT	6900 Final	$ 3,167,678.80
9/13/2017	3209	TXDOT	Washington BLVD. Jefferson County	Road Stabilization, SMA Overlay & Road Widening	SB	6898 Final	$ 1,690,881.52
9/7/2017	3208	City of Silsbee	2017 City of Silsbee Road Rehab.	2" Overlay Various Streets & Road Widening	JL	6906 Final	$ 235,540.88
9/6/2017	3207	City of Port Arthur	City of Port Arthur 7th St. Pavement Rehabilitation	Concrete Full Depth Repairs & Overlay (HMA)	SB	6888 Final	$ 1,462,606.85
8/14/2017	3206	Excavation and Construction	City of Port Arthur - 4th Street	Asphalt	AT	6759A	$ 143,302.50
7/12/2017	3205	Jefferson County US 90	Jefferson County US 90	GR, BS, STR, PVMT	SB	6882	$ 1,352,568.50
7/11/2017	3204	Tyler County FM 3065	Tyler County FM 3065	Safety Treat Fixed Objects	AT	6885	$ 1,175,518.17
7/5/2017	3203	Newton County CR 4212	Newton County CR 4212	Replace Bridge & Approaches	AT	6861 Final	$ 646,004.20
6/21/2017	3202	Port of Beaumont	Port of Beaumont South End Paving Project	South End Paving Project	SB	6851	$ 1,115,600.00
6/21/2017	3201	TxDOT	Hardin County FM 421 Safety Treat Fixed Objects	Safety Treat Fixed Objects	AT	6837	$ 1,375,866.73
5/23/2017	3200	City of Nederland	Holmes Road Rehabilitation Project	Roadway Rehabilitation	SB	6840	$ 170,392.00
5/23/2017	3199	City of West Orange	City of West Orange Street Improvements	Limestone Patching and Sealcoat	JL	6816A	$ 233,724.70
4/27/2017	3198	TXDOT	Orange County FM 2177	Provide Additional Paved Surface	AT	6818	$ 328,092.65
4/27/2017	3197	TXDOT	Orange County SH 73	GR, BA, ACP	AT	6817	$ 5,658,758.03
1/11/2017	3195	TXDOT	Jefferson County US 69	Mill & Inlay/Overlay	AT	6772	$ 2,081,958.21
10/21/2016	3191	ExxonMobil	Jacobs/ExxonMobil BPEX Highway 90	Highway 90 and Entrance Improvements	CL	258643G	$ 1,648,165.00
4/14/2016	3179	Cheniere	Bechtel - Train 2 & Roadwork	4" Asphalt - Train 2 & Roadwork	JB	258602A	$ 2,165,031.00
10/25/2017	1043	Port of Orange	Port of Orange - Mill and Pave	Mill and Pave	JL		$ 191,460.00
10/19/2017	1042	Flint Hills Resources	Flint Hills Tank Farm Roadway Rehabilitation		JB	240	$ 8,560.00
	1041	Motiva	Motiva - 1st Avenue Overlay	Motiva - 1st Avenue Overlay	JB		$ 46,790.00
	1040	Motiva	Motiva - 21st Street Mill and Overlay	Motiva - 21st Street Mill and Overlay	JB		$ 61,874.50
	1039	Motiva	Motiva - MOB Parking Seal Coat	Motiva - MOB Parking Lot Seal Coat	CL		$ 57,500.00
	1038	Flint Hills Resources	FHR - Central Control Building Rock Installation	FHR - Central Control Building Rock Installation	BF		$ 8,250.00
9/22/2017	1037	Cheniere	Recon / Cheniere - Phase II Entrance	Recon / Cheniere - Phase II Entrance	CL		$ 160,838.00
	1036	Cheniere	OPD / Cheniere - Asphalt Parking Lot	OPD / Cheniere - Asphalt Parking Lot	BF		$ 16,500.00
	1035	FHR - Emergency Washout Repair					$ 21,400.00
	1034	FHR - Levee Road Repair					$ 40,376.00
8/1/2017	1033	Flint Hills Resources	Flint Hills - Drainage Rehab Project	Flint Hills - Drainage Rehab Project	BF	188	$ 42,031.00
7/24/2017	1032	Flint Hills Resources	Flint Hills - Pump Access Drive	Flint Hills - Pump Access Drive	BF	192	$ 50,405.00
7/19/2017	1031	Total Petrochemicals & Refining USA	Total - Crane Pad	Total - Crane Pad	BF	197	$ 15,662.00
7/19/2017	1030	ExxonMobil	BPEP - Road Rehab	BPEP - Road Rehab	JB		$ 419,592.00
7/14/2017	1029	Cheniere	ARKEL / Cheniere - Helipad Project	ARKEL / Cheniere - Helipad Project	CL	196R2	$ 523,473.40
7/11/2017	1028	Cheniere	CB&I / Cheniere Rock Placement 2	CB&I/Cheniere - Rock Placement 2	CL	200	$ 43,506.75
7/6/2017	1027	Valero	Valero - Levee Repair Project	Valero - Levee Repair Project	CL	110TM	$ 240,740.00
7/6/2017	1026	ExxonMobil	ExxonMobil - Parking Lot at Building Demo	ExxonMobil - Parking Lot at Building Demo	BF	173A	$ 80,405.50
6/30/2017	1025	Cheniere	CB&I/Cheniere - Rock Placement 2	CB&I/Cheniere - Rock Placement 2	JB	193	$ 110,050.00
6/20/2017	1024	Cheniere	CB&I/Cheniere - Rock Placement	Rock Placement	GT	187	$ 180,000.00
6/9/2017	1023	Flint Hills Resources	Flint Hills - Petro Chem Road Level Up	Petro Chem Road Level Up	BF	258671B	$ 72,276.00
6/9/2017	1022	Flint Hills Resources	Flint Hills - PDU Road Repairs	PDU Road Repairs	BF	176	$ 69,174.50
6/9/2017	1021	Flint Hills Resources	Flint Hills - Lunch Tent Repair	Lunch Tent Repair	BF	258671R1	$ 13,680.00
6/9/2017	1020	Flint Hills Resources	Flint Hills - Contractor Compound Repair	Contractor Compound Repair	BF	258671R1	$ 13,924.00
6/9/2017	1019	Flint Hills Resources	Flint Hills - Au Unit Repair	Au Unit Repair	BF	258671R1	$ 12,322.00
6/9/2017	1018	Flint Hills Resources	Flint Hills - Pot Hole Repairs	Pot Hole Repairs	BF	179	$ 16,868.00
6/9/2017	1017	Flint Hills Resources	Flint Hills - Base Washout Repair - Shortcut	Base Washout Repair	BF	178	$ 9,434.00
6/7/2017	1016	ExxonMobil	Zachry - Dust Control	Dust Control	JB	116B	$ 217,800.00
5/24/2017	1014	Motiva	Motive - Slurry Seal for Existing Parking Lot	Slurry Seal for Existing Parking Lot	BF	168	$ 11,250.00
4/27/2017	1013	Valero	Valero - NSRU Areas	Roadway Improvements	CL	100	$ 314,416.00
4/7/2017	1012	Phillips 66	Excel / Phillips 66	Road Repair (Area 1&2) Combo	BF	149REV1	$ 44,549.00
4/7/2017	1011	Enterprise	Enterprise - Vector Contracting Road Repair	Road Repair	BF	145	$ 24,168.00
3/28/2017	1010	Motiva	Motiva Enterprises	Parking Lot Project	BF	137	$ 88,300.00
3/29/2017	1009	Phillips 66	Excel Phillips 66 - Shoulder Paving	Shoulder Paving	RK	141REV1	$ 23,960.00
3/20/2017	1008	ChemTrade	KBR/ChemTrade	Overlay Patch	CL	143	$ 15,175.00
3/17/2017	1007	Cheniere	Recon/Arkel	Phase One Paving	CL	142	$ 266,698.00
2/16/2017	1006	Natgasoline	Jefferson County	Roadway Paving	AT	6792	$ 132,307.50
2/16/2017	1005	Flint Hills Resources	PSC/Flint Hills	Roadway Patch	CL	258706	$ 14,956.00
2/16/2017	1004	ChemTrade	KBR/ChemTrade	Overlay Patch	JB	123	$ 12,868.00
2/13/2017	1003	Phillips 66	PSC-P66 Patching (Asphalt)	Patching (Asphalt)	JB	108	$ 23,704.50
1/31/2017	1002	Jefferson Energy	Kelley Construction	Tank Paving	CL	103	$ 78,683.00
1/20/2017	1001	ExxonMobil	Prime at Exxon	Install Prime	GT	109	$ 4,725.00
1/13/2017	1000	BASF Corporation	Jefferson County	Grading and Paving	CL	8716	$ 124,140.00

2016

DATE	Job No.	Owner	Project Name	Job Description	Estimator	Est No.	Contract Amount
11/21/2016	3192	Motiva	Motiva Road Patching	ASB Roadway Patching	CL	258707	$ 127,520.00
10/21/2016	3191	ExxonMobil	Jacobs/ExxonMobil BPEX Highway 90	Highway 90 and Entrance Improvements	CL	258643G	$ 1,648,165.00
9/12/2016	3190	TXDOT	Jefferson County US 69	Ramp Reversal	SB	6683	$ 7,251,294.50
8/31/2016	3189	Flint Hills	Flint Hills Road & Parking Work 2016	Additive Rd., S. Olefins Rd., & FOB Parking Overlay	CL	258671D	$ 225,800.60
8/17/2016	3188	TXDOT	Newton County Bridge Replacement FM 2626	Bridge Replacement	TC	6714	$ 3,034,479.00
8/10/2016	3187	TXDOT	Jefferson County IH-10 Interchange	Asphalt Paving (Williams Bros) SMA Overlay	SB	6674	$ 436,090.00
7/21/2016	3186	TXDOT	Newton County SH 87, Cypress Creek to SH 12	1.5" SMA Overlay, Pavement Markings, Rumble Strips and Shoulder	DB	6670	$ 2,174,628.10
7/14/2016	3185	Total Petrochemicals & Refining USA	Total/Roadway-Parking Areas	6 roadways-grading/base installation/2" milling/2" HMAC overlay	CL	258664A	$ 179,887.00
6/28/2016	3184	ExxonMobil	Jacobs/ExxonMobil Baytown Road Repairs	Multiple roads/interseection repairs and paving	CL	258615A	$ 646,500.00
5/23/2016	3183	Valero	Gate 19 Reha	6" Mill - 3" ASB & 3" type C	JB	258579A	$ 190,587.00
5/11/2016	3182	TXDOT	Hardin Co FM 418	Widen Safety Treat Fixed Objects	AT	6668	$ 1,281,590.79
4/28/2016	3181	Motiva	Motiva Tanks 1679 & 1254	Excavate and Pave Tanks	JB	258644JOB	$ 144,601.00
4/19/2016	3178	TXDOT	Jasper US190 Flexible Pavement Repair	Flexible Pavement Structure Repair	TC	6659A	$ 1,078,969.40
4/18/2016	3180	TXDOT	Orange Co. SH0012 Emulsion Trt & Overlay	Emulsion Treat Roadway and Overlay	SB	6663A	$ 441,682.15
4/14/2016	3179	Cheniere	Bechtel - Train 2 & Roadwork	4" Asphalt - Train 2 & Roadwork	JB	258602A	$ 2,165,031.00
4/12/2016	3177	City of Vidor	City of Vidor Woodland Road Rehab	Rework Base and surface Placement	TC	6664A	$ 199,921.00
3/24/2016	3176	TXDOT	Jefferson County US 90 Full Depth Repair	Full Depth Repair	SB	6685A	$ 13,826.00
3/22/2016	3175	Jacobs/Exxon Mobil- Mont Belvieu	Ave E. & Parking area overlay	4" Overlay	JB	258637	
2/29/2016	3174	Flint Hills	North Olefins Road	Rehabilitation	JB	258591A	$ 118,325.00
2/25/2016	3173	City of Groves	Lyndale Additon Asphalt Road Repair	Road Rehabilitation	TC	6647A	$ 229,089.00
2/19/2016	3172	TXDOT	Jefferson Co. SH 87	Mill & Overlay	AT	6636	$ 3,158,875.97
2/16/2016	3171	TXDOT	Jefferson Co US 90	Plane & Overlay	TC	6639	$ 1,284,680.00
2/11/2016	3170	TXDOT	Jefferson Co FM 365	Flexible Pavement Structure Repair	TC	6638	$ 741,215.00
1/19/2016	3168	TXDOT	Orange Co. FM 105	Add Shoulders	AT	6626	$ 2,668,330.65
1/19/2016	3169	TXDOT	Tyler Co. US0069	Mill & Inlay	AT	6627	$ 527,091.00

2015

DATE	Job No.	Owner	Project Name	Job Description	Estimator	Est No.	Contract Amount
12/2/2015	3167	Lanxess	Parking Lot Repairs	Overlay & Base Repair and Overlay	JB	258592	$ 316,155.00
11/3/2015	3166	Motiva	Reservoir Levee Road	Remove & Replace Concrete	JB	258564D	$ 214,307.50
10/15/2015	3165	Valero	8th St. & Ave. F	Excavate, Place Base & Concrete	JB	258585	$ 112,603.00
9/16/2015	3163	TXDOT	Jasper Co. FM1007	Provide Additional Width and Centerline Texturing	DB	6571	$ 1,655,300.24
9/16/2015	3164	Sabine Pass LNG/Cheniere	Bayou/Cheniere Spray Application	Apply MC-30 To Various Areas	SB	250016C	$ 259,873.00
9/8/2015	3162	Sabine Pass LNG/Cheniere	Sabine Pass LNG Asphalt & Sealer	4" Overlay (6351sy) & MC-70 Sealer (32,2502sf)	JB	258570	$ 236,831.75
9/2/2015	3161	TXDOT	Chambers Co. FM 3180	GR, BS, STR, PVMT	SB	6573	$ 783,181.36
9/1/2015	3160	TXDOT	Newton Co. FM 2460	Safety Treat Fixed Objects	SB	6578	$ 1,301,346.31
8/21/2015	3159	TXDOT	Jefferson Co. FM 365 #2 Green Pond Gully	Replace Bridge & Approaches	AT	6575	$ 1,196,548.36
8/21/2015	3158	TXDOT	Jefferson Co. FM 365 #1 Ground Gully	Replace Bridge & Approaches	AT	6574	$ 1,565,852.57
8/20/2015	3157	Invista	Invista BD Storage Access Road	Lime/Flyash Stabilize, Geogrid, Base, 2CST	KE	258537	$ 860,236.89
8/18/2015	3156	TXDOT	Jefferson Co. FM 1406	Replace Bridge & Approaches	AT	6576	$ 994,488.34
7/9/2015	3154	TXDOT	Orange Co. IH0010 Flexible Pavement Repair	Repair Asphalt	AT	6552	$ 786,583.50
7/9/2015	3155	TXDOT	Jefferson Co. SH0073 Overlay Roadway	Overlay Roadway	AT	6549	$ 840,414.09
7/1/2015	3153	TXDOT	Jasper Co. US 96	Mill & Overlay	AT		$ 4,127,377.30
6/30/2015	3151	TXDOT	Orange Co. SH0087 Overlay Roadway	Overlay Roadway	AT	6535	$ 617,135.32
6/30/2015	3152	TXDOT	Jasper Co. US 190 GR, BS, PVMT, & STR	Remove & Replace Bridge	AT	6536	$ 7,078,117.16
6/23/2015	3150	Flint Hills Resources	Flint Hills Laydown Yard	Place 8" Limestone Base & Geogrid	SB	258520A	$ 167,180.00
6/11/2015	3149	City of Vidor	City of Vidor Old Hwy 90 Rehab	Mill, OCST, 2" HMA	AT	6531	$ 197,699.19
6/5/2015	3148	Jacobs	ExxonMobil BOP 17th Street, Avenue H & H&P	Roadway Rehabilitation	SB	258526A	$ 151,661.00
5/20/2015	3147	TXDOT	Jasper Co. US 190 Flexible Pavement Structure Repair	Flexible Pavement Structure Repair	SB	6520	$ 281,360.50
5/19/2015	3146	TXDOT	Jasper Co. US 190 GR, BS, PVMT, STP	Widening & Overlay	DB	6517	$ 4,313,473.26
5/18/2015	3144	Duphil	Duphil Parking Overlay	Overlay	JB	6524A	
4/16/2015	3143	Jefferson County	Road Improvements 2015	Overlay, Rework & Seal Coat	AT	6510	$ 1,027,608.37
3/24/2015	3142	TXDOT	Hardin US 69	Plane & Overlay Various Roads	SB	6481	$ 1,333,591.89
3/18/2015	3141	TXDOT	Jefferson Co. CR	STR, BASE, ACP - Bridge Replacement - Island Park Rd @ Brakes Bayou	SB	6483	$ 2,984,343.00
3/18/2015	3140	TXDOT	Hardin Co. FM 943 GR, BS, PVMT	Pavement Widening/Seal Coat	AT	6475	$ 2,607,577.21
3/18/2015	3139	TXDOT	Orange Co. CS GR, BS, STR, PVMT	Install Turn Lane/Overlay	AT	6474	$ 158,456.78
3/13/2015	3138	Orange Co.	Thomas Road Bridge	Bridge Reconstruction	AT	6478	$ 534,172.40
3/13/2015	3137	City of Orange	Huntsman & Bassett Street Rework	Lime/Flyash Stabilize & Overlay	AT	6466	$ 135,842.00

2014

DATE	Job No.	Owner	Project Name	Job Description	Estimator	Est No.	Contract Amount
12/18/2014	3136	TXDOT	Orange County FM 105	Mill & Overlay	SB	6449	$ 290,384.74
12/18/2014	3135	City of Vidor	Road Rehabilitation	Mill, Base Repair & Overlay	SB	6437	$ 495,262.85
12/18/2014	3134	TXDOT	Jefferson Co. PW 1004	OCST, ACP	AT	6447	$ 55,175.45
12/14/2014	3133	Hanson	Hanson Watco Site	Site Preparation	AT	6440A	$ 855,000.00
12/3/2014	3132	Gerdau	Coil Storage Road	10" Concrete Paving	GT	6277-C	$ 320,000.00
11/26/2014	3131	MeadWestvaco	2014 Entrance Road Rehab	2" Mill & Overlay	SB	6431A	$ 268,544.00

11/12/2014	3129	TXDOT	Jasper Co. FM 1004	Level-up, ACP Str, Stripe	AT	6427	$ 1,507,560.61
10/27/2014	3128	TXDOT	Orange Co. CR	Railroad Grade Seperation	AT	6416	$ 8,977,087.38
10/22/2014	3127	TXDOT	Newton Co FM 2460	Pavement Widening	AT	6412	$ 1,187,970.52
10/21/2014	3126	Sabine Neches Navigation District	SNND Taylor Bayou Facility Paving Project	Excavation, ASB, Asphalt paving	GT	6425	$ 300,700.00
10/21/2014	3125	ChevronPhillips	Asphalt Paving	ChevronPhillips Chemical/Bomac Asphalt Paving	GT	5862	$ 196,450.00
10/20/2014	3124	TXDOT	Jefferson Co. VA	Install Railroad Tracks	GT	6417	$ 4,297,854.65
10/16/2014	3123	Flint Hills	High Road Rehab	Reconstruction of OSBL High Road Plant Entrance	KE	250002-A	$ 153,701.50
9/28/2014	3122	Amber LP	Amber LP Concrete & Asphalt	Concrete & Base	AT	6328	$ 161,259.50
8/19/2014	3121	TXDOT	Jefferson Co. US 69	Sidewalk Concrete Pavement	GT	6367	$ 383,353.35
8/8/2014	3120	Jefferson Co.	Jack Brooks Taxiway D Reconstruction	Taxiway D Reconstruction	AT	6332	$ 1,906,118.00
8/7/2014	3119	TXDOT	Hardin Co. US69 GR, BS, ACP, STR	Widening/SMA	AT	6365	$ 7,502,185.05
8/6/2014	3118	TXDOT	Jefferson Co. FM 366	Full Depth Repair	CC	6334	$ 538,011.70
8/4/2014	3117	Huntsman Port Neches	Huntsman Contractor Access Roadway	Contractor Access Road	SB	6320A	$ 102,976.50
8/22/2014	3116	TXDOT	Orange Co. SH 62	Install Right Turn Lane	SB	6337	$ 140,492.90
7/29/2014	3115	City of Port Arthur	Pleasure Island Marina	Pavement Rehabilitation	CC	6358	$ 405,289.00
7/29/2014	3114	Jefferson Co.	Runway 16/34 Rehabilitation	Jack Brooks Airport Runway 16/34 Rehabilitation	CC	6356	$ 305,518.00
7/29/2014	3113	Jefferson Co.	Runway Safety Area Grading	Jack Brooks Airport Safety Area Grading	GT	6357	$ 119,490.00
7/22/2014	3112	City of Port Arthur	10th Street Improvements	Asphalt, Concrete curb & gutter, underground drainage	AT	6325	$ 686,131.50
7/11/2014	3111	TXDOT	Jefferson Co. SP 136	GR, BS, STR, PVMT	AT	6310	$ 569,227.19
6/10/2014	3110	Gerdau	3rd & Main Gate Revised	Gerdau 3rd & Main Gate Revised	GT	6239A	$ 368,536.00
5/14/2014	3109	Exxon/Mobil	Heavy Haul Road Phase 4	Jacobs/ExxonMobil Heavy Haul Road Phase 4	AT	6291	$ 162,702.00
5/14/2014	3108	ExxonMobil	Parking Repairs (BOB South Lot)	ExxonMobil Parking Repairs (BOB South Lot)	SB	5776	$ 114,431.00
4/15/2014	3107	TXDOT	Orange Co. SH 12 Plane, SMA, Stripe	Orange Co. SH 12 Plane, SMA, Stripe	AT	6263	$ 2,279,714.00
4/7/2014	3106	TXDOT	Newton Co. SH 12 Plane, SMA, Stripe	Newton Co. SH 12 Plane, SMA, Stripe	GT	6262	$ 1,990,411.83
4/1/2014	3105	ExxonMobil	Jacobs Area's 52 & 09	Jacobs Exxon/Mobil Area's 52 & 09	AT	6231	$ 224,105.00
3/26/2014	3104	BASF	Gate 103 Rehab	BASF Gate 103 Rehab	AT	6158B	$ 226,096.00
3/19/2014	3103	TXDOT	Newton Co. FM 1004 ACP STR STP	Newton Co. FM 1004 ACP STR STP	AT	6248	$ 1,507,560.61
3/13/2014	3102	TXDOT	Hardin Co. US 96 Etc. Mill and Overlay	Hardin Co. US 96 Etc. Mill and Overlay	GT	6243	$ 797,816.05
3/3/2014	3101	Exxon/Mobil	Jacobs Admin Parking-lot	Jacobs Exxon/Mobil Admin Parking-lot	AT	6143A	$ 214,637.70
2/24/2014	3100	TXDOT	Newton Co. SH 87 Pvmnt Repair,OCST, ACP	Newton Co. SH 87 Pvmnt Repair,OCST, ACP	AT	6222	$ 2,705,524.33
2/17/2014	3099	TXDOT	Jefferson Co. SP215 FDR, BS, Mill, Ovrly	Jefferson Co. SP215 FDR, BS, Mill, Ovrly	AT	6220A	$ 1,979,708.80
2/14/2014	3098	TXDOT	Jasper Co. FM 252 HMA Overlay	Jasper Co. FM 252 HMA Overlay	GT	6224	$ 661,886.78
2/13/2014	3097	Exxon/Mobil	Jacobs Heavy Haul Road	Jacobs Exxon/Mobil Heavy Haul Road	AT	6103A	$ 494,866.70
2/13/2014	3096	Exxon Mobil	HB Neild Lab Paving	Exxon Mobil/HB Neild Lab Paving	AT	5805	$ 165,300.00
1/13/2014	3095	Praxair	Bomac Ring Road & Drives	Bomac/Praxair Ring Road & Drives	AT	6135	$ 198,028.00
1/8/2014	3094	Huntsman	Main Road Phase 1	Huntsman Main Road Phase 1	JT/SB	6071REVA	$ 1,271,067.50

2013

DATE	Job No.	Owner	Project Name	Job Description	Estimator	Est No.	Contract Amount
12/17/2013	3093	BASF	Truck Loading	BASF Truck Loading	AT	6177	$ 132,007.00
12/13/2013	3092	BASF	Contractor Parking-lot Expansion	BASF Contractor Parking-lot Expansion	AT	6176	$ 183,632.00
12/12/2013	3091	TXDOT	Hayward Baker/Craig Olden Jefferson 69	Hayward Baker-Craig Olden Division - TXDOT Jefferson Co. US 69	SB	6197	$ 156,049.35
12/10/2013	3090	Meadwestvaco	Entrance Road Replacement	Meadwestvaco Entrance Road Replacement	SB	6151	$ 143,750.00
12/10/2013	3089	Strike	Independence Parkway for Strike	Independence Parkway for Strike	GT	6169A	$ 172,524.00
12/6/2013	3088	TXDOT	Orange Co. SH 73 Asphalt Detour	Orange Co. SH 73 Asphalt Detour	GT	6093	$ 159,384.00
11/21/2013	3087	Exxon Mobil	B&P/Zachary Asphalt Repair	Exxon Mobil B&P/Zachary Asphalt Repair	AT	6120	$ 298,907.00
11/5/2013	3086	Jefferson Co.	Jack Brooks Mill Overlay @ Hangers	Jefferson Co. Jack Brooks Mill Overlay @ Hangers	AT	6153	$ 256,011.26
10/31/2013	3085	TXDOT	Liberty Co. FM 1413	TXDOT Liberty Co. FM 1413	SB	6087	$ 2,173,548.34
10/17/2013	3084	Jasper County	GLO IKE 1 Project #7 Road Improvements Package D Road Rehab	Jasper County GLO IKE 1 Project #7 Road Improvements Package D Road R	SB	6101A	$ 350,956.00
9/30/2013	3083	TXDOT	Newton Co. FM 1013 Edge Stabilization	Newton County FM 1013 Edge Stabilization	SB	6084	$ 282,989.70
9/30/2013	3082	Jasper County	Precinct 4: 2013 County Road Improvements Project	Jasper County Precinct 4: 2013 County Road Improvements Project	SB	6099	$ 235,537.50
9/4/2013	3081	TDCJ	Leblanc Unit Perimeter Road	Leblanc Unit Perimeter Road	GT	5997A	$ 146,000.00
8/14/2013	3080	ExxonMobil	for Jacobs Asphalt & Concrete Paving QUEU LANE	ExxonMobil for Jacobs Asphalt & Concrete Paving QUEU LANE	AT	6075	$ 479,993.75
7/28/2013	3079	TXDOT	Jefferson Co. US 69 Replace Bridge & Approaches	TXDOT JEFFERSON Co. US 69 Replace Bridge & Approaches	AT	6059	$ 1,456,176.70
7/28/2013	3078	TXDOT	Jefferson Co. SH 87 Replace Bridge & Approaches	TXDOT JEFFERSON Co. SH 87 Replace Bridge & Approaches	AT	6058	$ 2,796,252.37
7/28/2013	3077	TXDOT	Jefferson Co. US 69 GR, BS, STR, PVMT, SIGN	TXDOT JEFFERSON Co. US 69 GR, BS, STR, PVMT, SIGN	AT	6060	$ 27,390,861.67
7/22/2013	3076	City of Silsbee	Hartmann and 7th Street	Hartmann and 7th Street Silsbee	GT	6073A	$ 122,458.00
6/12/2013	3075	TXDOT	Liberty Co. US 90 GR, BS, STR, PVMT, SIGN	TXDOT Liberty Co. US 90 GR, BS, STR, PVMT, SIGN	AT	6039	$ 20,677,586.00
5/23/2013	3074	Chevron	Cedar Bayou for Strike	Chevron Cedar Bayou for Strike	GT	6024B	$ 493,989.00
5/20/2013	3073	Lamar	Asphalt Parking for Band Revised	Lamar Asphalt Parking for Band Revised	GT	5725A	$ 340,270.79
5/7/2013	3072	Liberty Co	Cedar Estates Street Improvements	Liberty Co Cedar Estates Street Improvements	GT	5971	$ 290,276.60
4/29/2013	3071	TXDOT	Jefferson County SH 73 ACP, Shoulder Texture	TXDOT Jefferson County SH 73 ACP, Shoulder Texture	SB	5988	$ 5,975,104.16
	3070	TXDOT	Sabine Co. CR (Rock Creek & Williams Drive)	Sabine Co. CR (Rock Creek & Williams Drive)	AT	5987	$ 436,423.00
	3069	TXDOT	Orange Co. FM 105	Orange Co. FM 105	AT	5986	$ 3,989,094.00
	3068	TXDOT	Orange Co. FM 1006	Orange Co. FM 1006	SB	5965	$ 732,186.15
	3067	TXDOT	Jefferson Co.US 90 Mill & Overlay	Jefferson Co. US 90 Mill & Overlay	SB	5964	$ 1,347,159.25
	3066	Goodyear	HSE Concrete Work	Goodyear HSE Concrete Work	GT	5994	$ 105,373.00
	3065	TXDOT	Jasper Co. FM 2799 Edge Stabilization	TXDOT Jasper Co. FM 2799 Edge Stabilization	AT	5931	$ 785,636.00
	3064	TXDOT	Jasper FM 254 Edge Stabilization	TXDOT Jasper FM 254 Edge Stabilization	AT	5932	$ 259,576.60

	3063	ISTC	Drive Entrance & Exit	ISTC Drive Entrance & Exit	GT	5892	$	154,023.00
	3062	TXDOT	Newton Co. FM 1414 Widen Roadway	Newton Co. FM 1414 Widen Roadway	AT	5911	$	1,351,308.00
	3061	TXDOT	Jefferson Co. IH 10 Flex Base	Jefferson Co. IH 10 Flex Base	AT	5909	$	641,464.00
	3060	City of Orange	East Orange Street Improvements	City of Orange East Orange Street Improvements	AT	5888	$	1,141,774.00

Jack Brooks Airport Taxiway A Rehab.

Gulf Coast Equipment Checklist

NAME	QTY
320 Trackhoe (excavator)	AS NEEDED
Pneumatic Roller	AS NEEDED
Skid Steer (CAT)	AS NEEDED
Dump Truck/ Tri-Axle	AS NEEDED
Milling Machine 7'	AS NEEDED
Water Truck Freightliner	AS NEEDED
Vibratory Roller Singel Wheel	AS NEEDED
Rubber Tire Backhoe (CAT)	AS NEEDED
Gomaco Slip Form Paver	AS NEEDED
Gomaco Cure/Sprayer	AS NEEDED
f350 Service Truck	AS NEEDED
Cherry Picker 60 ton	AS NEEDED
Loader	AS NEEDED
Broom	AS NEEDED

GULF COAST
A CRH COMPANY

P.O. Box 20779
Beaumont, TX 77720
Phone: (409) 866-1444

CONFIDENTIAL DOCUMENT LIST:

1. FINANCIAL STATEMENT

Loza, Jose (Gulf Coast)

From: ejohnson@slsstexas.com
Sent: Monday, March 28, 2022 3:15 PM
To: Loza, Jose (Gulf Coast)
Subject: [EXT] RE: Jack brooks AirPort Taxiway A

Good afternoon Jose!!

Yes sir, we will be quoting this project! I'll make sure that you get our number.

Eric Johnson | President
Straight Line Sawing & Sealing, Inc.
114 NE 28th St, Grand Prairie, TX 75050
P: 972-590-8922 | C: 512-560-2500
www.slsstexas.com

From: Loza, Jose (Gulf Coast) <jose.loza@gc-texas.com>
Sent: Monday, March 28, 2022 8:40 AM
To: ejohnson@slsstexas.com
Subject: Jack brooks AirPort Taxiway A

Good morning sir,

I am reaching out in regards to the City of Nederland Taxiway A reconstruction. This project consists of concrete demo, new drainage pipes, and inlets, excavation. Also, DBE/HUB participation is in courage, below are the plans and docs links for you to download both. The project is due April 6, 2022. Let me know if you are able to help out with any of the concrete sawing/sealing and concrete demos.

Plans
https://www.dropbox.com/s/q3i8nohqoj6c4mw/Jack%20Brooks%20Taxiway%20A%20Rehabilitation%20-%20Construction%20Drawings.pdf?dl=0

Docs/Bid Form
https://www.dropbox.com/s/e9lliqeefo008ha/Jack%20Brooks%20%20Taxiway%20A%20IFB%20Bid%20Docs%20and%20Specifications%20%281%29.pdf?dl=0

Jose Loza
Estimator

GULF COAST
A CRH COMPANY

P.O. Box 20779
Beaumont, TX 77720

O (409) 866.1444
C (409) 284.9798
E jose.loza@gc-texas.com

www.gc-texas.com

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you are expecting this email and know the contents are safe. ATTENTION: Ce courriel vient de l'exterieur de l'entreprise. Ne cliquez pas sur les liens, et n'ouvrez pas les pièces jointes, à moins que vous ne connaissiez l'expéditeur du courriel et savez que le contenu est sécuritaire.

Loza, Jose (Gulf Coast)

From: Loza, Jose (Gulf Coast)
Sent: Monday, March 28, 2022 8:48 AM
To: mel@statewideservicesinc.net
Subject: Jack Brooks Airport

Good morning sir,

I am reaching out in regards to the City of Nederland Taxiway A reconstruction. This project consists of concrete demo, new drainage pipes, and inlets, excavation. Also, DBE/HUB participation is in courage, below are the plans and docs links for you to download both. The project is due April 6, 2022. Let me know if you are able to help out with any of the concrete demo, excavation/hauling and drainage.

Plans
https://www.dropbox.com/s/q3i8nohqoj6c4mw/Jack%20Brooks%20Taxiway%20A%20Rehabilitation%20-%20Construction%20Drawings.pdf?dl=0

Docs/Bid Form
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Loza, Jose (Gulf Coast)

From: Loza, Jose (Gulf Coast)
Sent: Monday, March 28, 2022 8:40 AM
To: ejohnson@slsstexas.com
Subject: Jack brooks AirPort Taxiway A

Good morning sir,

I am reaching out in regards to the City of Nederland Taxiway A reconstruction. This project consists of concrete demo, new drainage pipes, and inlets, excavation. Also, DBE/HUB participation is in courage, below are the plans and docs links for you to download both. The project is due April 6, 2022. Let me know if you are able to help out with any of the concrete sawing/sealing and concrete demos.

Plans
https://www.dropbox.com/s/q3i8nohqoj6c4mw/Jack%20Brooks%20Taxiway%20A%20Rehabilitation%20-%20Construction%20Drawings.pdf?dl=0

Docs/Bid Form
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Estimator

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E jose.loza@gc-texas.com

www.gc-texas.com

Loza, Jose (Gulf Coast)

From: Loza, Jose (Gulf Coast)
Sent: Monday, March 28, 2022 8:36 AM
To: rrpavingllc@aol.com
Subject: Jack brooks Taxiway A Airport

Good morning sir,

I am reaching out in regards to the City of Nederland Taxiway A reconstruction. This project consists of concrete demo, new drainage pipes, and inlets, excavation. Also, DBE/HUB participation is in courage, below are the plans and docs links for you to download both. The project is due April 6, 2022. Let me know if you are able to help out on any of the excavation, concrete demo or utilities.

Plans
https://www.dropbox.com/s/q3i8nohqoj6c4mw/Jack%20Brooks%20Taxiway%20A%20Rehabilitation%20-%20Construction%20Drawings.pdf?dl=0

Docs/Bid Form
https://www.dropbox.com/s/e9lliqeefo008ha/Jack%20Brooks%20%20Taxiway%20A%20IFB%20Bid%20Docs%20and%20Specifications%20%281%29.pdf?dl=0

Jose Loza
Estimator

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C (409) 284.9798
E jose.loza@gc-texas.com

www.gc-texas.com

Loza, Jose (Gulf Coast)

From: Loza, Jose (Gulf Coast)
Sent: Friday, March 25, 2022 11:05 AM
To: Rogelio Munoz
Subject: City of Nederland Jack Brooks Airport Taxiway A

Good morning sir,

I am reaching out in regards to the City of Nederland Taxiway A reconstruction. This project consists of concrete demo, new drainage pipes, and inlets, excavation. Also, DBE/HUB participation is in courage, below are the plans and docs links for you to download both. The project is due April 6, 2022. Let me know if you are able to help out.

Plans
https://www.dropbox.com/s/q3i8nohqoj6c4mw/Jack%20Brooks%20Taxiway%20A%20Rehabilitation%20-%20Construction%20Drawings.pdf?dl=0

Docs/Bid Form
https://www.dropbox.com/s/e9lliqeefo008ha/Jack%20Brooks%20%20Taxiway%20A%20IFB%20Bid%20Docs%20and%20Specifications%20%281%29.pdf?dl=0

Thanks

Jose Loza
Estimator

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GULF COAST

A CRH COMPANY

SEALED BID

RECV'D JEFFCTY PURCH 10:22 AM 06.04.2022

Sealed Bid For:
Jefferson County, Texas

Taxiway A Rehabilitation at the
Jack Brooks Regional Airport
Bid Number: IFB 22-011/JW

Jefferson County Purchasing Department
1149 Pearl Street, 1st Floor
Beaumont, Texas 77701

Bid Due:
Wednesday, April 6, 2022 at 11:00 a.m.

Presented By:
Texas Materials Group, Inc., dba Gulf Coast A CRH Company

827

TIDAL BASIN
A RISING PHOENIX HOLDINGS COMPANY

This Task Order is made part of and governed by the terms and provisions of the contract by and between Tidal Basin Government Consulting, LLC (Tidal Basin), and Jefferson County, TX (the "County") following our response to RFP 21-024/YS. The purpose of this task order is for Tidal Basin to provide grant management advice at the discretion of the County.

Project Name: **Jefferson County, TX DR-4586-TX Winter Storm 2021**

Scope of Services/Rates: Tidal Basin agrees to perform the following scope of services in accordance with the payment basis, estimated quantity of services and estimated cost of services set forth below. Tidal Basin shall not perform services which exceed the estimated cost of services without prior written notice to and approval by the County. Services and hours performed outside the scope of this task order will not be reimbursed.

Tidal Basin will provide consulting services to deliver the following on behalf of the County:

Tidal Basin will support county efforts to respond to FEMA Determination Memo for Project #185265, PW#99:

- Grants Management Advice:
  - Research DR-4586-TX and PW#99 to determine best route forward
  - Discuss next steps and strategy to maximize funding
  - Draft proposed response
  - Support county staff with official submission of DM response
  - Request and justify response extension, if applicable
  - Coordinate with county personnel data from FEMA grants portal and/or access to same

POSITION	RATE (per hour)
Engagement Manager	$255.00
Project Manager	$195.00
Subject Matter Expert	$185.00
Consultant	$165.00

Not to Exceed $10,000.00

Pricing presented is based on hourly rates in accordance with the existing contract. All expenses will be charged to the client in accordance with the GSA rate schedule associated with the area of operations. No current expenses are anticipated TB will gain pre-approval from County if needed

JEFFERSON COUNTY, TEXAS

Jeff Branick, County Judge

ATTEST
DATE 4-19-22

COMMISSIONERS COURT
JEFFERSON COUNTY, TEXAS

To: Fran Lee / Auditing Department

From: Greg Keller / Maintenance Department

Date: April 12, 2022

Subject: Budget Transfer

We are requesting that you transfer $11,000.00 from Acct #120-6083-416-40-01 (Cooling & Heating) and put into Acct# 120-6083-416-60-03 (Capital Outlay) to replace west elevator power unit in Courthouse Annex. If you have any questions please call ext. 8511.

Thank you,

GK/pa

OTIS

Made to move you

Otis Service and Repair Order

DATE: 04/07/2022

TO:
JEFFERSON COUNTY COURTHOUSE NO
1149 Pearl, 7th Floor
Beaumont, TX 777013635

FROM:
Otis Elevator Company
8745 Eastex Frwy
Beaumont, TX 77708

EQUIPMENT LOCATION:
JEFFERSON COUNTY COURTHOUSE WEST
1149 Pearl
Beaumont, TX 77701

Bryan Hebert
Phone: (281) 541-3389
Fax: (860) 660-1502
eMail: bryan.hebert@otis.com

PROPOSAL NUMBER: ZCA220321135540 Revision 1

MACHINE NUMBER(S) : 405338, Z77302

CUSTOMER DESIGNATION(S) :PORT BLDG,-3604, W. ELV

MEI POWER UNIT (NEW)

We propose to replace the following on the above referenced elevator using MEI brand equipment:
- Tank
- Motor
- Valve
- Piping

PRICE: TWELVE THOUSAND DOLLARS. ($12,000.00) Initial Here_____

OTIS POWER UNIT (NEW)

The existing power unit will be replaced with a new Otis brand power unit. The new Otis power unit consists of a positive displacement pump, motor, integral 4-coil control valve, oil tank and muffler. The pump and motor are submerged and are mounted to the tank with rubber isolators to reduce vibration and noise. A muffler is provided to dissipate pulsations and noise from the flow of hydraulic fluid. The valve consists of up, up leveling, down and down leveling controls along with manual lowering and a pressure relief valve.

PRICE: ELEVEN THOUSAND DOLLARS.($11,000.00) Initial Here ✓ B.K.

This price is based on a **one hundred** percent (**100 %**) downpayment in the amount.

PAYMENT TERMS:

- The base proposal price is contingent upon receiving a pre-payment of 100% of the base contract amount.
- The pre-payment amount is due in full prior to ordering material and/or mobilizing.
- If you choose the alternative down-payment amount listed below, the corresponding Add shall be applied to the base contract amount.

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MEMORANDUM

TO: COMMISSIONERS COURT

FROM: **FRAN LEE**

SUBJECT: BUDGET AMENDMENT

DATE: APRIL 13, 2022

The following budget amendment for Port Arthur Maintenance is necessary for additional cost on the elevator rehab.

120-6084-416-6014	Capital – Buildings & Structures	$25,000	
120-9999-415-9999	Contingency		$25,000

SPECIALIZED MAINTENANCE SERVICES, INC.
Specializing in today's needs for environmental protection
4533 Pasadena Blvd.
Pasadena, Texas 77503
Phone: 281/476-1010 Fax: 281/476-4067

April 7, 2022
Michael Shane Sinegal
Jefferson Court House
525 Lake Shore Drive
Port Authur TX. 77640

Dear Mr. Sinegal,

Thank you for allowing us the opportunity to provide you with this proposal for our Hydro Excavation Services.

Each Hydrovac Unit is supplied with all attachments, trained operator and technician, all special filters, lubricants and fuel will be supplied by Specialized Maintenance Services, Inc.

SCOPE OF WORK:

We understand this project to involve removing soil, mud, gravel, and miscellaneous debris from an elevator shaft at 525 Lake Shore Drive, Port Authur TX. With the following dimensions:

24"dia x 30'deep x 200' away from unit.

We will utilize a Hydrovac Unit to simultaneously water blast and vacuum the material into the debris tank and haul off to a designated disposal site.

PROCEDURE:

We will provide necessary equipment to properly remove water and debris from designated locations within the site. The following is our proposed procedure for hydro excavation:

1. Arrive at facility and get directions from client designated personnel.
2. Set up equipment at location for hydrovac excavation.
3. Activate vacuum module and myers pump and begin excavation process.

CUSTOMER TO PROVIDE:

1. Direct access within 200' of elevator shaft free from any overhead obstructions or any other type of obstruction limiting the maneuverability of the Equipment.
2. Any additional safety equipment or training needed unless otherwise noted at cost plus 15%.
3. Supervision to approve procedures and project completion.
4. Area to park equipment.
5. Elevator repair or maintenance crew to assist SMS personnel.
6. Chain Hoist to raise and lower SMS vacuum tubes.
7. Removal of hydraulic jack.

SAFETY:

Specialized Maintenance Services will insure that all personnel working at the site will be wearing the proper protective clothing necessary to safely perform services. Our employees will be wearing at a minimum: steel toed boots, rubber gloves, safety glasses, and hearing protection.

BUDGETARY ESTIMATE: **$5,530.00 without tax & Fuel surcharge, per day**

	Unit Price	Total
HydroVac w/oper	$190.00 Hr. (12 hr.)	$2,280.00
Technician x 2	$150.00 Hr. (12 hr.)	$1,800.00
Fuel Surcharge	Per mob & de-mob	10%
Profile fee	$100.00 1-time fee	$100.00
Disposal @ .90 per gallon (est. 1500 gal.)		$1,350.00
		$5,530.00

Pricing includes disposal and transportation on the estimated volume of waste. Infiltration of water, ground Cave-Ins, damaged casing, Improperly Installed casing, large debris inside shaft (concrete, wood, etc.) and other environmental factors will add addition cost. SMS will charge hourly rates for work day and disposal at rate above. The Mobilization and Demobilization are included in Quote! Disposal and washout are charged at the hourly rate.

The pricing includes equipment, labor and supervision to complete the project, and is based on the following.

- ❑ Hydro excavator W/Operator support truck and 3 men crew.
- ❑ Disposal and Washout is charged at the hourly rates.
- ❑ Estimate is based upon a minimum of cave-ins and ground water intrusion.

- ❑ Estimate is based upon OTIS / Jefferson County. to remove concrete, asphalt, brick, PVC or any other type of stabilized flooring.

- ❑ Starting the project and working through without interruptions. Additional work, standby time, and or additional mobilizations will generate additional charges.

GENERAL TERMS AND CONDITIONS

General Conditions: These general conditions are incorporated by reference into the proposal and are part of the Agreement under which services are to be performed by the Contractor for the Customer. Contractor will follow Customer's instructions both verbal and written at all times.

Customer Provided Labor: Where the Customer provides labor for the Contractor, the Customer will indemnify the Contractor for liability, loss or expense for work related injuries to those laborers not provided by the Contractor. The Customer agrees to waive all rights of subrogation against the Contractor arising out of the work in this Agreement. The Customer agrees to comply with all local, state and federal regulations, including regulations governing issues pertaining to the environment, employee safety and health, public safety, and vehicular safety, such as those regulations enforced by the United States Occupational Safety and Health Administration, Environmental Protection Agency, Mine Safety and Health Administration and Department of Transportation. This includes all training of customer's employees and provision of suitable and safe equipment, as required by the applicable governmental regulations.

Customers Responsibilities: Customer will provide mechanical services. Operation and control of Customer's equipment is the Customer's responsibility. If Contractor cannot continue its work due to circumstance caused or allowed by Customer and of which Contractor was not apprised prior to starting the work, an hourly fee will be charged.

Damage Limitations: Under no circumstances will the Contractor be responsible for indirect, incidental or consequential damages. The Contractor also is not responsible for the rendering of or failure to render architectural, engineering or surveying professional services.

Pre-existing Conditions: The Contractor will not be responsible for liability, loss or expense (including damage caused by the backup of basement sewers) where the primary cause of the claim or damage is pre-existing conditions including faulty, inadequate or defective design, construction, maintenance or repair of property or contamination of the subsurface where the condition existed prior to the start of the Contractor's work. Customer is responsible for loss of service equipment caused by the pre-existing conditions at the job site.

Environmental Conditions: The debris is represented to Contractor to be non-hazardous, requiring no manifesting or special permitting. The Customer will be responsible for any additional costs or claims associated with the treatment, storage, disposal of the removed debris, or breach of the above representation, at any time during or after the completion of this project.

Indemnification: The Customer and the Contractor will each indemnify the other in proportion to relative fault for liability, loss and expense incurred by the other party resulting from a negligent act or omission in performance of work under this Agreement. The Customer also will indemnify Contractor for liability, loss and expense resulting from Contractor's services if the Contractor is acting at the direction or instruction of the Customer, or where the primary cause of any damages is due to information provided by the Customer.

Credit Policy: Regular Terms are Net 30 Days. If any invoice is not paid in accordance with its terms, the customer agrees that there shall be added thereto, and the customer agrees to pay to contractor, a late charge at the rate of 1.5% per month on the unpaid balance, plus all costs, including reasonable attorney fees, incurred by the contractor in collection of any invoice not paid in accordance with its terms.

Entire Agreement: This proposal together with any written documents which may be incorporated by specific reference herein constitutes the entire agreement between the parties and supersedes all previous communications between them, either oral or written. The waiver by Contractor of any term, condition or provision herein stated shall not be construed to be a waiver of any other term, condition or provision hereof.

If you find the above proposal and the terms and conditions satisfactory, please sign and send the original back to us. A copy will be sent to you for your records.

Accepted this_____day of_____2022

_____
Name of Purchaser

By_____
Name and Title

Specialized Maintenance Services is prepared to begin mobilization and will arrive on site at your request. If you need additional information, please call me at 281-924-0547.

Sincerely,

Adam L. Mendieta
Superintendent
Specialized Maintenance Services, Inc.

OTIS

Made to move you

Otis Service and Repair Order

DATE: 04/08/2022

TO:
JEFFERSON COUNTY COURTHOUSE NO
1149 Pearl, 7th Floor
Beaumont, TX 777013635

FROM:
Otis Elevator Company
8745 Eastex Frwy
Beaumont, TX 77708

EQUIPMENT LOCATION:
JEFFERSON COUNTY PORT BLD
900 4th Street
Port Arthur, TX 77640

Bryan Hebert
Phone: (281) 541-3389
Fax: (860) 660-1502
Email: bryan.hebert@otis.com

PROPOSAL NUMBER: BYH220408103748

MACHINE NUMBER(S) : 405338

CUSTOMER DESIGNATION(S) :PORT BLDG,-3604

Labor to install casing to prevent well hole cave-in.

PRICE: **$ 4,480.00 Four thousand four hundred eighty dollars**

This proposal, including the provisions printed on the last page(s), and the specifications and other provisions attached hereto shall, when accepted by you below and approved by our authorized representative, constitute the entire contract between us, and all prior representations or agreements not incorporated herein are superseded.

Submitted by: Brad Alexander
Title: Adjuster & Foreman

Jefferson County
Approved by Authorized Representative

Date: _____
Signed: _____
Print Name: _____
Title _____
E-mail: _____
Name of Company _____

Otis Elevator Company
Approved by Authorized Representative

Date: _____
Signed: _____
Meagan Milford
Print Name: _____
General Manager
Title _____

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TERMS AND CONDITIONS

1. This quotation is subject to change or withdrawal by us prior to acceptance by you.

2. The work shall be performed for the agreed price plus any applicable sales, excise or similar taxes as required by law. In addition to the agreed price, you shall pay to us any future applicable tax imposed on us, our suppliers or you in connection with the performance of the work described.

3. Payments shall be made as follows: A down payment of one hundred percent (100 %) of the price shall be paid by you upon your signing of this document. Full payment shall be made on completion if the work is completed within a thirty day period. If the work is not completed within a thirty day period, monthly progress payments shall be made based on the value of any equipment ready or delivered, if any, and labor performed through the end of the month less a five percent (5%) retainage and the aggregate of previous payments. The retainage shall be paid when the work is completed. We reserve the right to discontinue our work at any time until payments shall have been made as agreed and we have assurance satisfactory to us that subsequent payments will be made when due. Payments not received within thirty (30) days of the date of invoice shall be subject to interest accrued at the rate of eighteen percent (18%) per annum or at the maximum rate allowed by applicable law, whichever is less. We shall also be entitled to reimbursement from you of the expenses, including attorney's fees, incurred in collecting any overdue payments.

4. Our performance is conditioned upon your securing any required governmental approvals for the installation of any equipment provided hereunder and your providing our workmen with a safe place in which to work. Additionally, you agree to notify us if you are aware or become aware prior to the completion of the work of the existence of asbestos or other hazardous material in any elevator hoistway, machine room, hallway or other place in the building where Otispersonnel are or may be required to perform their work. In the event it should become necessary to abate, encapsulate or remove asbestos or other hazardous materials from the building, you agree to be responsible for such abatement, encapsulation or removal, and in such event Otis shall be entitled to delay its work until it is determined to our satisfaction that no hazard exists and compensation for delays encountered if such delay is more than sixty (60) days. In any event, we reserve the right to discontinue our work in the building whenever in our opinion this provision is being violated.

5. Unless otherwise agreed in writing, it is understood that the work shall be performed during our regular working hours of our regular working days. If overtime work is mutually agreed upon and performed, an additional charge therefore, at our usual rates for such work, shall be added to the contract price. The performance of our work hereunder is conditioned on your performing the preparatory work and supplying the necessary data specified on the front of this proposal or in the attached specification, if any. Should we be required to make an unscheduled return to your site to begin or complete the work due to your request, acts or omissions, then such return visits shall be subject to additional charges at our then current labor rates.

6. Title to any material to be furnished hereunder shall pass to you when final payment for such material is received. In addition, we shall retain a security interest in all material furnished hereunder and not paid for in full. You agree that a copy of this Agreement may be used as a financing statement for the purpose of placing upon public record our interest in any material furnished hereunder, and you agree to execute a UCC -1 form or any other document reasonably requested by us for that purpose.

7. Except insofar as your equipment may be covered by an Otis maintenance or service contract, it is agreed that we will make no examination of your equipment other than that necessary to do the work described in this contract and assume no responsibility for any part of your equipment except that upon which work has been done under this contract.

8. Neither party shall be liable to the other for any loss, damage or delay due to any cause beyond either parties reasonable control, including but not limited to acts of government, strikes, lockouts, other labor disputes, fire, explosion, theft, weather damage, flood, earthquake, riot, civil commotion, war, mischief or act of God.

9. We warrant that all services furnished will be performed in a workmanlike manner. We also warrant that any equipment provided hereunder shall be free from defects in workmanship and material. Our sole responsibility under this warranty shall be at our option to correct any defective services and to either repair or replace any component of the equipment found to be defective in workmanship or material provided that written notice of such defects shall have been given to us by you within ninety (90) days after completion of the work or such longer period as may be indicated on the front of this form. All defective parts that are removed and replaced by us shall become our property. We do not agree under this warranty to bear the cost of repairs or replacements due to vandalism, abuse, misuse, neglect, normal wear and tear, modifications not performed by us, improper or insufficient maintenance by others, or any causes beyond our control. We shall conduct, at our own expense, the entire defense of any claim, suit or action alleging that, without further combination, the use by you of any equipment provided hereunder directly infringes any patent, but only on the conditions that (a) we receive prompt written notice of such claim, suit or action and full opportunity and authority to assume the sole defense thereof, including settlement and appeals, and all information available to you for such defense; (b) said equipment is made according to a specification or design furnished by us; and (o) the claim, suit or action is brought against you. Provided all of the foregoing conditions have been met, we shall, at our own expense, either settle said claim, suit or action or shall pay all damages excluding consequential damages and costs awarded by the court therein and, if the use or resale of such equipment is finally enjoined, we shall, at our option, (i) procure for you the right to use the equipment, (ii) replace the equipment with equivalent noninfringing equipment, (iii) modify the equipment so it becomes noninfringing but equivalent, or (iv) remove the equipment and refund the purchase price (if any) less a reasonable allowance for use, damage and obsolescence.

THE EXPRESS WARRANTIES SET FORTH IN THIS ARTICLE 9 ARE THE EXCLUSIVE WARRANTIES GIVEN; WE MAKE NO OTHER WARRANTIES EXPRESS OR IMPLIED, AND SPECIFICALLY MAKE NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE; AND THE EXPRESS WARRANTIES SET FORTH IN THIS ARTICLE ARE IN LIEU OF ANY SUCH WARRANTIES AND ANY OTHER OBLIGATION OR LIABILITY ON OUR PART.

10. Under no circumstances shall either party be liable for special, indirect, liquidated, or consequential damages in contract, tort, including negligence, warranty or otherwise, notwithstanding any indemnity provision to the contrary. Notwithstanding any provision in any contract document to the contrary, our acceptance is conditioned on being allowed additional time for the performance of the Work due to delays beyond our reasonable control. Your remedies set forth herein are exclusive and our liability with respect to any contract, or anything done in connection therewith such as performance or breach thereof, or from the manufacture, sale, delivery, installation, repair or use of any equipment furnished under this contract, whether in contract, in tort (including negligence), in warranty or otherwise, shall not exceed the price for the equipment or services rendered.

11. To the fullest extent permitted by law, you agree to hold us harmless, and defend us and indemnify us against any claim or suit for personal injury or property damage arising out of this contract unless such damage or injury arises from our sole negligence.

12. It is agreed that after completion of our work, you shall be responsible for ensuring that the operation of any equipment being furnished hereunder is periodically inspected. The interval between such inspections shall not be longer than what may be required by the applicable governing safety code. Notwithstanding any other provisions hereof, if any part delivered hereunder incorporates software, the transaction is not a sale of such software; rather, you are hereby granted merely a license to use such software solely for operating the equipment for which such part was ordered. By accepting delivery of such part, you agree not to copy or let others copy such software for any purpose whatsoever, to keep such software in confidence as a trade secret, and not to transfer possession of such part to others except as a part of a transfer of ownership of the equipment in which such part is installed, provided that you inform us in writing about such ownership transfer and the transferee agrees in writing to abide by the above license terms.

13. In furtherance of OSHA"s directive contained in 29 C.F.R § 1910.147(f)(2)(i), which requires that a service provider (an "outside employer") and its customer (an "on-site employer") must inform each other of their respective lock out/tag out ("LOTO") procedures whenever outside servicing personnel are to be engaged in control of hazardous energy activities on the customer"s site, Otis incorporates by reference its mechanical LOTO procedures and its electrical LOTO procedures. These procedures can be obtained at www.otis.com by (1) clicking on "The Americas" tab on the left side of the website; (2) choosing "US/English" to take you to the "USA" web page; (3) clicking on the "Otis Safety" link on the left side of the page; and (4) downloading the "Lockout Tagout Policy Otis 6.0" and "Mechanical Energy Policy Otis 7.0," both of which are in .pdf format on the right side of the website page. Customer agrees that it will disseminate these procedures throughout its organization to the appropriate personnel who may interact with Otis personnel while Otis personnel are working on site at Customer"s facility.

14. This Agreement constitutes the entire understanding between the parties regarding the subject matter hereof and may not be modified by any terms on your order form or any other document, and supersedes any prior written or oral communication relating to the same subject. Any amendment or modifications to this Agreement shall not be binding upon either party unless agreed to in writing by an authorized representative of each party.

15. This Contract will be deemed null and void, even after execution, if it is determined by Otis that performance of the services and/or engagement in the contractual relationship/transaction will violate, or is otherwise restricted by, any and all laws, regulations and/or orders, including sanctions laws, that are applicable to Otis or otherwise apply to Otis' operations.

Otis Service and Repair Order

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PRICE QUOTE

Commercial Industrial Supply
1444 E Main St
Rock Hill, SC 29730

Phone 803-328-2477
Fax 803-324-0134

Printed 04/07/22 AC

Quoted
Atis Elevator

Ship To
Atis Elevator

Quote #	Quote Date	Exp Date	Customer #	Customer P/O #	Ship Via	Writer
Q005545	04/07/2022	05/07/2022	0015177			AC

Job ID	Customer Terms	Salesman
	Due on receipt	AMBER CARPENTER

Product	Description	UM	Quant	Unit Price	Extension
4004-200AB	20" SCHEDULE 40 PIPE PLAIN END NON RETURNABLE ITEM Only available in (2) 20ft sticks	EA	40	119.00	4760.00
429-200F	20' SCH 40 COUPLING NON RETURNABLE ITEM	EA	3	650.00	1950.00
FREIGHT	FREIGHT $300 freight on the couplings $2,700 Flat Bed Freight	EA	1	3000.00	3000.00

X:_____
(Accepted by)

Sub Total	$9,710.00
Freight	$0.00
Misc Charges	$0.00
Tax Amount	$0.00

Total
$9,710.00

MESSAGE

Your formal quote is attached. Please review and advise if you need to make any changes.
We look forward to working with you.

TERMS

PREFERRED
FACILITIES GROUP - USA

Mailing Address:
PO Box 20658
Beaumont, TX 77720-0658

(409) 842-8181
(409) 842-2274
pfg@pfg-usa.com
pfg-usa.com

Job Order Contracting

Co-Op Purchasing Agreements

Indefinite Delivery, Indefinite Quantity - IDIQ

Multiple Award Construction Contracts - MACC

Task Order Contracts TOC

Construction Management – Agent or At-Risk

Design Build

Government

Commercial

Education

Industrial

Infrastructure

Communications

Corporate/Retail

Assembly

April 4, 2022

Kenneth Shepherd
Jefferson County Sub Courthouse
525 Lakeshore Drive
Port Arthur, Texas 77640

Project: ***"Jefferson County Sub Courthouse Elevator Shaft"***

Subject: ***"Proposal"***

Dear Mr. Shepherd,

We are pleased to submit our proposal utilizing our 20/017MR-17 Choice Partners JOC Texas Contract based on local CCI and our coefficient of .89.

Proposal Recap:

- Drill existing concrete and dowel reinforcing steel.
- Mix and pour concrete at shaft.
- Cleanup and removal of debris.

Proposal Cost	$	2,319.13
Bond (If applicable)	$	
Total Price	$	**2,319.13**

We estimate approximately **one (1)** working day to complete upon material delivery. We explicitly exclude all liquidated damages for this project due to the volitivity of the market and supply chain challenges.

Our estimate is based on our interpretation of the project as presented to us. Our scope is limited to the line items broken down into individual tasks of work and developed based upon the Unit Price Book rate as modified by the city cost adjustment and our Coefficient. All pricing for the required line-item estimate is derived from the current calendar year RSMeans Facilities Construction Cost Data Book with Updates.

Once the quantities of work and price are approved, the individual Job Order becomes a fixed-price lump sum contract.

This pricing is based on recommended work hours of Monday thru Friday 7:00 am to 5:00 pm. Please contact us at 409-842-8293 at your convenience to discuss this estimate

Respectfully submitted,
Preferred Facilities Group - USA

Michael Waldley
Division Manager

cc: PFG/file
22-0055

NAME	AMOUNT	CHECK NO.	TOTAL
JURY FUND			
DAWN DONUTS	55.50	494407	
CHAPMAN VENDING	99.40	494447	
			154.90**
ROAD & BRIDGE PCT.#1			
ABLE FASTENER, INC.	30.10	494220	
SPIDLE & SPIDLE	5,942.48	494223	
ENTERGY	953.31	494244	
M&D SUPPLY	106.55	494258	
REPUBLIC SERVICES	38.00	494406	
			7,070.44**
ROAD & BRIDGE PCT.#2			
ENTERGY	634.25	494244	
MUNRO'S	20.00	494264	
RITTER @ HOME	29.96	494276	
AT&T	102.21	494289	
BUMPER TO BUMPER	218.13	494341	
NEW WAVE WELDING TECHNOLOGY	7.75	494358	
DOGGETT HEAVY MACHINERY LLC	468.89	494368	
REPUBLIC SERVICES	76.25	494406	
			1,557.44**
ROAD & BRIDGE PCT. # 3			
FARM & HOME SUPPLY	6.07	494240	
MUNRO'S	33.15	494264	
MODICA BROS. TIRES & WHEELS	1,723.52	494323	
VULCAN INC	1,057.50	494332	
SUNBELT RENTALS	411.25	494333	
CENTERPOINT ENERGY RESOURCES CORP	45.60	494342	
NORTHERN TOOL AND EQUIPMENT	479.97	494377	
SAM'S CLUB DIRECT	793.78	494383	
ASCO	59.36	494387	
SHOPPA'S FARM SUPPLY	601.17	494399	
REPUBLIC SERVICES	38.00	494406	
			5,249.37**
ROAD & BRIDGE PCT.#4			
SMART'S TRUCK & TRAILER, INC.	14.70	494283	
SOUTHEAST TEXAS WATER	12.95	494286	
MARTIN PRODUCT SALES LLC	312.00	494347	
JEFFERSON COUNTY CREDIT CARDS	994.37	494370	
ASCO	7,194.38	494387	
REPUBLIC SERVICES	133.50	494406	
O'REILLY AUTO PARTS	39.98	494422	
			8,701.88**
ENGINEERING FUND			
VERIZON WIRELESS	200.95	494317	
			200.95**
PARKS & RECREATION			
ENTERGY	1,350.38	494244	
MOTION INDUSTRIES, INC.	139.12	494263	
SAM'S CLUB DIRECT	205.20	494383	
			1,694.70**
GENERAL FUND			
JEFFERSON CTY. CLERK	1,778.44	494221	
			1,778.44*
TAX OFFICE			
OFFICE DEPOT	48.36	494268	
UNITED STATES POSTAL SERVICE	794.17	494320	
TEXAS COMPTROLLER OF PUBLIC ACCOUNT	40.00	494337	
JEFFERSON COUNTY CREDIT CARDS	1,494.78	494370	
			2,280.59*
COUNTY HUMAN RESOURCES			

NAME	AMOUNT	CHECK NO.	TOTAL
MOORMAN & ASSOCIATES, INC.	1,170.00	494262	
OFFICE DEPOT	551.93	494268	
PINNACLE MEDICAL MANAGEMENT CORP	410.00	494270	
TEXAS COUNTY & DISTRICT RETIREMENT	255.00	494291	
PRE CHECK, INC.	312.25	494305	
UNITED STATES POSTAL SERVICE	1.79	494320	
SIERRA SPRING WATER CO. - BT	42.39	494322	
SOUTHEAST TEXAS OCCUPATIONAL MEDICI	320.00	494408	
			3,063.36*
AUDITOR'S OFFICE			
OFFICE DEPOT	569.97	494268	
UNITED STATES POSTAL SERVICE	75.66	494320	
JEFFERSON COUNTY CREDIT CARDS	1,147.00	494370	
			1,792.63*
COUNTY CLERK			
OFFICE DEPOT	138.72	494268	
TAC - TEXAS ASSN. OF COUNTIES	250.00	494290	
ULINE SHIPPING SUPPLY SPECIALI	158.70	494292	
UNITED STATES POSTAL SERVICE	298.34	494320	
FUNCTION 4 LLC	340.00	494413	
			1,185.76*
COUNTY JUDGE			
CHEROKEE COUNTY CLERK	607.00	494235	
KIMBERLY PHELAN, P.C.	500.00	494345	
JEFF R BRANICK	125.00	494348	
FRED JACKSON	161.46	494359	
THOMSON REUTERS-WEST	138.05	494390	
JAMES M BLACK	1,000.00	494425	
JOHN A HUTCHISON III	2,555.36	494455	
			5,086.87*
RISK MANAGEMENT			
UNITED STATES POSTAL SERVICE	10.38	494320	
VERONA ADAMS	367.77	494329	
			378.15*
COUNTY TREASURER			
UNITED STATES POSTAL SERVICE	87.29	494320	
JEFFERSON COUNTY CREDIT CARDS	33.77	494370	
			121.06*
PURCHASING DEPARTMENT			
UNITED STATES POSTAL SERVICE	.53	494320	
			.53*
GENERAL SERVICES			
ELECTRICAL SPECIALTIES, INC.	25.00	494222	
CASH ADVANCE ACCOUNT	1,420.00	494253	
ADVANCED STAFFING	97.50	494299	
PATTILLO BROWN & HILL LLP	50,000.00	494375	
LJA ENGINEERING INC	1,402.25	494380	
			52,944.75*
DATA PROCESSING			
OFFICE DEPOT	54.07	494268	
CDW COMPUTER CENTERS, INC.	420.04	494301	
SHI GOVERNMENT SOLUTIONS, INC.	16,500.00	494324	
JEFFERSON COUNTY CREDIT CARDS	1,255.41	494370	
SHELDON JENKINS	292.50	494441	
STEEPMEADOW SOLUTIONS, LLC	3,080.16	494452	
			21,602.18*
VOTERS REGISTRATION DEPT			
UNITED STATES POSTAL SERVICE	249.82	494320	
UNITED STATES POSTAL SERVICE	1,000.00	494321	
			1,249.82*
ELECTIONS DEPARTMENT			
OFFICE DEPOT	80.55	494268	
ULINE SHIPPING SUPPLY SPECIALI	71.83	494292	

NAME	AMOUNT	CHECK NO.	TOTAL
JEFFERSON COUNTY CREDIT CARDS	626.97	494370	
LANGUAGE USA INC	360.00	494404	
			1,139.35*
DISTRICT ATTORNEY			
CASH ADVANCE ACCOUNT	59.67	494253	
JOHN NELSON	985.87	494265	
OFFICE DEPOT	70.73	494268	
UNITED STATES POSTAL SERVICE	130.62	494320	
MCM ELEGANTE HOTEL	113.85	494343	
JEFFERSON COUNTY CREDIT CARDS	500.00	494370	
THOMSON REUTERS-WEST	715.62	494390	
FUNCTION 4 LLC	40.75	494413	
ANGELA KNEELAND	60.40	494418	
			2,677.51*
DISTRICT CLERK			
UNITED STATES POSTAL SERVICE	195.53	494320	
			195.53*
CRIMINAL DISTRICT COURT			
DONALD W. DUESLER & ASSOC.	8,750.00	494237	
RENE MULHOLLAND	126.10	494293	
			8,876.10*
58TH DISTRICT COURT			
SOUTHEAST TEXAS WATER	34.95	494287	
UNITED STATES POSTAL SERVICE	.53	494320	
			35.48*
60TH DISTRICT COURT			
UNITED STATES POSTAL SERVICE	.53	494320	
			.53*
172ND DISTRICT COURT			
OFFICE DEPOT	34.50	494268	
			34.50*
252ND DISTRICT COURT			
CRISTY SMITH	48.50	494229	
UNITED STATES POSTAL SERVICE	25.41	494320	
LANGSTON ADAMS	900.00	494331	
SUMMER TANNER	111.55	494349	
M.K. HAMZA, PHD, P.A.	1,200.00	494385	
			2,285.46*
279TH DISTRICT COURT			
PHILLIP DOWDEN	220.00	494226	
NATHAN REYNOLDS, JR.	330.00	494275	
SOUTHEAST TEXAS WATER	14.95	494288	
KEVIN S. LAINE	325.00	494300	
JOEL WEBB VAZQUEZ	765.00	494339	
BRITTANIE HOLMES	1,430.00	494384	
THOMSON REUTERS-WEST	414.20	494392	
GORDON D FRIESZ	979.00	494405	
SHELANDER LAW OFFICE	110.00	494448	
			4,588.15*
317TH DISTRICT COURT			
TRACEY D. BURK	339.45	494228	
ANITA F. PROVO	550.00	494272	
WENDELL RADFORD	700.00	494274	
ALLEN PARKER	150.00	494365	
BRITTANIE HOLMES	1,200.00	494384	
WILLIAM FORD DISHMAN	900.00	494394	
MELISSA NAIL	46.50	494410	
			3,885.95*
JUSTICE COURT-PCT 1 PL 1			
UNITED STATES POSTAL SERVICE	40.69	494320	
			40.69*
JUSTICE COURT-PCT 1 PL 2			

NAME	AMOUNT	CHECK NO.	TOTAL
UNITED STATES POSTAL SERVICE	24.83	494320	
			24.83*
JUSTICE COURT-PCT 4			
KIRKSEY'S SPRINT PRINTING	49.90	494255	
RAY S. CHESSON	39.05	494297	
			88.95*
JUSTICE COURT-PCT 6			
UNITED STATES POSTAL SERVICE	29.68	494320	
THOMSON REUTERS-WEST	129.50	494390	
			159.18*
JUSTICE OF PEACE PCT. 8			
THOMSON REUTERS-WEST	129.50	494391	
			129.50*
COUNTY COURT AT LAW NO.1			
UNITED STATES POSTAL SERVICE	3.43	494320	
			3.43*
COUNTY COURT AT LAW NO. 3			
A. MARK FAGGARD	250.00	494239	
MARVA PROVO	500.00	494271	
NATHAN REYNOLDS, JR.	250.00	494275	
LANGSTON ADAMS	1,050.00	494331	
JOEL WEBB VAZQUEZ	300.00	494339	
KIMBERLY PHELAN, P.C.	300.00	494345	
LAURIE PEROZZO	250.00	494363	
MATUSKA LAW FIRM	500.00	494397	
			3,400.00*
COURT MASTER			
UNITED STATES POSTAL SERVICE	1.06	494320	
BUDDIE J HAHN	2,194.43	494435	
			2,195.49*
MEDIATION CENTER			
UNITED STATES POSTAL SERVICE	11.53	494320	
			11.53*
SHERIFF'S DEPARTMENT			
FED EX	176.55	494241	
ENTERGY	615.80	494244	
MOORMAN & ASSOCIATES, INC.	2,115.00	494262	
OFFICE DEPOT	229.40	494268	
PUBLIC AGENCY TRAINING COUNCIL	1,400.00	494273	
AT&T	136.28	494289	
UNITED STATES POSTAL SERVICE	1,944.02	494320	
BEAUMONT OCCUPATIONAL SERVICE, INC.	34.95	494326	
JEFFERSON COUNTY CREDIT CARDS	895.34	494370	
NMS LABS	245.00	494372	
COBAN TECHNOLOGIES INC	6,025.00	494373	
RITA HURT	2,200.00	494379	
COASTAL BUSINESS FORMS	1,813.00	494388	
GALLS LLC	168.00	494403	
REPUBLIC SERVICES	38.00	494406	
TND WORKWEAR CO LLC	61.00	494414	
THE MONOGRAM SHOP	188.50	494415	
LAKE COUNTRY CHEVROLET, INC.	215,406.00	494421	
			233,691.84*
CRIME LABORATORY			
ABACUS DIAGNOSTIC, INC.	954.00	494225	
HENRY SCHEIN, INC.	165.33	494279	
SOUTHEAST TEXAS WATER	79.90	494285	
			1,199.23*
JAIL - NO. 2			
BELL FENCE MFG. CO.	199.54	494227	
CITY OF BEAUMONT - WATER DEPT.	16.00	494232	
COASTAL WELDING SUPPLY	99.20	494233	
DELL MARKETING L.P.	1,073.63	494236	

NAME	AMOUNT	CHECK NO.	TOTAL
ECOLAB	576.74	494238	
W.W. GRAINGER, INC.	1,993.38	494242	
JACK BROOKS REGIONAL AIRPORT	1,205.00	494252	
CASH ADVANCE ACCOUNT	658.30	494253	
KOMMERCIAL KITCHENS	1,213.62	494256	
M&D SUPPLY	28.57	494258	
OFFICE DEPOT	2,561.08	494268	
SHERWIN-WILLIAMS	121.69	494282	
AT&T	30.24	494289	
ULINE SHIPPING SUPPLY SPECIALI	865.55	494292	
WHOLESALE ELECTRIC SUPPLY CO.	15.17	494294	
WORTH HYDROCHEM	390.00	494295	
COKER DOORS & MOLDING CO.	1,114.55	494298	
MCKESSON MEDICAL-SURGICAL INC	2,983.46	494302	
LOWE'S HOME CENTERS, INC.	315.58	494327	
NORTH SHORE SUPPLY COMPANY	1,258.00	494335	
WORLD FUEL SERVICES	5,133.62	494364	
KUBOTA TRACTOR CORPORATION	33,334.42	494366	
JEFFERSON COUNTY CREDIT CARDS	1,141.22	494370	
A1 FILTER SERVICE COMPANY	765.20	494378	
INDUSTRIAL & COMMERCIAL MECHANICAL	2,740.00	494382	
SAM'S CLUB DIRECT	516.06	494383	
GALLS LLC	6,405.35	494403	
REPUBLIC SERVICES	5,854.95	494406	
CORRHEALTH LLC	139,326.86	494420	
LASALLE CORRECTIONS VI LLC	39,820.00	494427	
EPIC BUSINESS ESSENTIALS, LLC	124.65	494438	
SPINDLETOP PLUMBING	1,920.00	494451	
			253,801.63*
JUVENILE PROBATION DEPT.			
CHERYL TARVER	23.40	494296	
UNITED STATES POSTAL SERVICE	6.10	494320	
CHRISTY HUNTER	69.03	494423	
JAMIE GROGAN	301.28	494437	
			399.81*
JUVENILE DETENTION HOME			
S.E. TEXAS BUILDING SERVICE	2,600.00	494284	
CHARMTEX INC.	590.00	494334	
FLOWERS FOODS	130.65	494336	
BEN E KEITH FOODS	285.72	494338	
VANSCHECA SANDERS-CHEVIS	300.00	494350	
ATTABOY TERMITE & PEST CONTROL	72.10	494362	
REPUBLIC SERVICES	476.00	494406	
VEQUAL ROBERTS	1,400.00	494446	
			5,854.47*
CONSTABLE PCT 1			
UNITED STATES POSTAL SERVICE	35.41	494320	
COASTAL BUSINESS FORMS	285.50	494388	
GALLS LLC	19.90	494403	
TND WORKWEAR CO LLC	210.00	494414	
			550.81*
CONSTABLE-PCT 4			
OFFICE DEPOT	294.81	494268	
DISH NETWORK	77.69	494353	
			372.50*
CONSTABLE-PCT 6			
UNITED STATES POSTAL SERVICE	5.99	494320	
			5.99*
CONSTABLE PCT. 7			
OFFICE DEPOT	20.99	494268	
			20.99*
COUNTY MORGUE			
FORENSIC MEDICAL	112,500.00	494430	
			112,500.00*
AGRICULTURE EXTENSION SVC			

NAME	AMOUNT	CHECK NO.	TOTAL
TYLER FITZGERALD	308.30	494429	
CORENA N FITZGERALD	39.66	494434	
HALLEE M SEWELL	57.33	494450	
			405.29*
HEALTH AND WELFARE NO. 1			
ENTERGY	70.00	494248	
MERCY FUNERAL HOME	1,500.00	494261	
UNITED STATES POSTAL SERVICE	84.63	494320	
RACHEL DRAGULSKI	69.62	494330	
CANDICE FORD	63.77	494411	
NUANCE COMMUNICATIONS, INC	118.50	494433	
			1,906.52*
HEALTH AND WELFARE NO. 2			
ENTERGY	70.00	494249	
TAMMY VANZANDT	52.65	494424	
NUANCE COMMUNICATIONS, INC	118.50	494433	
			241.15*
NURSE PRACTITIONER			
LESLIE RIGGS	1,130.71	494400	
			1,130.71*
INDIGENT MEDICAL SERVICES			
LOCAL GOVERNMENT SOLUTIONS LP	3,773.00	494356	
TDS OPERATING INC	253.00	494419	
			4,026.00*
MAINTENANCE-BEAUMONT			
JOHNSTONE SUPPLY	177.99	494224	
COBURN SUPPLY COMPANY INC	410.91	494234	
W.W. GRAINGER, INC.	65.52	494242	
M&D SUPPLY	435.94	494258	
MCCOWN PAINT & SUPPLY OF TEXAS	111.19	494260	
SANITARY SUPPLY, INC.	722.30	494278	
ACE IMAGEWEAR	235.96	494281	
S.E. TEXAS BUILDING SERVICE	25,381.80	494284	
TEXAS FIRE & COMMUNICATIONS	105.00	494304	
ATTABOY TERMITE & PEST CONTROL	176.80	494362	
A1 FILTER SERVICE COMPANY	732.70	494378	
REPUBLIC SERVICES	1,428.00	494406	
WES VICE HARDWOODS & SUPPLY INC	197.90	494440	
			30,182.01*
MAINTENANCE-PORT ARTHUR			
ELECTRICAL SPECIALTIES, INC.	1,178.77	494222	
ENTERGY	3,528.79	494244	
ENTERGY	893.64	494245	
NOACK LOCKSMITH	36.00	494266	
SANITARY SUPPLY, INC.	835.28	494278	
S.E. TEXAS BUILDING SERVICE	8,774.98	494284	
LOWE'S HOME CENTERS, INC.	75.35	494327	
PARKER LUMBER	40.66	494367	
JEFFERSON COUNTY CREDIT CARDS	363.58	494370	
THE HOME DEPOT PRO	2,170.56	494432	
SUMMIT FIRE & SECURITY	346.50	494449	
			18,244.11*
MAINTENANCE-MID COUNTY			
ENTERGY	2,723.81	494244	
REPUBLIC SERVICES	76.25	494406	
			2,800.06*
SERVICE CENTER			
SPIDLE & SPIDLE	32,605.37	494223	
CHUCK'S WRECKER SERVICE	135.00	494231	
HI-LINE	94.50	494250	
J.K. CHEVROLET CO.	195.84	494251	
KINSEL FORD, INC.	1,784.44	494254	
PHILPOTT MOTORS, INC.	1,744.58	494269	
AT&T	68.14	494289	
JEFFERSON CTY. TAX OFFICE	7.50	494306	

NAME	AMOUNT	CHECK NO.	TOTAL
JEFFERSON CTY. TAX OFFICE	7.50	494307	
JEFFERSON CTY. TAX OFFICE	7.50	494308	
JEFFERSON CTY. TAX OFFICE	7.50	494309	
JEFFERSON CTY. TAX OFFICE	7.50	494310	
JEFFERSON CTY. TAX OFFICE	7.50	494311	
JEFFERSON CTY. TAX OFFICE	7.50	494312	
JEFFERSON CTY. TAX OFFICE	7.50	494313	
JEFFERSON CTY. TAX OFFICE	7.50	494314	
JEFFERSON CTY. TAX OFFICE	7.50	494315	
JEFFERSON CTY. TAX OFFICE	7.50	494316	
BUMPER TO BUMPER	15.98	494341	
AMERICAN TIRE DISTRIBUTORS	452.37	494360	
MIGHTY OF SOUTHEAST TEXAS	190.77	494374	
SPANKY'S WRECKER SERVICE INC	150.00	494381	
REPUBLIC SERVICES	76.25	494406	
MIDNIGHT AUTO	119.95	494412	
			37,715.69*
			826,236.11**
MOSQUITO CONTROL FUND			
ENTERGY	453.89	494244	
MUNRO'S	153.63	494264	
RITTER @ HOME	61.15	494276	
SETZER HARDWARE, INC.	6.28	494280	
REPUBLIC SERVICES	76.25	494406	
PRO PEST AND LAWN STORE	10,692.00	494417	
O'REILLY AUTO PARTS	20.71	494422	
			11,463.91**
FEMA EMERGENCY			
P SQUARED EMULSION PLANTS, LLC	47,281.43	494431	
			47,281.43**
J.C. FAMILY TREATMENT			
BEAUMONT OCCUPATIONAL SERVICE, INC.	1,011.90	494326	
			1,011.90**
SECURITY FEE FUND			
ALLIED UNIVERSAL SECURITY SERVICES	10,393.76	494436	
			10,393.76**
JUVENILE PROB & DET. FUND			
VERIZON WIRELESS	64.83	494318	
			64.83**
GRANT A STATE AID			
CASH ADVANCE ACCOUNT	351.29	494253	
BI INCORPORATED	198.00	494303	
PATTILLO BROWN & HILL LLP	6,400.00	494375	
GRAYSON COUNTY DEPT OF JUVENILE	6,128.39	494401	
RITE OF PASSAGE	94.00	494442	
			13,171.68**
COMMUNITY SUPERVISION FND			
CASH ADVANCE ACCOUNT	898.33	494253	
OFFICE DEPOT	246.47	494268	
UNITED STATES POSTAL SERVICE	65.48	494320	
LOCAL GOVERNMENT SOLUTIONS LP	6,965.00	494356	
JCCSC	801.00	494371	
PATTILLO BROWN & HILL LLP	6,300.00	494375	
SAM'S CLUB DIRECT	50.40	494383	
FUNCTION 4 LLC	604.50	494413	
CHARTER COMMUNICATIONS	118.36	494454	
			16,049.54**
COMMUNITY CORRECTIONS PRG			
M&D SUPPLY	3.78	494258	
MARKET BASKET	9.68	494259	
SAM'S CLUB DIRECT	249.22	494383	
			262.68**
DRUG DIVERSION PROGRAM			
CASH ADVANCE ACCOUNT	389.76	494253	
			389.76**
SHERIFF'S TRAINING GRANT			

NAME	AMOUNT	CHECK NO.	TOTAL
ENTERPRISE RENT A CAR COMPANY	716.00	494398	
			716.00**
LAW OFFICER TRAINING GRT			
NATIONAL ACADEMY FOR PROFESSIONAL	2,500.00	494328	
			2,500.00**
COUNTY CLERK - RECORD MGT			
CDW COMPUTER CENTERS, INC.	460.74	494301	
			460.74**
DEPT STATE HEALTH GRANT			
SHI GOVERNMENT SOLUTIONS, INC.	290.60	494324	
			290.60**
HOTEL OCCUPANCY TAX FUND			
CASH ADVANCE ACCOUNT	1,617.00	494253	
M&D SUPPLY	19.62	494258	
MUNRO'S	34.07	494264	
OFFICE DEPOT	106.26	494268	
ULINE SHIPPING SUPPLY SPECIALI	337.85	494292	
ALLIANCE MECHANICAL SERVICES	311.59	494340	
DISH NETWORK	130.70	494352	
JOSEPH SEMIEN	23.99	494354	
ATTABOY TERMITE & PEST CONTROL	55.00	494362	
COUNTY HOME AND RANCH LP	20.00	494376	
MATERA PAPER COMPANY INC	90.16	494389	
REPUBLIC SERVICES	76.25	494406	
CINTAS CORPORATION	538.56	494409	
TEXAS TRAVEL ALLIANCE	875.00	494443	
			3,560.35**
COASTAL RESTORATION PRJCT			
UNITED STATES ARMY ENGINEER DIST.	584,000.00	494325	
TIM RICHARDSON	9,000.00	494395	
			593,000.00**
2012 REFUNDING BONDS			
THE BANK OF NEW YORK MELLON	500.00	494393	
			500.00**
AIRPORT FUND			
CASCO INDUSTRIES, INC.	260.00	494230	
ENTERGY	14,234.20	494247	
LOUIS' YAZOO SALES & SERVICE, LLC	473.65	494257	
MUNRO'S	98.98	494264	
RALPH'S INDUSTRIAL ELECTRONICS	351.80	494277	
AT&T	370.38	494289	
LOWE'S HOME CENTERS, INC.	46.10	494327	
DISH NETWORK	113.49	494351	
BLUE GLOBES	4,449.85	494355	
ALLIED ELECTRICAL SYSTEMS&SOLUTIONS	224.68	494361	
COUNTY HOME AND RANCH LP	14.00	494376	
ADVANCE AUTO PARTS	10.59	494386	
SOUTHEAST TEXAS PARTS AND EQUIPMENT	124.22	494396	
REPUBLIC SERVICES	305.00	494406	
M&R FLEET SERVICES, INC.	8.25	494426	
TITAN AVIATION FUELS	90,792.65	494428	
JM TEST SYSTEMS, INC	87.00	494444	
			111,964.84**
SE TX EMP. BENEFIT POOL			
STANDARD INSURANCE COMPANY	25,759.59	494344	
RELIANCE STANDARD LIFE INSURANCE	6,184.04	494346	
			31,943.63**
SETEC FUND			
INDUSTRIAL & COMMERCIAL MECHANICAL	588.00	494382	
REPUBLIC SERVICES	2,921.62	494406	
			3,509.62**
SHERIFF'S FORFEITURE FUND			
CAVENDER'S BOOT CITY	702.00	494402	
			702.00**
PAYROLL FUND			

NAME	AMOUNT	CHECK NO.	TOTAL
JEFFERSON CTY. - FLEXIBLE SPENDING	14,477.00	494200	
CLEAT	288.00	494201	
JEFFERSON CTY. TREASURER	12,962.64	494202	
RON STADTMUELLER - CHAPTER 13	182.31	494203	
INTERNAL REVENUE SERVICE	208.00	494204	
JEFFERSON CTY. ASSN. OF D.S. & C.O.	4,060.00	494205	
JEFFERSON CTY. COMMUNITY SUP.	6,624.47	494206	
JEFFERSON CTY. TREASURER - HEALTH	538,831.98	494207	
JEFFERSON CTY. TREASURER - GENERAL	20.00	494208	
JEFFERSON CTY. TREASURER - PAYROLL	1,896,643.37	494209	
JEFFERSON CTY. TREASURER - PAYROLL	660,429.03	494210	
MONY LIFE INSURANCE OF AMERICA	72.54	494211	
POLICE & FIRE FIGHTERS' ASSOCIATION	1,932.94	494212	
JEFFERSON CTY. TREASURER - TCDRS	754,993.84	494213	
JEFFERSON COUNTY TREASURER	2,932.11	494214	
JEFFERSON COUNTY - TREASURER -	8,080.38	494215	
NECHES FEDERAL CREDIT UNION	34,330.96	494216	
JEFFERSON COUNTY - NATIONWIDE	66,199.64	494217	
CONSERVE	185.58	494218	
INVESCO INVESTMENT SERVICES, INC	806.66	494219	
			4,004,261.45**
ARPA CORONAVIRUS RECOVERY			
CITY OF BEAUMONT - WATER DEPT.	55.21	494232	
MICHAEL KINLAW	62.33	494416	
GOPHER INDUSTRIAL INC	3,549.25	494439	
			3,666.79**
GLO DISASTER RECOVERY			
LJA ENGINEERING INC	29,342.50	494380	
			29,342.50**
APPELLATE JUDICIAL SYSTEM			
9TH COURT OF APPEALS	2,185.00	494357	
			2,185.00**
MARINE DIVISION			
ENTERGY	787.02	494244	
JACK BROOKS REGIONAL AIRPORT	213.95	494252	
AT&T	87.84	494289	
GALLS LLC	52.99	494403	
TAMARACK HELICOPTERS INC	4,473.50	494445	
			5,615.30**
SHERIFF - COMMISSARY			
JEFFERSON COUNTY CREDIT CARDS	1,122.60	494370	
VETERAN CUSTOM FLOORING	30,037.50	494453	
			31,160.10**
SHERIFF-SPINDLETOP GRANT			
LAKE COUNTRY CHEVROLET, INC.	67,112.00	494421	
			67,112.00**
			5,843,446.20***

PROCLAMATION

STATE OF TEXAS	§	COMMISSIONERS COURT
	§	
COUNTY OF JEFFERSON	§	OF JEFFERSON COUNTY, TEXAS

BE IT REMEMBERED at a meeting of Commissioners' Court of Jefferson County, Texas, held on the 19 day of April, 2022, on motion made by Everette 'Bo' Alfred, Commissioner of Precinct No. 4, and seconded by Michael Sinegal, Commissioner of Precinct No. 3, the following Proclamation was adopted:

SOIL & WATER STEWARDSHIP WEEK
April 24 – May 1, 2022

WHEAREAS, fertile soil and clean water provide us with our daily sustenance; and

WHEREAS, effective conservation practices have helped provide us a rich standard of living; and

WHEREAS, our security depends upon healthy soil and clean water; and

WHEREAS, stewardship calls for each person to help conserve these precious resources,

NOW THEREFORE, the Commissioners' Court of Jefferson County does hereby proclaim April 24 to May 1, 2022 as Soil & Water Stewardship Week in the State of Texas and we urge all citizens to celebrate this special observance, and further, to reflect on ways that together that we can contribute to a healthy environment and make Texas and even greater place to live, work and raise a family.

Signed this 19 day of April, 2022.

JUDGE JEFF R. BRANICK
County Judge

COMMISSIONER VERNON PIERCE
Precinct No. 1

COMMISSIONER MICHAEL S. SINEGAL
Precinct No. 3

COMMISSIONER DARRELL W. BUSH
Precinct No. 2

COMMISSIONER EVERETTE D. ALFRED
Precinct No. 4

AGENDA ITEM **April 19, 2022**

Consider, possibly approve, receive and file a Second Amended Order Prohibiting the Possession of firearms in the Jefferson County Courthouse and Office Buildings, pursuant to Sec. 30.05, Texas Penal Code.

SECOND AMENDED ORDER PROHIBITING THE POSSESSION OF FIREARMS IN THE JEFFERSON COUNTY COURTHOUSE AND OFFICE BUILDINGS

WHEREAS, there have been several amendments to the Texas Government Code and the Texas Penal Code to allow open carry of firearms; and

WHEREAS, much confusion has arisen in the public as to whether they may permitted to openly carry or carry a concealed firearm on their person within the Jefferson County Courthouse and County office buildings; and

WHEREAS, the carrying of firearms in government buildings which contain courts is still prohibited; and

WHEREAS, the Commissioners Court desires and intends to protect the safety of all those entering the Jefferson County Courthouse and the offices of this County Government to provide a safe place to conduct business; and

WHEREAS, H.B. 910 and its amendments do make provisions to allow authorized law enforcement officials and security personnel to carry firearms on County premises pursuant to their employment.

IT IS THEREFORE ORDERED that;

1. No person other than a duly authorized peace officer or security employee shall be allowed to carry any firearm within any Jefferson County premises which includes a building or a portion of a building wherein courts conduct business.
2. Appropriate signage shall be placed at the entrances of all County premises to warn of this prohibition.
3. Any offense under this Order shall be punishable as a Class A misdemeanor (criminal trespass) pursuant to Penal Code 30.05 unless it is upon premises of a correctional facility and the Jefferson County Courthouse, which houses a correctional facility, in which case it is punishable as a felony of the third degree.

SIGNED this 19 day of April, 2022.

JUDGE JEFF R. BRANICK
County Judge

COMMISSIONER VERNON PIERCE
Precinct. 1

COMMISSIONER MICHAEL S. SINEGAL
Precinct No. 3

COMMISSIONER DARRELL W. BUSH
Precinct No. 2

COMMISSIONER EVERETTE D. ALFRED
Precinct No. 4

THURMAN BILL BARTIE, MAYOR
DONALD FRANK, SR., MAYOR PRO TEM

COUNCIL MEMBERS:
INGRID HOLMES
CAL JONES
THOMAS KINLAW III
KENNETH MARKS
CHARLOTTE MOSES

City of Port Arthur Texas

RONALD BURTON
CITY MANAGER

SHERRI BELLARD, TRMC
CITY SECRETARY

VAL TIZENO
CITY ATTORNEY

March 31, 2022

Certified: sent via email to: Cheryl.Ellis@jeffcotx.us

Jefferson County et al.
1149 Pearl Street
Beaumont, Texas 77701-3638

2821 6TH STREET (RESIDENCE)
LOT 9 BLOCK 195, CITY OF PORT ARTHUR ADDITION

Dear Jefferson County et al,

An inspection was made on **02/10/2016** on the property located at **2821 6th Street, Port Arthur, Texas.** The inspection disclosed that the building or structure located at the above listed address is unsafe and represents a threat to public health, safety and welfare. The City of Port Arthur's Housing Code of Ordinance Article VIII requires owners to **repair**, **rehabilitate** or **demolish** any structures which are (1) structurally unsound, unfit for human habitation, and/or substandard; (2) a hazard to public health, safety, and welfare by reason of access constituting a fire hazard or other danger to human life, inadequate maintenance, or abandonment.

The Demolition Division staff will discuss this letter and remedies with you at your request. Staff may be reached at (409) 983-8209. If this office receives no response from you, and if such elimination of defects through reconstruction, board-up or demolition has not begun within fifteen (15) days from the receipt of this letter, this division is required to institute proceedings as set forth in this code, which may involve the letting of contractor for demolition or cleanup of the property and/or filing of charges in Municipal Court for violation of this Code of Ordinance **Article VIII Section 18-381, Section 18-382**.

If you do not wish to discuss this matter with this office, you may appear before the Construction Board of Adjustments and Appeals and show cause why this request by the official should not be complied with. You have the right to appeal the decision of the Building Official to the Construction Board of Adjustments and Appeals. Your notice of appeal shall be in writing and filed within (15) days after the receipt of this letter at the office of the Demolition Division.

Sincerely,

Ronnie Mickens
Demolition Inspector

Sharon Flanagan
Demolition Supervisor

VH

101-Letter

THURMAN BILL BARTIE, MAYOR
DONALD FRANK, SR., MAYOR PRO TEM

COUNCIL MEMBERS:
INGRID HOLMES
CAL JONES
THOMAS KINLAW III
KENNETH MARKS
CHARLOTTE MOSES

City of Port Arthur Texas

RONALD BURTON
CITY MANAGER

SHERRI BELLARD, TRMC
CITY SECRETARY

VAL TIZENO
CITY ATTORNEY

March 31, 2022

Certified: SENT VIA EMAIL

Jefferson County et al.
1149 Pearl Street
Beaumont, Texas 77701-3638

RE: 2821 6TH STREET (RESIDENCE) LOT 9 BLOCK 195, CITY OF PORT ARTHUR ADDITION

Dear Jefferson County et al,

Enclosed is a Demolition Waiver. Please sign it in the presence of a Notary Public and return it with a copy of your **Recorded Deed** and **Driver's License** (for each waiver).

If you have any questions, please do not hesitate to call me at (409) 983-8209.

Sincerely,

Sharon A Flanagan

Sharon Flanagan
Demolition Supervisor

DEMOLITION WAIVER

City of Port Arthur
Community Development Department—Demolition Division
300 E. 4th Street, Suite 700/P. O. Box 1089, Port Arthur, TX 77641-1089
(409) 983-8209/(409) 983-8250

I, Jefferson County, am the owner of a Residence
(Owner's Name) (Description of Building(s)

at 2821 6th Street, legally described as Lot 9 Block 195, City of Port Arthur Addition
(Street Address) (Legal Description)

.

I hereby give my consent, without the necessity of a public hearing, to the City of Port Arthur to demolish the above described building(s) and to clear the above described property of all weeds, rubbish, trash and debris. The City of Port Arthur may use its own personal equipment to do such work, or the City may hire or otherwise engage others and the equipment of others, for such purpose. I also hereby consent to the filing of a lien against the above described property for all costs incurred by the City of Port Arthur in connection with such demolition provided that such costs do not exceed the actual amount.

Signature(s): [signature]

Mailing Address: _____

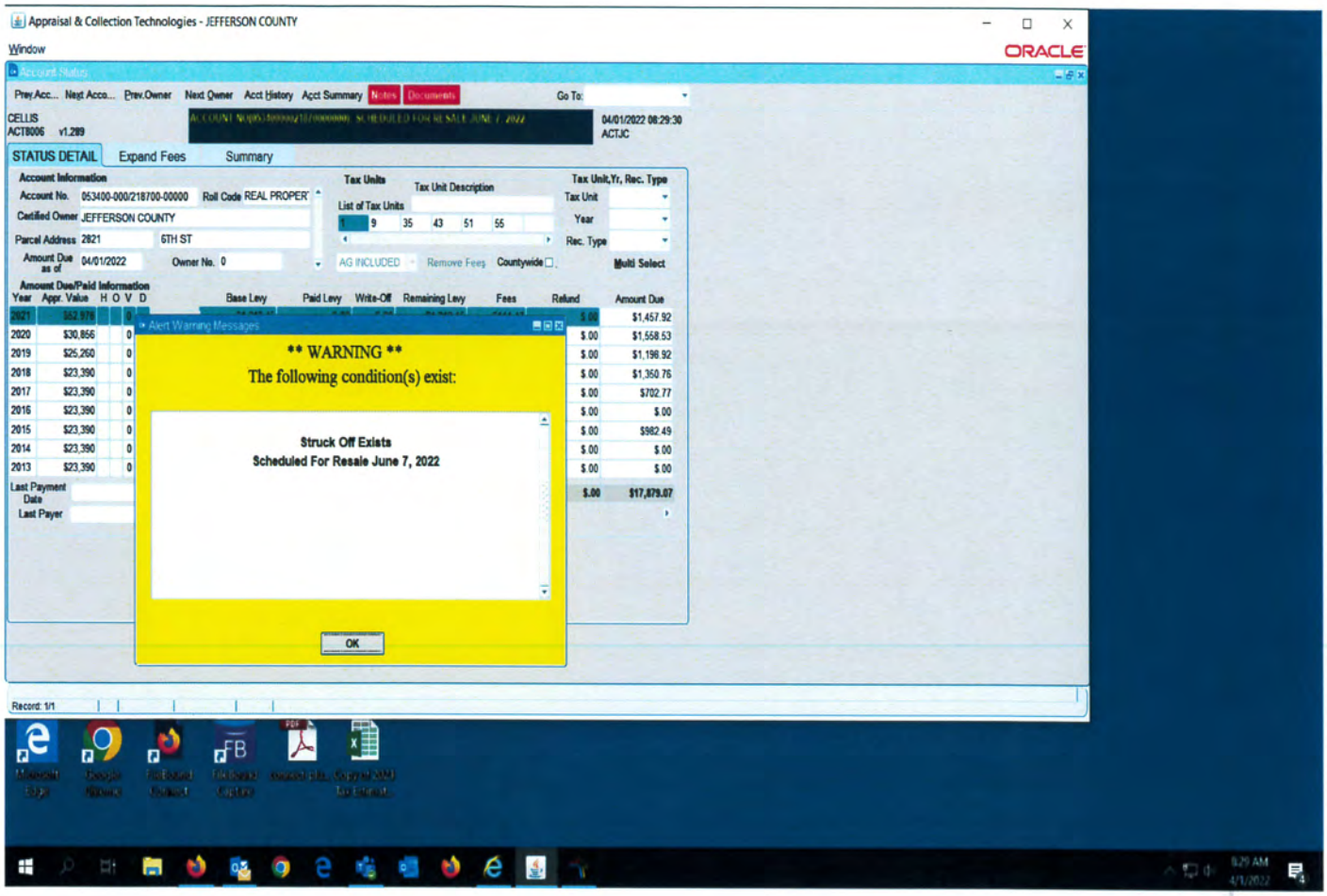
Telephone Number(s): 409-835-8466

SUBSCRIBED AND SWORN BEFORE ME THIS 19th DAY OF April, 2022

_____
NOTARY PUBLIC IN AND FOR JEFFERSON COUNTY, TEXAS

MY COMMISSION EXPIRES: 02-07-2023

LOMA C GEORGE
Notary Public, State of Texas
Comm. Expires 02-07-2023
Notary ID# 419409-9


Appraisal & Collection Technologies - JEFFERSON COUNTY
Window
ORACLE
Account Status
Prev Acc... Next Acco... Prev Owner Next Owner Acct History Acct Summary Notes Documents Go To:
CELLIS
ACT8006 v1.289
04/01/2022 08:29:30
ACTJC
STATUS DETAIL Expand Fees Summary
Account Information
Account No. 053400-000/218700-00000 Roll Code REAL PROPER
Certified Owner JEFFERSON COUNTY
Parcel Address 2821 6TH ST
Amount Due as of 04/01/2022 Owner No. 0
Tax Units
Tax Unit Description
List of Tax Units
1 9 35 43 51 55
AG INCLUDED Remove Fees Countywide
Tax Unit,Yr, Rec. Type
Tax Unit
Year
Rec. Type
Multi Select
Amount Due/Paid Information
Year Appr. Value H O V D Base Levy Paid Levy Write-Off Remaining Levy Fees Refund Amount Due
2021 $62,978 $1,457.92
2020 $30,856 $1,558.53
2019 $25,260 $1,198.92
2018 $23,390 $1,350.76
2017 $23,390 $702.77
2016 $23,390 $0.00
2015 $23,390 $982.49
2014 $23,390 $0.00
2013 $23,390 $0.00
$0.00 $17,879.07
Last Payment Date
Last Payer
Alert Warning Messages
** WARNING **
The following condition(s) exist:
Struck Off Exists
Scheduled For Resale June 7, 2022
OK
Record: 1/1

2821 EAST 6TH STREET

(NO TRANSITE)

03/31/2022 13:25

03/31/2022 13:26

2821 6th Street

Victoria Hernandez <victoria.hernandez@portarthurtx.gov>
Fri 4/1/2022 8:17 AM
To: Cheryl Ellis <Cheryl.Ellis@jeffcotx.us>
Cc: Sherrell Rankins <sherrell.rankins@portarthurtx.gov>

1 attachments (2 MB)
2821 6th St..pdf;

Cheryl,

Please see the attached documents and photographs for the above mentioned red tagged structure. I have enclosed a Demolition Waiver as well. Please sign it in the presence of a Notary Public and return it.

If you have any questions, please call me.

Thank you!

Victoria Hernandez
Administrative Clerk II
City of Port Arthur-Demolition
(409)983-8209
victoria.hernandez@portarthurtx.gov
========== This email and its attachments may be confidential and are intended solely for the use of the individual to whom it is addressed. Any views or opinions expressed are solely those of the author and do not necessarily represent those of the City of Port Arthur. If you are not the intended recipient of this email and its attachments, you must take no action based upon them, nor must you copy or show them to anyone. Please reply to the sender if you believe you have received this email in error.

THURMAN BILL BARTIE, MAYOR
DONALD FRANK, SR., MAYOR PRO TEM

COUNCIL MEMBERS:
INGRID HOLMES
CAL JONES
THOMAS KINLAW III
KENNETH MARKS
CHARLOTTE MOSES

City of Port Arthur Texas

RONALD BURTON
CITY MANAGER

SHERRI BELLARD, TRMC
CITY SECRETARY

VAL TIZENO
CITY ATTORNEY

April 1, 2022

Certified: sent via email to: Cheryl.Ellis@jeffcotx.us

Jefferson County et al.
1149 Pearl Street
Beaumont, Texas 77701-3638

7007 OLYMPIC DRIVE (RESIDENCE/ATTACHED GARAGE)
LOT 16 BLOCK 2, HIGHLAND HEIGHTS NO. 1 ADDITION

Dear Jefferson County et al,

An inspection was made on **11/14/2017** on the property located at **7007 Olympic Drive, Port Arthur, Texas.** The inspection disclosed that the building or structure located at the above listed address is unsafe and represents a threat to public health, safety and welfare. The City of Port Arthur's Housing Code of Ordinance Article VIII requires owners to **repair**, **rehabilitate** or **demolish** any structures which are (1) structurally unsound, unfit for human habitation, and/or substandard; (2) a hazard to public health, safety, and welfare by reason of access constituting a fire hazard or other danger to human life, inadequate maintenance, or abandonment.

The Demolition Division staff will discuss this letter and remedies with you at your request. Staff may be reached at (409) 983-8209. If this office receives no response from you, and if such elimination of defects through reconstruction, board-up or demolition has not begun within fifteen (15) days from the receipt of this letter, this division is required to institute proceedings as set forth in this code, which may involve the letting of contractor for demolition or cleanup of the property and/or filing of charges in Municipal Court for violation of this Code of Ordinance **Article VIII Section 18-381, Section 18-382**.

If you do not wish to discuss this matter with this office, you may appear before the Construction Board of Adjustments and Appeals and show cause why this request by the official should not be complied with. You have the right to appeal the decision of the Building Official to the Construction Board of Adjustments and Appeals. Your notice of appeal shall be in writing and filed within (15) days after the receipt of this letter at the office of the Demolition Division.

Sincerely,

Ronnie Mickens
Demolition Inspector

Sharon Flanagan
Demolition Supervisor

VH

101-Letter

THURMAN BILL BARTIE, MAYOR
DONALD FRANK, SR., MAYOR PRO TEM

COUNCIL MEMBERS:
INGRID HOLMES
CAL JONES
THOMAS KINLAW III
KENNETH MARKS
CHARLOTTE MOSES

City of Port Arthur Texas

RONALD BURTON
CITY MANAGER

SHERRI BELLARD, TRMC
CITY SECRETARY

VAL TIZENO
CITY ATTORNEY

April 1, 2022

Certified: SENT VIA EMAIL

Jefferson County et al.
1149 Pearl Street
Beaumont, Texas 77701-3638

RE: 7007 OLYMPIC DRIVE (RESIDENCE/ATTACHED GARAGE) LOT 16 BLOCK 2, HIGHLAND HEIGHTS NO. 1 ADDITION

Dear Jefferson County et al,

Enclosed is a Demolition Waiver. Please sign it in the presence of a Notary Public and return it with a copy of your **Recorded Deed** and **Driver's License** (for each waiver).

If you have any questions, please do not hesitate to call me at (409) 983-8209.

Sincerely,

Sharon Flanagan

Sharon Flanagan
Demolition Supervisor

DEMOLITION WAIVER

City of Port Arthur
Community Development Department—Demolition Division
300 E. 4th Street, Suite 700/P. O. Box 1089, Port Arthur, TX 77641-1089
(409) 983-8209/(409) 983-8250

I, Jefferson County, am the owner of a Residence/Attached Garage
(Owner's Name) (Description of Building(s)

at 7007 Olympic Drive, legally described as Lot 16 Block 2, Highland Heights No. 1 Addition
(Street Address) (Legal Description)

.

I hereby give my consent, without the necessity of a public hearing, to the City of Port Arthur to demolish the above described building(s) and to clear the above described property of all weeds, rubbish, trash and debris. The City of Port Arthur may use its own personal equipment to do such work, or the City may hire or otherwise engage others and the equipment of others, for such purpose. I also hereby consent to the filing of a lien against the above described property for all costs incurred by the City of Port Arthur in connection with such demolition provided that such costs do not exceed the actual amount.

Signature(s): _____

Mailing Address: _____

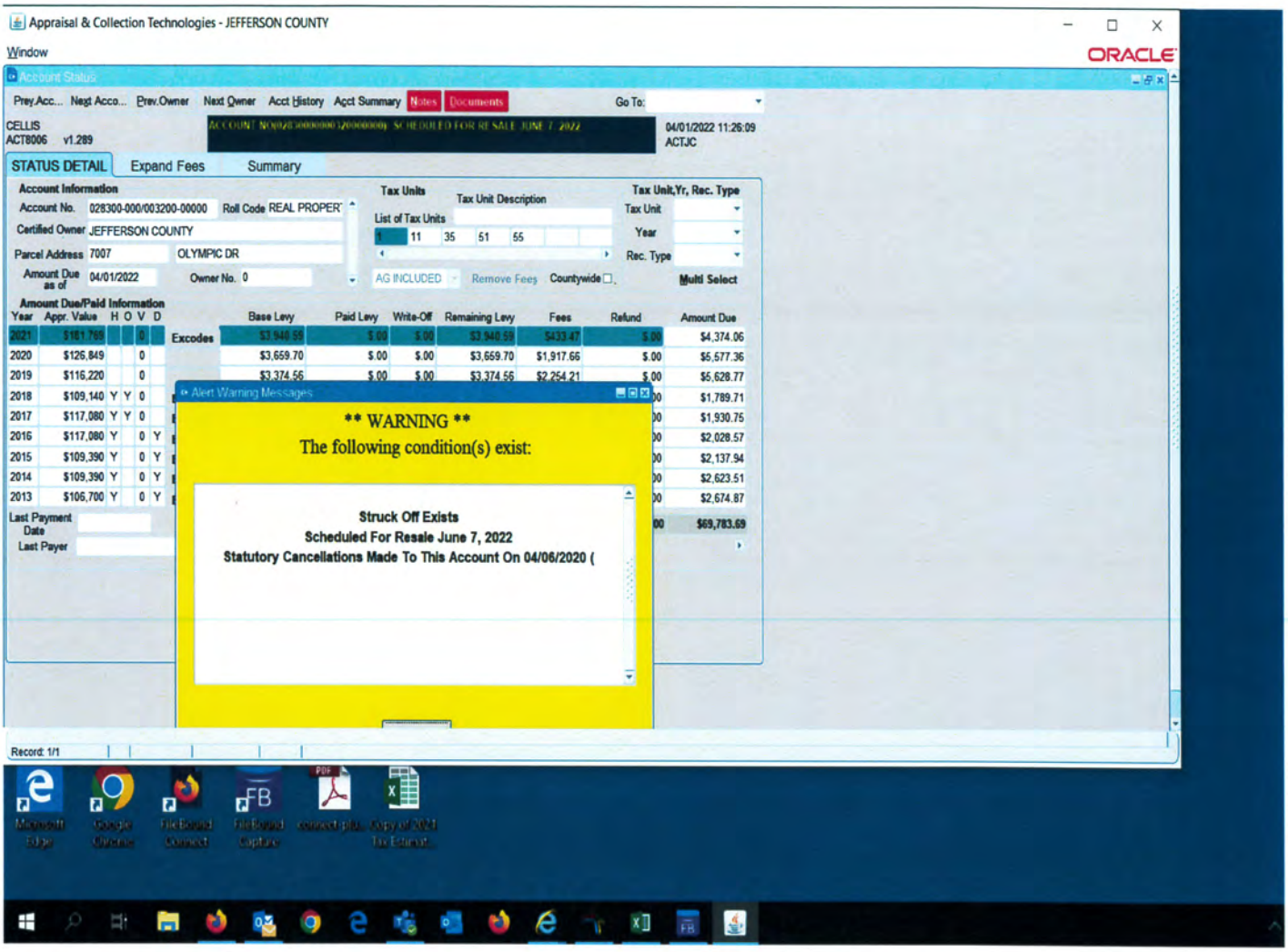
Telephone Number(s): 409-835-8466

SUBSCRIBED AND SWORN BEFORE ME THIS 19th DAY OF APRIL, 2022

_____
NOTARY PUBLIC IN AND FOR JEFFERSON COUNTY, TEXAS

MY COMMISSION EXPIRES: 02-07-2023

LOMA C GEORGE
Notary Public, State of Texas
Comm. Expires 02-07-2023
Notary ID# 419409-9


Appraisal & Collection Technologies - JEFFERSON COUNTY
Window
ORACLE
Account Status
Prev Acc... Next Acco... Prev Owner Next Owner Acct History Acct Summary Notes Documents Go To:
CELLIS
ACT8006 v1.289
04/01/2022 11:26:09
ACTJC
STATUS DETAIL Expand Fees Summary
Account Information
Account No. 028300-000/003200-00000 Roll Code REAL PROPER
Certified Owner JEFFERSON COUNTY
Parcel Address 7007 OLYMPIC DR
Amount Due as of 04/01/2022 Owner No. 0
Tax Units
Tax Unit Description
List of Tax Units
1 11 35 51 55
AG INCLUDED Remove Fees Countywide
Tax Unit,Yr, Rec. Type
Tax Unit
Year
Rec. Type
Multi Select
Amount Due/Paid Information
Year Appr. Value H O V D Base Levy Paid Levy Write-Off Remaining Levy Fees Refund Amount Due
2021 $161,765 0 Excodes $3,940.59 $.00 $.00 $3,940.59 $433.47 $.00 $4,374.06
2020 $126,849 0 $3,659.70 $.00 $.00 $3,659.70 $1,917.66 $.00 $5,577.36
2019 $116,220 0 $3,374.56 $.00 $.00 $3,374.56 $2,254.21 $.00 $5,628.77
2018 $109,140 Y Y 0 $1,789.71
2017 $117,080 Y Y 0 $1,930.75
2016 $117,080 Y 0 Y $2,028.57
2015 $109,390 Y 0 Y $2,137.94
2014 $109,390 Y 0 Y $2,623.51
2013 $106,700 Y 0 Y $2,674.87
$69,783.69
Last Payment Date
Last Payer
Alert Warning Messages
** WARNING **
The following condition(s) exist:
Struck Off Exists
Scheduled For Resale June 7, 2022
Statutory Cancellations Made To This Account On 04/06/2020 (
Record: 1/1

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

7007 OLYMPIC DRIVE
RESIDENCE/ATTACHED GARAGE
NO TRANSITE

Earl Brown Sr.

PHIL KELLEY
MANAGER

Jefferson County Drainage District No. 7

COMMISSIONERS
RICHARD BEAUMONT
CHAIRMAN
LESTER CHAMPAGNE
ALBERT MOSES, JR.
JAMES GAMBLE, SR.
MATTHEW E. VINCENT

July 14, 2021

The Honorable Jeff Branick
Jefferson County Judge
1149 Pearl Street
Beaumont, Texas 77701

RE: Jefferson County Drainage District No. 7
Rodair Gulley Lateral 5 Detention Site

Judge Branick:

Jefferson County Drainage District No 7 would like to construct a detention pond on land currently owned by Jefferson County. The pond would be located along Rodair Gulley Latteral 5, south of FM 3514 and adjacent to the property recently conveyed to Lamar State College Port Arthur for the truck driving school. We are requesting that Jefferson County sell or lease the available property at this location to Jefferson County Drainage District No. 7 to facilitate it's use as a detention pond.

Attached is a map of the proposed site with a conceptual design of the proposed detention facility. The pond will serve to mitigate flooding in many homes and businesses located within DD7 and some of the unincorporated areas of the County. This will allow for the construction of an 85 acre detention pond, an all weather access road from US 69 to the outlet structure, and the outlet structure for the proposed pond. The pond will provide 415 acre feet of storage, thus reducing the amount of storm water runoff from the state and county prison systems into the Beauxart Gardens community.

Your consideration of our request and assistance with this endeavor is greatly appreciated. Should you have any questions or need additional information, please advise.

Respectfully,

Jefferson County Drainage District No. 7

Allen D. Sims, P.E.
District Engineer

GENERAL WARRANTY DEED

THE STATE OF TEXAS §
§
COUNTY OF JEFFERSON §

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned JEFFERSON COUNTY, TEXAS (hereinafter **Grantor**), 1149 Pearl Street, Beaumont, Texas 77701, for and in consideration of the sum of Ten Dollars ($10.00) in hand paid and other good and valuable consideration, and with the intention to donate the herein described property to JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7, P.O. Box 3244, Port Arthur, Texas 77642, have granted, sold, and conveyed, and by these presents does grant, sell, and convey to the said JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7 (hereinafter **Grantee**) all that certain property described in Exhibit "A" attached hereto and incorporated herein by reference, and Grantor grants, assigns and conveys to Grantee the ingress and egress easement described in the Easement Agreement filed in clerk's file no. 2020029668, official public records of Jefferson County, Texas, said easements being described in Exhibit "B" attached hereto and incorporated herein by reference. To have and to hold the described premises, together with all and singular the rights and appurtenances thereto in anywise belonging unto the Grantee, its successors and assigns forever. And Grantor does hereby bind itself, its successors and assigns to warrant and forever defend all and singular the said premises unto the said Grantee, its successors and assigns, against every person whomsoever, lawfully claiming or to claim the same or any part thereof.

This conveyance is subject to, all and singular, but only to the extent currently valid and enforceable against the premises, (a) all rights-of-ways and easements, whether of record or not, (b) all restrictions, covenants and conditions, reservations, mineral severances, oil and gas leases and all other instruments that affect the premises, and (c) rights, if any, of adjoining property owners of fences situated on a common boundary line.

EXECUTED this the_____ day of _____, 2022.

GRANTOR:

JEFFERSON COUNTY, TEXAS

_____
Jeff Branick, County Judge

GRANTEE:

JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7

_____
Phil Kelley, Manager

STATE OF TEXAS §

COUNTY OF JEFFERSON §

This instrument was acknowledged before me on the _____ day of _____, 2022, by JEFF BRANICK, County Judge of Jefferson County, Texas, on behalf of said county, known to me to be the person whose name is subscribed hereto.

_____
Notary Public - State of Texas

STATE OF TEXAS §

COUNTY OF JEFFERSON §

This instrument was acknowledged before me on the 6th day of April, 2022, by PHIL KELLEY, Manager of Jefferson County Drainage District No. 7, on behalf of said drainage district, known to me to be the person whose name is subscribed hereto.

NOTARY PUBLIC
Kyla S Dean
Exp. 10/21/2025
ID No. 10539321
STATE OF TEXAS

Kyla S. Dean
Notary Public - State of Texas

AFTER RECORDING RETURN TO:

Jefferson County Drainage District No. 7
Attn: Diane Smith
P.O. Box 3244
Port Arthur, TX 77643

EXHIBIT A

93.56 ACRES OF LAND
OUT OF THE MCFADDIN TRUST
SITUATED IN THE T. & N.O.R.R. SURVEY
NO.1 ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS

BEING 93.56 acres of land, out of and part of Tract 13-B-1 The McFaddin Trust, recorded in File No. 2016033381, situated in the T.& N.O.R.R Survey, No. 1, Abstract No. 257, Official Public Records, Jefferson County, Texas; said 93.56 acre tract being more fully described by metes and bounds as follows, to wit;

Note: Bearings, coordinates, distances and acreage are based on the Texas Coordinate System of 1983, South Central Zone, US Survey Feet, and are referenced to SmartNet, North America.

BEGINNING at a ½" steel rod, capped and marked "SOUTEX", found for the Southeast corner of said Tract 13-B-1, on the West right of way line of a dedicated road named US Highway 69/96/287; said ½" steel rod, being on the North line of a (Called 7.223) acre tract of land, described in a deed to Gulf States Utilities Company, recorded in Volume 1586, Page 196, Deed Records, Jefferson County, Texas, and the Southeast corner of the herein described tract; having a Texas Coordinate of N: 13938557.06, E: 3541074.55;

THENCE, South 86 deg., 21 min., 43 sec., West, (Called South 86 deg., 21 min., 41 sec., West), on the North line of the (Called 7.223) acre tract and a portion of the North line of a (Called 18.483) acre tract described in a deed to Gulf States Utilities Company, recorded in Volume 1586, Page 165, Deed Records, Jefferson County, Texas, a distance of 2803.42' (Called 2803.36'), to a 1/2"' steel rod, capped and marked "SOUTEX", found for the Southeast corner of a (Called 78.89) acre tract of land, described in a deed to Texas Department Of Criminal Justice, recorded in File No. 9731119, Official Public Records, Jefferson County, Texas, said ½ steel rod being the Southwest corner of said Tract 13-B-1 and Southwest corner of the herein described tract;

THENCE, North 27 deg., 42 min., 25 sec., West, (Called North 27 deg., 42 min., 20 sec., West), on the East line of the (Called 78.89) acre tract, same being the West line of said Tract 13-B-1, a distance of 1437.37', to a ½" steel rod, capped and marked "SOUTEX", set for the Southwest corner of a (Called 23.69) acre tract of land described in a deed to Lamar State College-Port Arthur, recorded in File No. 2020027901, Official Public Records, Jefferson County, Texas, said ½" steel rod, being an exterior corner of the herein described tract;

THENCE, North 62 deg.,17 min., 40 sec., East, on the South line of the (Called 23.69) acre tract, a distance of 658.67', to a ½" steel rod, capped and marked "SOUTEX", set for the Southeast corner of the (Called 23.69) acre tract, said ½" steel rod, being an interior corner of the herein described tract;

THENCE, North 45 deg., 33 min., 21 sec., West, on the East line of the (Called 23.69) acre tract, a distance of 483.20', to a ½ steel rod, capped and marked "SOUTEX", set for corner; said ½" steel rod, being on the West line of a Jefferson County Drainage District No. 7 100' wide drainage easement, recorded in Film Code 104-90-1940, Official Public Records, Jefferson County, Texas;

THENCE, the following bearings and distances, to a ½" steel rods, capped and marked "SOUTEX", set on the common line of the (Called 23.69) acre tract and the West line of the 100' wide drainage easement:

North 39 deg., 33 min., 58 sec., West, 235.69'
North 34 deg., 22 min., 50 sec., West, 270.39'
North 20 deg., 41 min., 55 sec., West, 179.75'
North 07 deg., 41 min., 06 sec., East, 274.43'
North 17 deg., 31 min., 45 sec., West, 288.28', to a ½" steel rod, capped and marked "SOUTEX", set for the Northeast corner of the (Called 23.69) acre tract, said ½" steel rod being on the North line of said Tract 13-B-1 and Northwest corner of the herein described tract; from which ½" steel rod, found for the Northeast corner of the (Called 78.89) acre tract, same being the Northwest corner of said Tract 13-B-1, bears North 82 deg., 50 min., 49 sec., West, (Called North 82 deg., 51 min., 20 sec., West), a distance of 807.05' (Called 807.25');

THENCE, South 82 min., 50 min., 49 sec., East, (Called South 82 deg., 51 min., 20 sec., East), on the North line of said Tract 13-B-1, a distance of 846.92' (Called 846.89'), to a ½" steel rod, capped and marked "SOUTEX", found for the Northeast corner said Tract 13-B-1, same being the Northwest corner of a (Called 50.234) acre tract of land described in a deed to Jefferson County, Texas, recorded in File No. 2014001255, Official Public Records, Jefferson County, Texas, said ½" steel rod, being the Northeast corner of the herein described tract;

THENCE, South 27 deg., 44 min., 41 sec., East, (Called South 27 deg., 44 min., 32 sec., East), on the common line of said Tract 13-B-1 and the (Called 50.234) acre tract, a distance of 1824.82' (Called 1824.86'), to a 5/8" steel rod, capped and marked "WHITELEY", found for the Southwest corner of the (Called 50.234) acre tract, same being an interior corner of the herein described tract;

THENCE, South 82 deg., 53 min., 15 sec., East, (Called South 82 deg., 53 min., 59 sec., East), continuing on a common line of said tract 13-B-1 and the (Called 50.234) acre tract, a distance of 591.00' (Called 590.84'), to a 5/8" steel rod, capped and marked "WHITELEY", found for the Northwest corner of a (Called 7.3983) acre tract of land described in a deed to 3875 Highway 69, LLC., recorded in File No. 2017004851, Official Public Records, Jefferson County, Texas, said ½" steel rod, being the most Easterly Northeast corner of the herein described tract;

THENCE, South 03 deg., 53 min., 13 sec., East, (Called South 03 deg., 53 min., 46 sec., East), on the West line on the (Called 7.3983) acre tract, same being the East line of said Tract 13-B-1, a distance of 525.47', passing a 5/8" steel rod, capped and marked "WHITELEY", found for the Southwest corner of the (Called 7.3983) acre tract, same being the Northwest corner of a (Called 12.500) acre tract of land described in a deed to Industrial Safety Training Counsel, recorded in File No. 2012026613, Official Public Records, Jefferson County, Texas; continuing on the common line of said Tract 13-B-1 and the (Called 12.500) acre tract, a total distance of 1010.16' (Called 1010.35'), to a ½" steel rod, capped and

marked "SOUTEX", found for the Southwest corner of the (Called 12.500) acre tract, said ½" steel rod, being an interior corner of the herein described tract;

THENCE, North 86 deg., 21 min., 21 sec., East, (Called North 86 deg., 21 min., 25 sec., East), on the common line of said Tract 13-B-1 and the (Called 12.500) acre tract, a distance of 1230.86' (Called 1230.79), to a ½" steel rod, found for the Southeast corner of the (Called 12.500) acre tract, same being the most Easterly Northeast corner of said Tract 13-B-1 on the West right of way line of said US Highway 69/96/287, said ½" steel rod, being the most Easterly Northeast corner of the herein described tract;

THENCE, South 27 deg., 40 min., 16 sec., East, (Called South 27 deg., 40 min., 53 sec., East), on the West right of way line of said US Highway 69/96/287; same being the East line of said Tract 13-B-1, a distance of 153.39'(Called 153.32') to the **POINT OF BEGINNING** and containing 93.56 acres of land, more or less.

This description is based on the Land Survey made under the direct supervision of Anthony M. Leger, Registered Professional Land Surveyor No. 5481 on July 28, 2021.

Jefferson County Drainage District No. 7
LS-21-0709

AFTER RECORDING RETURN TO:

Jefferson County Drainage District No. 7
Attn: Diane Smith
P.O. Box 3244
Port Arthur, TX 77643

EXHIBIT B

Ingress and Egress Easement

TRACT II
0.3910 ACRE OF LAND
OUT OF THE T. & N.O.R.R. SURVEY NO. 1, ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS

BEING 0.3910 acre of land out of and a part of the T & NORR Survey No. 1, Abstract No.257, Jefferson County, Texas; being part of Tract 14A of Partition Map No. 2, The Mc Faddin Trust, recorded in Volume 7, Page 133, Map Records, Jefferson County, Texas; being out of a (Called 689.690) acre tract of land described in a deed to Texas Department of Criminal Justice, recorded in Film Code 102-98-2207, Official Public Records, Jefferson County, Texas; said 0.3910 acre tract being more fully described by metes and bounds as follows, to wit:

Note: Bearings, coordinates, distances and acreage are based on the Texas Coordinate System of 1983, South Central Zone, US Survey Feet, and are referenced to SmartNet, North America.

BEGINNING at a ½" steel rod, capped and marked 'SOUTEX", found for the Northeast corner of Tract 13-B-1, plat of 117.2 acres of land, recorded in File No. 2016033831, Official Public Records, Jefferson County, Texas; said ½" steel rod being the Northwest corner of a (Called 50.234) acre tract of land described in a deed to Jefferson County, Texas, recorded in File No. 2014001255, Official Public Records, Jefferson County, Texas, and being the Southeast corner of the herein described tract; having a Texas Coordinate of N: 13941310.74, E: 3538270.46;

THENCE, North 82 deg., 50 min., 55 sec., West, on the North line of Tract 13-B-1, a distance of 64.68' to a ½" steel rod, capped and marked "SOUTEX", set for the Southwest corner of the herein described tract;

THENCE, North 14 deg., 46 min., 11 sec., West, a distance of 272.27' to a ½" steel rod, capped and marked "SOUTEX", set on the South right of way line of a dedicated road named FM Highway 3514; said ½" steel rod being the Northwest corner of the herein described tract;

THENCE, on the South right of way line of said FM Highway 3514 on the arc of a curve to the left having a radius of 2949.79', an arc length of 60.00', a chord bearing of North 75 deg., 48 min., 47 sec., East, a chord distance of 60.00', to a ½" steel rod, capped and marked "SOUTEX", set for the Northeast corner of the herein described tract; from a ½" steel rod found in concrete on the South right of way line of said FM Highway 3514 bears North 69 deg., 04 min., 27 sec., East a distance of 632.66';

THENCE, South 14 deg., 46 min., 11 sec., East, a distance of 295.80' to the POINT OF BEGINNING and containing 0.3910 acre of land, more or less.

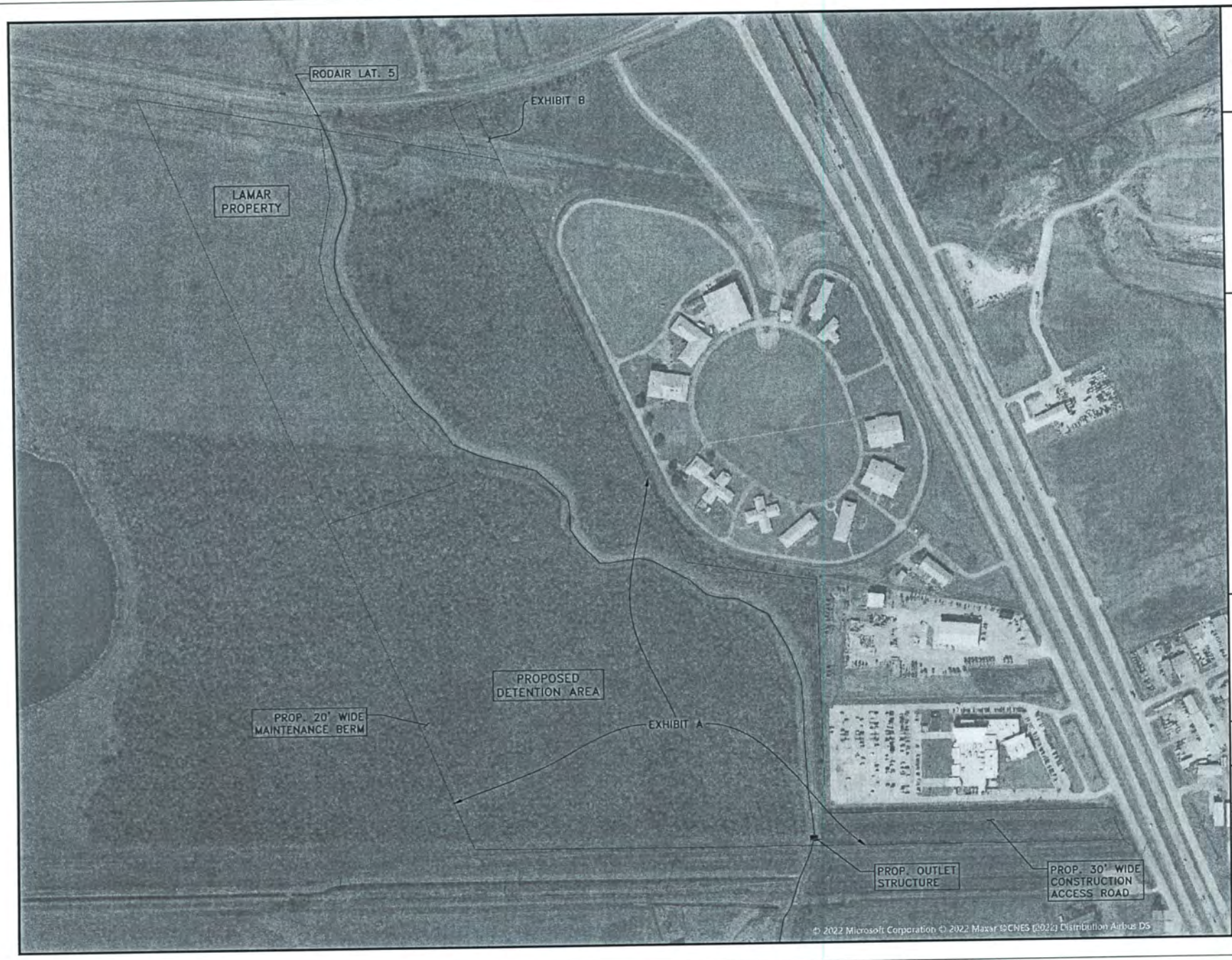
This description is based on the Land Survey made under the direct supervision of Anthony M. Leger, Registered Professional Land Survey No. 5481 on December 30, 2019.

Jefferson County
19-1175 – 1

AFTER RECORDING RETURN TO:

Jefferson County Drainage District No. 7
Attn: Diane Smith
P.O. Box 3244
Port Arthur, TX 77643

EXHIBIT "A"



JEFFERSON COUNTY DRAINAGE DISTRICT 7

LEGEND:

- EXISTING GAS METER
- EXISTING WATER VALVE
- EXISTING POWER POLE
- EXISTING WATER METER
- EXISTING TELEPHONE PEDESTAL
- EXISTING SANITARY SEWER CLEANOUT
- UNDERGROUND TELEPHONE CABLE
- EXISTING SANITARY SEWER LINE
- EXISTING MANHOLE
- SIGN
- EXISTING GAS LINE
- EXISTING PIPELINE
- EXISTING WATER LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING RAILROAD
- EXISTING GUY ANCHOR
- EXISTING FIRE HYDRANT
- LIGHT POLE
- EASEMENT/ROW LINES
- DITCH CENTERLINE
- TEMPORARY EASEMENT
- WOODEN FENCE
- CHAIN LINK FENCE
- FOUND OR SET PROPERTY CORNER
- TURNING POINT
- TEMPORARY FENCE
- P.I. POINT OF INTERSECTION
- V.P.I. VERTICAL POINT OF INFLECTION
- T.B.M. TEMPORARY BENCHMARK

PROPOSED LAT 5
DETENTION POND
ACREAGE: 85 ACRES
POND DEPTH: 5'
SIDE SLOPE: 3H:1V
STORAGE: 415 ACRE-FT

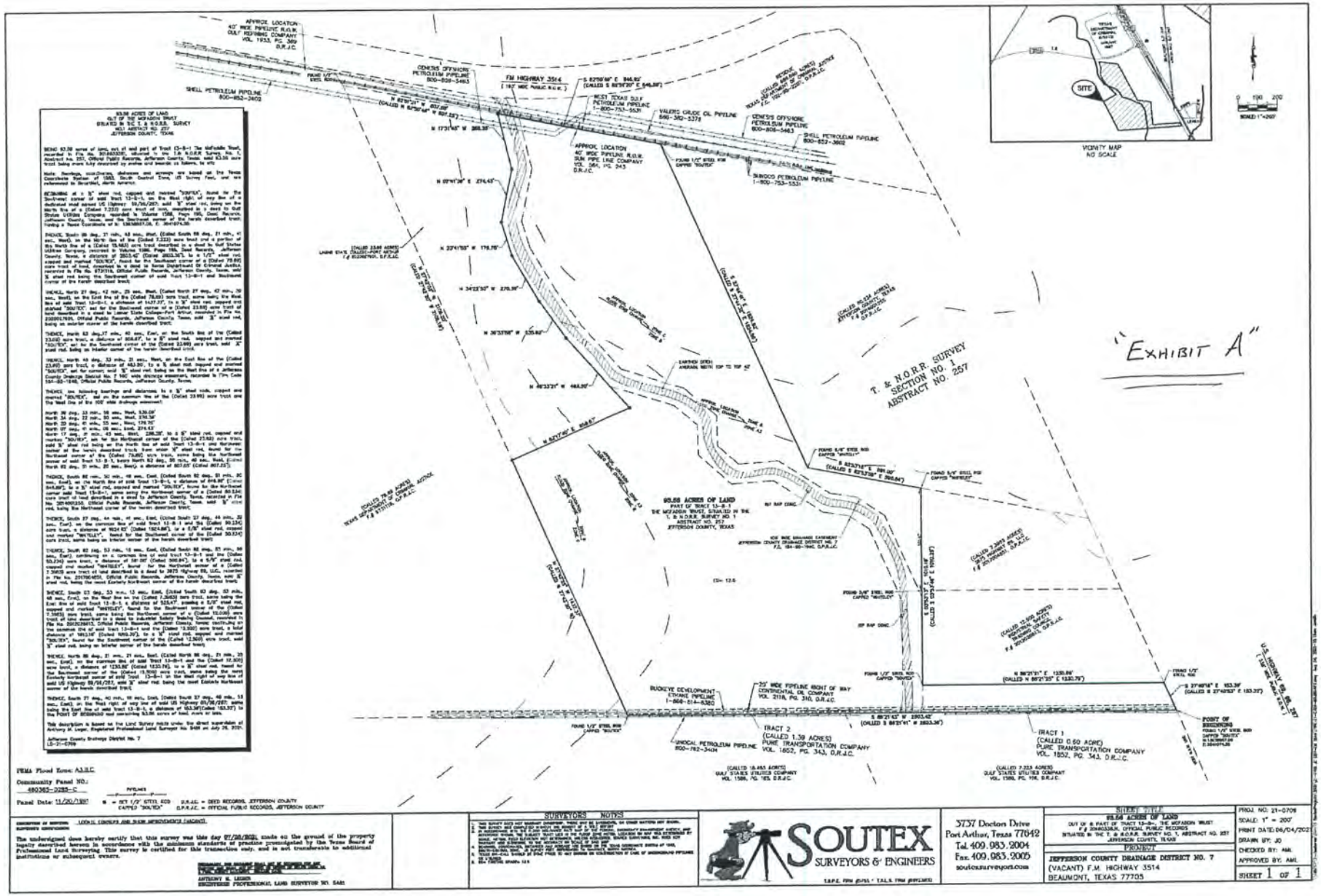
CALL BEFORE YOU DIG
TEXAS ONE CALL SYSTEM
1-800-245-4545
48 HR. NOTICE REQUIRED
WWW.TEXASONECALL.COM

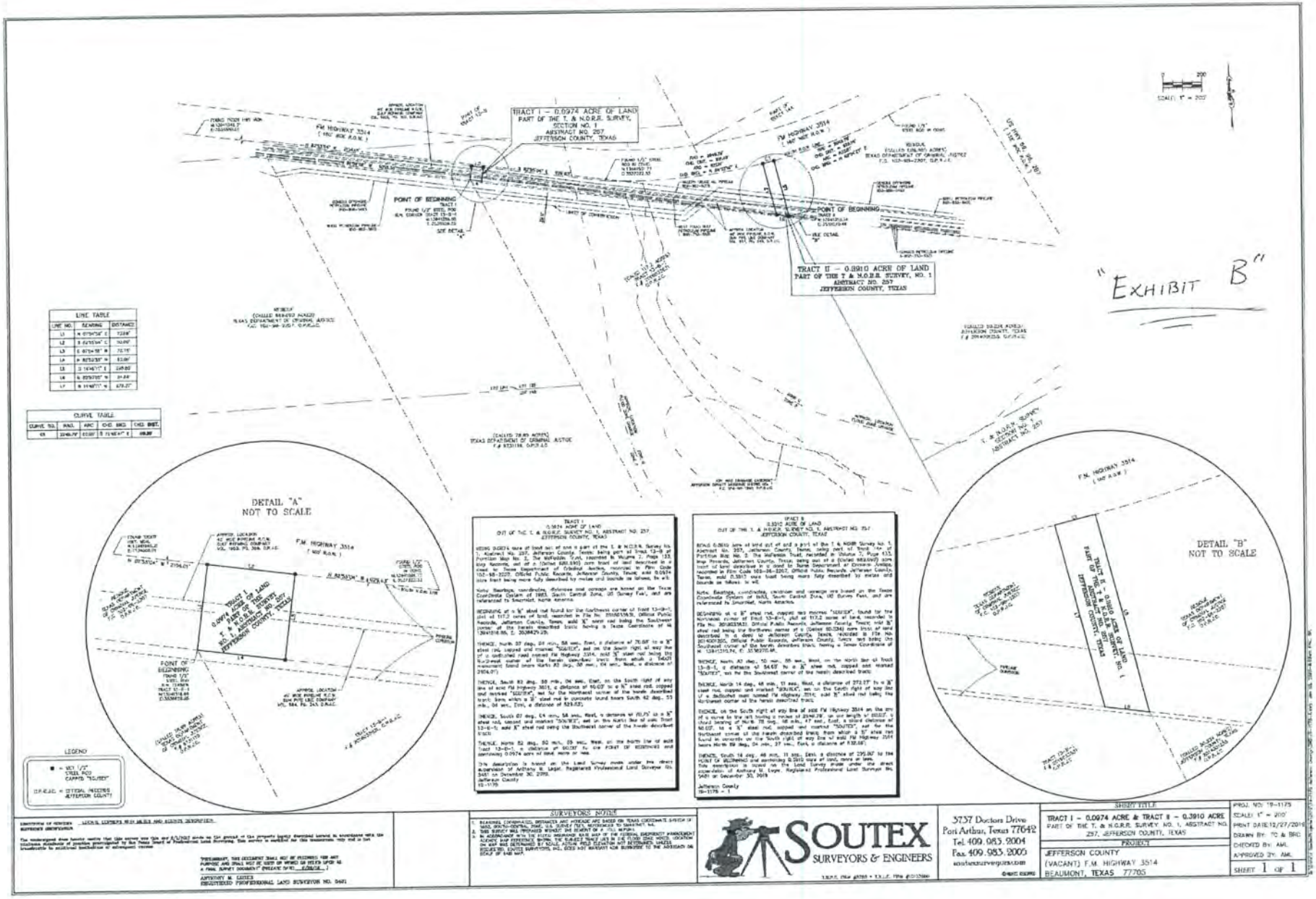
SCALE: 1" = 175' DSN. BY:
DATE: DWN. BY:
JOB NO. CHECKED:

REV	DATE	REVISION DESCRIPTION	APP.

RODAIR GULLY
LAT 5 DETENTION
CONCEPTUAL DESIGN
SITE LAYOUT

Page 1 of 3


"EXHIBIT A"
93.58 ACRES OF LAND
PART OF TRACT 13-B-1
THE MCFADDIN TRUST, SITUATED IN THE
T. & N.O.R.R. SURVEY NO. 1
ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS
T. & N.O.R.R. SURVEY
SECTION NO. 1
ABSTRACT NO. 257
TRACT 1
(CALLED 0.60 ACRE)
PURE TRANSPORTATION COMPANY
VOL. 1852, PG. 343, D.R.J.C.
TRACT 2
(CALLED 1.39 ACRES)
PURE TRANSPORTATION COMPANY
VOL. 1852, PG. 343, D.R.J.C.
FM HIGHWAY 3514
(187' WIDE PUBLIC R.O.W.)
SHELL PETROLEUM PIPELINE
800-852-3402
GENESIS OFFSHORE
PETROLEUM PIPELINE
800-808-5463
WEST TEXAS GULF
PETROLEUM PIPELINE
1-800-753-5531
VALERO CRUDE OIL PIPELINE
940-340-5378
SUNOCO PETROLEUM PIPELINE
1-800-753-5531
UNOCAL PETROLEUM PIPELINE
800-782-3404
BUCKEYE DEVELOPMENT
ETHANE PIPELINE
1-866-514-5380
25' WIDE PIPELINE RIGHT OF WAY
CONTINENTAL OIL COMPANY
VOL. 2118, PG. 310, D.R.J.C.
SITE
VICINITY MAP
NO SCALE
U.S. HIGHWAY 69 (BL 257)
(150' WIDE PUBLIC R.O.W.)
POINT OF BEGINNING
FOUND 1/2" STEEL ROD
CAPPED "SOUTEX"
N 13678907.24
E 3844975.85
FEMA Flood Zone: A,X,B,C
Community Panel NO.:
480365-0285-C
Panel Date: 11/20/1987
SURVEYORS NOTES
SOUTEX
SURVEYORS & ENGINEERS
3737 Doctors Drive
Port Arthur, Texas 77642
Tel. 409.983.2004
Fax. 409.983.2005
soutexsurveyors.com
SHEET TITLE
93.58 ACRES OF LAND
OUT OF & PART OF TRACT 13-B-1, THE MCFADDIN TRUST,
F.V. DINGSLEIN, OFFICIAL PUBLIC RECORDS
SITUATED IN THE T. & N.O.R.R. SURVEY NO. 1, ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS
PROJECT
JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7
(VACANT) F.M. HIGHWAY 3514
BEAUMONT, TEXAS 77705
PROJ. NO: 21-0709
SCALE: 1" = 200'
PRINT DATE: 06/04/2021
DRAWN BY: JD
CHECKED BY: AML
APPROVED BY: AML
SHEET 1 OF 1



TRACT I
0.0974 ACRE OF LAND
OUT OF THE T. & N.O.R.R. SURVEY NO. 1, ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS

TRACT II
0.3910 ACRE OF LAND
OUT OF THE T. & N.O.R.R. SURVEY NO. 1, ABSTRACT NO. 257
JEFFERSON COUNTY, TEXAS

SURVEYORS NOTICE

SOUTEX
SURVEYORS & ENGINEERS

3737 Doctors Drive
Port Arthur, Texas 77642
Tel 409.983.2004
Fax 409.983.2000
soutexsurveyors.com

SHEET TITLE
TRACT I – 0.0974 ACRE & TRACT II – 0.3910 ACRE
PART OF THE T. & N.O.R.R. SURVEY NO. 1, ABSTRACT NO. 257, JEFFERSON COUNTY, TEXAS

PROJECT
JEFFERSON COUNTY
(VACANT) F.M. HIGHWAY 3514
BEAUMONT, TEXAS 77705

PROJ. NO: 19-1179
SCALE: 1" = 200'
PRINT DATE: 12/27/2019
DRAWN BY: TC & BRC
CHECKED BY: AML
APPROVED BY: AML
SHEET 1 OF 1

THURMAN BILL BARTIE, MAYOR
DONALDFRANK,MAYOR PROTEM

COUNCIL MEMBERS:
INGRID HOLMES
CALJ.JONES
THOMAS J. KINLAW III
KENNETH MARKS
CHARLOTTE MOSES

City of Port Arthur Texas

RONBURTON
CITY MANAGER

SHERRI BELLARD, TRMC
CITY SECRETARY

VALTIZENO
CITY ATTORNEY

April 13, 2022

County Commissioner Michael Sinegal, Comm. Pct. 3
Jefferson County Road & Bridge Precinct# 3
5700 Jade Ave
Port Arthur, Tx 77640

RE: Assistance through Inter-local Agreement

Dear Commissioner Sinegal:

The City of Port Arthur requests the assistance of Jefferson County through an inter-local agreement for the North and South Levees of Pleasure Island.

1. Mowing Services for the North and South Levees of Pleasure Island by using one slope mower, two side arms and two bush hogs. One Gradall and a dump truck to clean the scattered pieces of waste and trash. Additionally, the City requests your spraying crew to put herbicide spraying (2 times). The City of Port Arthur request mowing the North and South levee twice a year (typically on April and October)

   The City of Port Arthur will provide the following for your assistance:

1. To provide the City of Port Arthur assistance in the North and South Levee, Jefferson County Pct. 3 will have to work overtime the payment to Pct. 3 will be overtime, fuel for equipment used and miscellaneous items.

   Labor-60 hours of overtime X 51.16/hr X 8 employees =$24,556.80
   Fuel-300 Gallons X 3.50/gallon= $1,050.00
   Parts- 10% total= $2,560.68

   Total= $28,167.48

   In total, the City shall not exceed $28,992.26 to cut the grass on the North and South levee.

Your Assistance is appreciated,

Ron Burton, City Manager

STATE OF TEXAS §
§ INTERLOCAL AGREEMENT
COUNTY OF JEFFERSON §

WHEREAS, Jefferson County, Texas, by and through its Commissioners' Court as authorized by Chapter 791 of the Government Code and the City of Port Arthur along with the Jefferson County, Texas, for the mutual benefit of the citizens they serve, desire to enter into a contract to provide certain services to each other; and,

WHEREA S, Jefferson County, Texas through the Commissioner Precinct 3 has, from time to time, capacity to provide labor and equipment suitable for mowing, cleaning and spraying ditches and performing the work requested in the attached order; and,

WHEREAS, the City of Port Arthur, requires the assistance, the need for mowing, spraying and conducting maintenance work within the corporate limits of the City of Port Arthur; and,

WHEREAS, the City of Port Arthur, does not have an adequate supply of the labor or equipment suited for such a task and would specifically as for assistance in the Port Acres area; and

NO W, THEREFORE, KNOW ALL MEN BY THE PRESENTS:

City of Port Arthur and Jefferson County hereby agree as follows:

1. Jefferson County shall assist the City with labor and equipment suitable for the mowing, cleaning and spraying of ditches on the North and South Levees of Pleasure Island area when and as determined at the discretion of the Commissioner for Jefferson County Precinct Three, subject to the requirements of Section 791.014 of the Government Code.
2. Consideration for the work herein contemplated shall be determined and mutually agreed from time to time depending on the scope of the maintenance work needed.
3. This agreement shall be effective on the date of its execution and may be terminated at the will of either party.
4. This agreement shall be construed according to the laws of the State of Texas.
5. Nothing in this agreement shall be construed to create the existence of an agency relationship between the parties.
6. Any employee af a party performing services pursuant to this agreement shall not be deemed to be the agent of the party receiving services under this agreement.

6. Any employee of a party performing services pursuant to this agreement shall not be deemed to be the agent of the party receiving services under this agreement.
7. The parties further agree, pursuant to Sec. 791.015, Texas Government Code, that any dispute regarding the terms of this agreement will be submitted to an agreed upon mediator for resolution.

The parties further agree, pursuant to Sec. 791.015, Texas Government Code, that any dispute regarding the terms of this agreement will be submitted to an agreed upon mediator for resolution.

Executed on the ___ day of ____ , 2022.

Jeff R. Branick
Jefferson County Judge

Thurman Bartie, Mayor
Mayor, City of Port Arthur

Joleen E. Fregia
Chief Deputy
E-Mail
joleen@co.jefferson.tx.us

Charlie Hallmark
County Treasurer
1149 Pearl Street – Basement
Beaumont, Texas 77701

Office (409) 835-8509
Fax (409) 839-2347
E-Mail
challmark@co.jefferson.tx.us

April 13, 2022

Judge Jeff R. Branick and
Commissioners Court
Jefferson County Courthouse
Beaumont, Texas 77701

Gentlemen:

Enclosed is the Investment Schedule as of March 31st, 2022, including interest earnings.

The 90 day Treasury discount rate on March 31st, 2022 was 0.52% and the interest on your checking accounts for the month of March was 0.30%

Included in the attached report are the balances for the County's pledged collateral.

This report meets the requirements for investment officers in compliance with the Texas Government Code. Title 10, Section 2256.023.

This should be on the agenda for April 19th, 2022, to be received and filed.

Sincerely,

Charlie Hallmark CIO
Enclosure

Agenda should read:
Receive and File Investment Schedule for March, 2022,
including the year to date total earnings on County funds.

JEFFERSON COUNTY
MONTH END MARCH, 2022 INVESTMENT SCHEDULE

SECURITY DESCRIPTION	SETTLEMENT DATE	PAR AMOUNT	AMOUNT PAID	PRICE PAID	EXP. YIELD	MATURITY Date	CALL DATE	# Days to mat.	# Days Invested	CUSIP/C.D. NUMBER	BROKER DEALER	CURRENT VALUE	Current Price	ACCRUED FROM PURCHASE/COUPON	Coupon paid TO DATE	BOOK VALUE ACCRUED INT.)
INVESTMENTS																
TEXAS CLASS		$0.00	$0.00	100	0.000%		NONE			TX-01-0485-4001	TEXAS CLASS	$0.00			$166,224.40	$0.00
CDs and Securities																
* (Investment CD's)																
					WEIGHTED				WEIGHTED			TOTAL MARKET				TOTAL BOOK
		TOTAL PAR	AMT. INVESTED		AVG. YLD				AVG.	MATURITY		VALUE				VALUE
INVESTMENT ACCTS		$0.00	$0.00									$0.00		0.00	$166,224.40	
CDs and Securities		$0.00	$0.00		#DIV/0!				#DIV/0!	DAYS		$0.00		0.00	$0.00	
TOTALS ALL ACCTS:		**$0.00**	**$0.00**									**$0.00**		**0.00**	**$166,224.40**	**$0.00**

PLEDGE COLLATERAL REPORT WELLS FARGO
ALL COUNTY FUNDS
AS OF MARCH 31, 2022

MARKET VALUE OF PLEDGE SECURITIES	**$250,000,000.00**
BALANCE IN ALL ACCOUNTS:	**$188,077,135.46**
OVER OR (UNDER) AMOUNT:	**$61,922,864.54**
	132.92%

COMPLIANCE STATEMENT

This in an unaudited statement made in accordance with provisions of Government Code Title 10 Section 2256.023 The Public Funds Investment Act
The investment portfolios of Jefferson County comply with the strategies in the Jefferson County Investment Policy and Procedures.

Charlie Hallmark, Jefferson County Investment Officer

MARCH 2022, JEFFERSON COUNTY INVESTMENT MATURITIES
MATURED SECURITIES AND INTEREST EARNED

SECURITY DESCRIPTION	PURCHASE DATE	PAR AMOUNT	AMOUNT INVESTED	PRICE PAID	EXPECT. YIELD	MATURITY DATE	Coupon Pay DATE	# DAYS INVEST.	CUSIP/C.D. NUMBER	BROKER DEALER	INTEREST EARNINGS	
INVESTMENTS												
TEXAS CLASS												
CHECKING INTEREST												
POOLED CASH ACCT		MARCH INTEREST			0.300%			31	1004221717	ALLEGIANCE	$41,764.13	
OTHER COUNTY ACCTS		MARCH INTEREST			0.300%			31		ALLEGIANCE	$2,423.79	
TAX LICENSE ACCT		MARCH INTEREST						31	1004224083	ALLEGIANCE	$163.92	
												$44,351.84
TOTAL		**$0.00**	**$0.00**								**$44,351.84**	**$44,351.84**

FISCAL YEAR 2021-2022

YIELD TO MATURITY AND INTEREST EARNINGS

MONTH	90 DAY T. BILL YIELD	INVESTMENT INTEREST EARNED	CHECKING ACCOUNT YIELD	TEXAS CLASS INTEREST	TEXAS CLASS YIELD
OCTOBER	0.050%	$17,244.34	0.160%	$0.00	0.000%
NOVEMBER	0.050%	$19,028.99	0.160%	$0.00	0.000%
DECEMBER	0.060%	$20,377.61	0.160%	$0.00	0.000%
JANUARY	0.240%	$18,320.98	0.300%	$0.00	0.000%
FEBRUARY	0.380%	$43,859.57	0.300%	$0.00	0.000%
MARCH	0.520%	$44,351.84	0.300%	$0.00	0.000%
APRIL	0.000%	$0.00	0.300%	$0.00	0.000%
MAY	0.000%	$0.00	0.300%	$0.00	0.000%
JUNE	0.000%	$0.00	0.300%	$0.00	0.000%
JULY	0.000%	$0.00	0.300%	$0.00	0.000%
AUGUST	0.000%	$0.00	0.300%	$0.00	0.000%
SEPTEMBER	0.000%	$0.00	0.300%	$0.00	0.000%
ANNUAL TOTALS		**$163,183.33**		**$0.00**	**$163,183.33**

Permit Number: 0298 (02-P-22)
Precinct Number: 1
Bond Number: See enclosed Certificate of Insurance
25YR RENEWAL

APPLICATION FOR PIPE LINE PERMIT

Date: 04/04/2022

HONORABLE COMMISSIONERS' COURT
JEFFERSON COUNTY
BEAUMONT, TEXAS 77701

Ladies or Gentlemen:

Targa NGL Pipeline Company LLC , (Company)
does hereby made application to use lands belonging to Jefferson County, for the purpose of constructing, maintaining or repairing a pipe line for the distribution of location of which is fully described as follow:
Renewal of pipe under Tram Road. Our crossing is approx. one (1) mile north of the intersection of Tram Road and St. Hwy. # 105 (25YR PERMIT RENEWAL)

Number of drawings attached Previous Permit Attached
Construction will begin on or after N/A 20 N/A (25YR RENEWAL)

It is understood that all work will comply with requirements of the Pipe Line Policy adopted by Jefferson County Commissioners' Court on 1992 (Complied with requirements when constructed) and all subsequent revisions thereof to date.

Enclosed, please find the required permit fee:

1	Road crossing @$100.00		$ 100.00
	Miles parallel @$150.00/mile or fraction		$
	TOTAL		$ 100.00

We understand that a Performance Bond will be required to protect against damage to Jefferson County's property. This will be **$5,000.00 per crossing** and **$50,000.00 per mile** or fraction thereof for parallel construction unless a special hazard to Jefferson County's property is judged exist. No work will begin until the County Engineer has been furnished such bonds as Jefferson County Commissioners' Court may choose to require.

Permit is issued for a period of twenty-five (25) years, at which time the permit must be renewed.

Targa NGL Pipeline Company LLC	811 Louisiana St., Ste. 2100, Houston, TX 77002
Company Name	Address
Norman L. Winter : VP - Land & ROW	713-584-1374
Company Representative Name/Title	Phone Number

REV 2020

ENGINEERING ACTION FORM

The minimum standard bond required is $ N/A

County Engineer

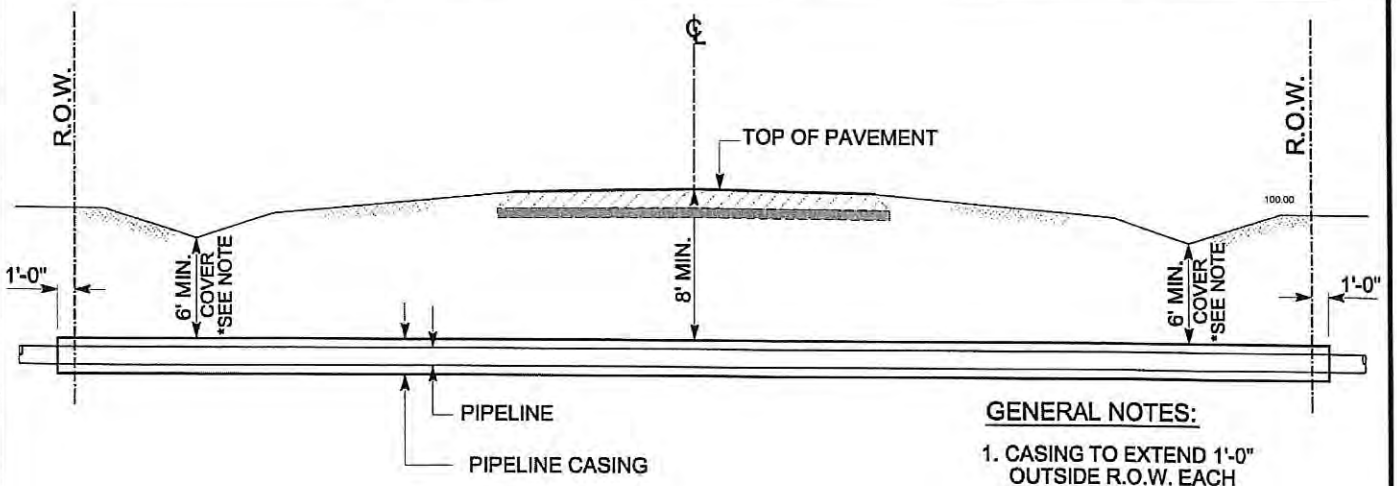
4/19/22
Date

COMMISSIONERS COURT ORDER

On this date the attached application of a utility or common carrier pipeline came on for the Courts consideration, and the Court having considered the application is of the opinion that the applicant is a utility or common carrier pipeline company meeting all the requirements of County Policy for installation of a line in County roads and that the plans or details presented with said application did not appear to violate the County Regulations. It is ORDERED that said applicant shall comply with all provisions of the Utility and Common Carrier Pipe Line Policy adopted by this Court, and all subsequent revisions. The bond required shall be $ N/A.
Special conditions of construction (are/are not) attached hereto.

COMMISSIONERS COURT

By _____
County Judge

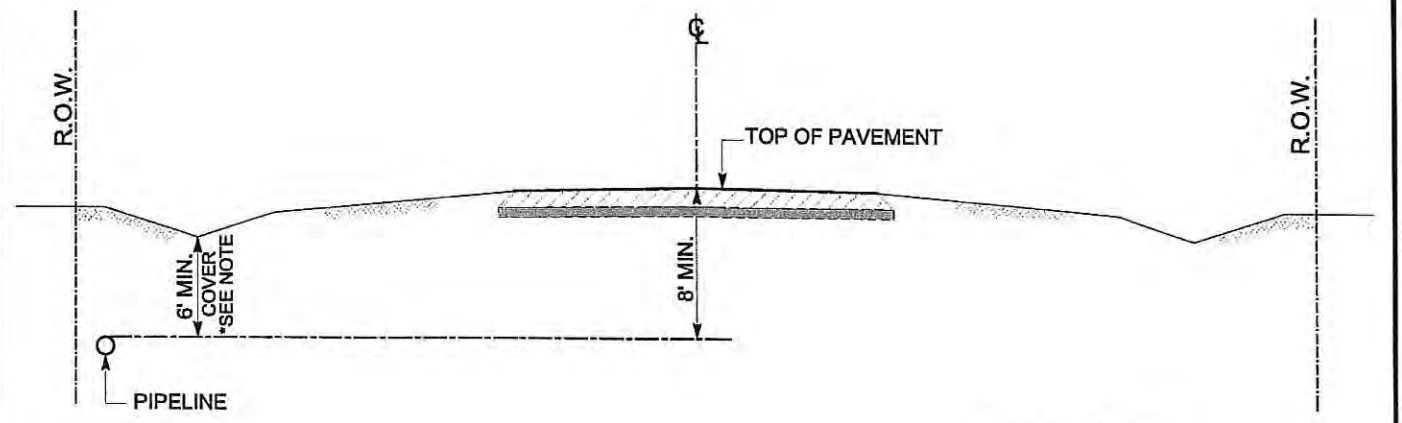


GENERAL NOTES:

1. CASING TO EXTEND 1'-0" OUTSIDE R.O.W. EACH SIDE OF ROAD
2. JEFFERSON COUNTY MAY EXEMPT CASING IN LIEU OF OTHER SUFFICIENT METHODS FOR PROTECTING THE PIPELINE AND PUBLIC RIGHT OF WAY
3. * 6'-0" MINIMUM COVER AT LOWEST DITCH FLOW LINE ELEVATION

1.) STANDARD PIPELINE CROSSING

N.T.S



GENERAL NOTES:

1. * 6'-0" MINIMUM COVER AT LOWEST DITCH FLOW LINE ELEVATION

2.) STANDARD PARALLEL LINE

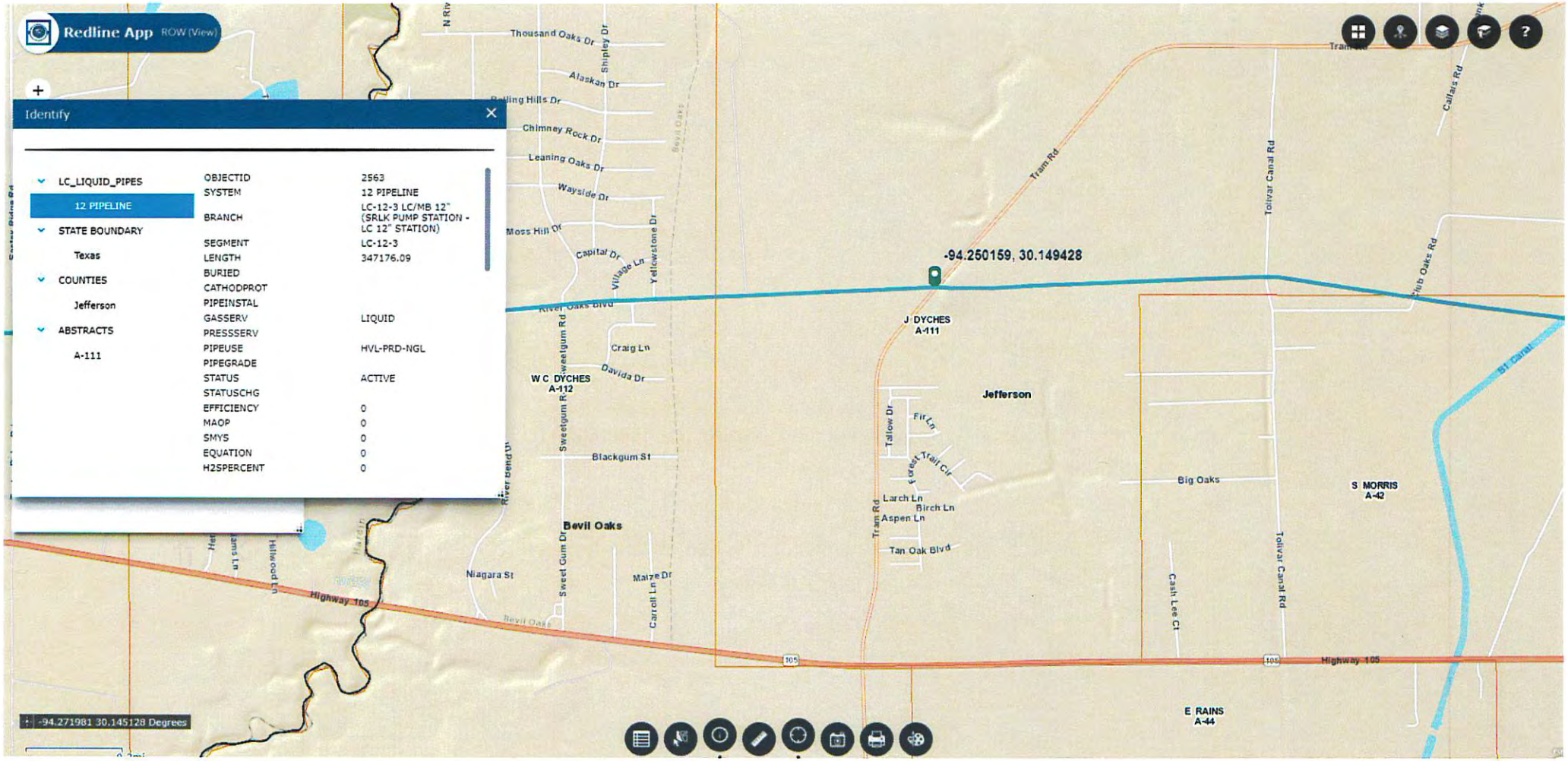
N.T.S

JEFFERSON COUNTY ENGINEERING DEPARTMENT

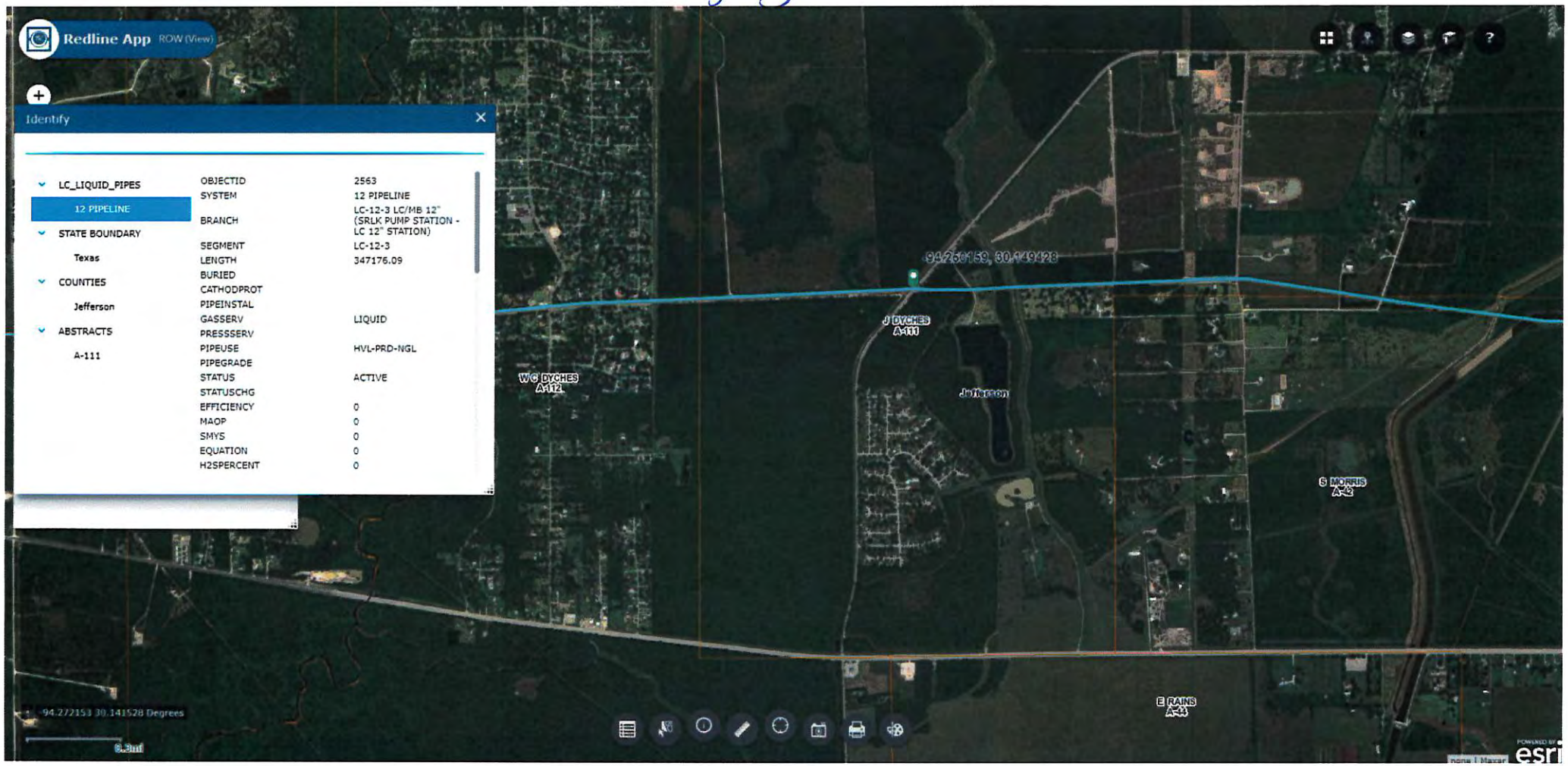
PIPELINE DETAILS (STD)

DRAWN:	J.D.		SHEET NO. 1 OF 1
CHECKED:	S.S.	REVISED: 01/15/2020	

GIS Screenshot: Streets View



GIS Screenshot: Imagery View



ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/28/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Marsh USA Inc.
2929 Allen Parkway, Suite 2500
Houston, TX 77019

CN101831123--3-21-22 GAUW X

CONTACT NAME:
PHONE (A/C, No, Ext):
FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Associated Electric & Gas Ins Services Ltd	3190004
INSURER B : ACE American Insurance Company	22667
INSURER C : ACE Property & Casualty Insurance Company	20699
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Targa NGL Pipeline Company LLC
811 Louisiana Street, Suite 2100
Houston, TX 77002

COVERAGES **CERTIFICATE NUMBER:** HOU-003721633-09 **REVISION NUMBER:** 2

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY X CLAIMS-MADE ☐ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY ☐ PRO-JECT ☐ LOC OTHER:	X	X	YX03219001P	10/31/2021	10/31/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	See Next Page See Next Page See Next Page See Next Page See Next Page See Next Page
B	AUTOMOBILE LIABILITY X ANY AUTO ☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY	X	X	ISA H2555503A	10/31/2021	10/31/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,000
C	X UMBRELLA LIAB ☐ OCCUR EXCESS LIAB X CLAIMS-MADE DED X RETENTION $ 1,000,000	X	X	XOC G28178281 006	10/31/2021	10/31/2022	EACH OCCURRENCE AGGREGATE	$ $	5,000,000 5,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	X	WLR C67815713	10/31/2021	10/31/2022	X PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	1,000,000 1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE: "Lake Charles 12" Pipeline/Utility Permit

The Certificate Holder is included as additional insured (except workers' compensation) where required by written contract. Waiver of subrogation is applicable where required by written contract. Insurance Company will provide 30 days advance notice of cancellation, other than non-payment of premium as required by written contract subject to policy terms and conditions.

CERTIFICATE HOLDER

Jefferson County Drainage District No. 6
P.O. Box 20078
6550 Walden Road
Beaumont, TX 77720-0078

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
of Marsh USA Inc.

Marsh USA Inc.

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AGENCY CUSTOMER ID: CN101831123
LOC #: Houston

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Marsh USA Inc.	Targa NGL Pipeline Company LLC 811 Louisiana Street, Suite 2100 Houston, TX 77002
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

As Respects General Liability:

A. Limit of Liability Each Occurrence:
1. $1,000,000*
2. $2,000,000 General Aggregate

B. Joint Venture Limit of Liability Each Occurrence:
Per Limit of Liability Section (3)
$1,000,000*

C. Combined Products Liability and Completed Operations Liability
Aggregate Limit of Liability for the Policy Period:
$2,000,000*

D. Failure to Supply Liability Aggregate Limit of Liability for the Policy Period:
$1,000,000*

E. Pollution Liability Aggregate Limit of Liability for the Policy Period:
$1,000,000*

F. Medical Malpractice Injury Limit of Liability Each Occurrence:
$1,000,000*

G. Wildfire Liability Aggregate Limit of Liability for the Policy Period:
$1,000,000*

*Subject to the $2,000,000 General Aggregate

As Respects General Liability:
Indemnity and Defense Costs are included in the Limits of Liability.

As Respects General Liability:
Policy does not contain an exclusion applicable to construction or demolition work within 50 feet of a railroad.

As Respects General Liability:
Policy does not contain exclusion for explosion, collapse or underground property damage hazards.

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POLICY NUMBER: ISA H2555503A

Endorsement Number: 1

FORM MCS-90

OMB No.: 2126-0008 Expiration: 05/31/2024

USDOT Number: _ **Date Received:** _

Please note, the expiration date as stated on this form relates to the process for renewing the Information Collection Request for this form with the Office of Management and Budget. This requirement to collect information as requested on this form does not expire. For questions, please contact the Office of Registration and Safety Information, Registration, Licensing, and Insurance Division.

A Federal Agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2126-0008. Public reporting for this collection of information is estimated to be approximately 2 minutes per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Motor Carrier Safety Administration, MC-RRA, Washington, D.C. 20590.

United States Department of Transportation
Federal Motor Carrier Safety Administration

Endorsement for Motor Carrier Policies of Insurance for Public Liability under Sections 29 and 30 of the Motor Carrier Act of 1980

FORM MCS-90

Issued to Targa Resources Corp. *(Motor Carrier name)* **of** TX *(Motor Carrier state or province)*

Dated at Wilmington, DE 19803 **on this** 20th **day of** October , 20 21 .

Amending Policy Number: ISA H2555503A **Effective Date:** 10/31/2021

Name of Insurance Company: ACE American Insurance Company

JOHN J. LUPICA, President

Countersigned by: _____
(authorized company representative)

The policy to which this endorsement is attached provides primary or excess insurance, as indicated for the limits shown *(check only one)*:

[X] *This insurance is primary and the company shall not be liable for amounts in excess of $* 3,000,000 *for each accident.*

[ ] *This insurance is excess and the company shall not be liable for amounts in excess of $* _____ *for each accident in excess of the underlying limit of $* _____ *for each accident.*

Whenever required by the Federal Motor Carrier Safety Administration (FMCSA), the company agrees to furnish the FMCSA a duplicate of said policy and all its endorsements. The company also agrees, upon telephone request by an authorized representative of the FMCSA, to verify that the policy is in force as of a particular date. The telephone number to call is: 215 - 640 - 4555.

Cancellation of this endorsement may be effected by the company or the insured by giving (1) thirty-five (35) days notice in writing to the other party (said 35 days notice to commence from the date the notice is mailed, proof of mailing shall be sufficient proof of notice), and (2) if the insured is subject to the FMCSA's registration requirements under 49 U.S.C. 13901, by providing thirty (30) days notice to the FMCSA (said 30 days notice to commence from the date the notice is received by the FMCSA at its office in Washington, DC).

Filings must be transmitted online via the Internet at http://www.fmcsa.dot.gov/urs.

(continued on next page)

DEFINITIONS AS USED IN THIS ENDORSEMENT

Accident includes continuous or repeated exposure to conditions or which results in bodily injury, property damage, or environmental damage which the insured neither expected nor intended.

Motor Vehicle means a land vehicle, machine, truck, tractor, trailer, or semitrailer propelled or drawn by mechanical power and used on a highway for transporting property, or any combination thereof.

Bodily Injury means injury to the body, sickness, or disease to any person, including death resulting from any of these.

Property Damage means damage to or loss of use of tangible property.

Environmental Restoration means restitution for the loss, damage, or destruction of natural resources arising out of the accidental discharge, dispersal, release or escape into or upon the land, atmosphere, watercourse, or body of water, of any commodity transported by a motor carrier. This shall include the cost of removal and the cost of necessary measures taken to minimize or mitigate damage to human health, the natural environment, fish, shellfish, and wildlife.

Public Liability means liability for bodily injury, property damage, and environmental restoration.

The insurance policy to which this endorsement is attached provides automobile liability insurance and is amended to assure compliance by the insured, within the limits stated herein, as a motor carrier of property, with Sections 29 and 30 of the Motor Carrier Act of 1980 and the rules and regulations of the Federal Motor Carrier Safety Administration (FMCSA).

In consideration of the premium stated in the policy to which this endorsement is attached, the insurer (the company) agrees to pay, within the limits of liability described herein, any final judgment recovered against the insured for public liability resulting from negligence in the operation, maintenance or use of motor vehicles subject to the financial responsibility requirements of Sections 29 and 30 of the Motor Carrier Act of 1980 regardless of whether or not each motor vehicle is specifically described in the policy and whether or not such negligence occurs on any route or in any territory authorized to be served by the insured or elsewhere. Such insurance as is afforded, for public liability, does not apply to injury to or death of the insured's employees while engaged in the course of their employment, or property transported by the insured, designated as cargo. It is understood and agreed that no condition, provision, stipulation, or limitation contained in the policy, this endorsement, or any other endorsement thereon, or violation thereof, shall relieve the company from liability or from the payment of any final judgment, within the limits of liability herein described, irrespective of the financial condition, insolvency or bankruptcy of the insured. However, all terms, conditions, and limitations in the policy to which the endorsement is attached shall remain in full force and effect as binding between the insured and the company. The insured agrees to reimburse the company for any payment made by the company on account of any accident, claim, or suit involving a breach of the terms of the policy, and for any payment that the company would not have been obligated to make under the provisions of the policy except for the agreement contained in this endorsement.

It is further understood and agreed that, upon failure of the company to pay any final judgment recovered against the insured as provided herein, the judgment creditor may maintain an action in any court of competent jurisdiction against the company to compel such payment.

The limits of the company's liability for the amounts prescribed in this endorsement apply separately to each accident and any payment under the policy because of anyone accident shall not operate to reduce the liability of the company for the payment of final judgments resulting from any other accident.

(continued on next page)

SCHEDULE OF LIMITS — PUBLIC LIABILITY

Type of carriage	Commodity transported	January 1, 1985
(1) For-hire (in interstate or foreign commerce, with a gross vehicle weight rating of 10,001 or more pounds).	Property (nonhazardous)	$750,000
(2) For-hire and Private (in interstate, foreign, or intrastate commerce, with a gross vehicle weight rating of 10,001 or more pounds).	Hazardous substances, as defined in 49 CFR 171.8, transported in cargo tanks, portable tanks, or hopper-type vehicles with capacities in excess of 3,500 water gallons; or in bulk Division 1.1, 1.2, and 1.3 materials, Division 2.3, Hazard Zone A, or Division 6.1, Packing Group I, Hazard Zone A material; in bulk Division 2.1 or 2.2; or highway route controlled quantities of a Class 7 material, as defined in 49 CFR 173.403.	$5,000,000
(3) For-hire and Private (in interstate or foreign commerce, in any quantity; or in intrastate commerce, in bulk only; with a gross vehicle weight rating of 10,001 or more pounds).	Oil listed in 49 CFR 172.101; hazardous waste, hazardous materials, and hazardous substances defined in 49 CFR 171.8 and listed in 49 CFR 172.101, but not mentioned in (2) above or (4) below.	$1,000,000
(4) For-hire and Private (In interstate or foreign commerce, with a gross vehicle weight rating of less than 10,001 pounds).	Any quantity of Division 1.1, 1.2, or 1.3 material; any quantity of a Division 2.3, Hazard Zone A, or Division 6.1, Packing Group I, Hazard Zone A material; or highway route controlled quantities of a Class 7 material as defined in 49 CFR 173.403.	$5,000,000

*The schedule of limits shown does not provide coverage. The limits shown in the schedule are for information purposes only.

Original Permit

PERMIT 0298
Act #1

APPLICATION FOR PIPE LINE PERMIT
(1992 REVISION)

Date 5-9-97

HONORABLE COMMISSIONERS' COURT
JEFFERSON COUNTY
BEAUMONT, TEXAS 77701

Gentlemen:

WARREN PETROLEUM COMPANY
WARREN NGL, INC. (Company) does hereby make application to use lands belonging to Jefferson County, for the purpose of constructing, maintaining or repairing a pipe line for the distribution of LPG location of which is fully described as follows: REPLACING PIPE UNDER TRAM ROAD. OUR CROSSING IS APPROX. (1) ONE MILE NORTH OF THE INTERSECTION OF TRAM ROAD AND ST. HWY. #105

5 pages of drawings attached.
Construction will begin on or after MAY 15, 1997.

It is understood that all work will comply with the requirements of the Pipe Line Policy adopted by Jefferson County Commissioners' Court on 1992, and all subsequent revisions thereof to date.

Enclosed, please find the required permit fee:

1 road crossings @ $100.00	$100.00
____ miles parallel @ $150.00/mile or fraction	$____
TOTAL	$100.00

We understand that a Performance Bond will be required to protect against damage to Jefferson County's property. This will be $5,000.00 per crossing and $50,000.00 per mile or fraction thereof for parallel construction unless a special hazard to Jefferson County's property is judged to exist. No work will begin until the County Engineer has been furnished such bonds as Jefferson County Commissioners' Court may choose to require.

Permit is issued for a period of twenty-five (25) years, at which time, the permit must be renewed.

Company WARREN NGL, INC. - WARREN PETROLEUM COMPANY
By Clyde Palmer
Title AGENT FOR WARREN NGL-WARREN PETROLEUM
Address 520 E. HWY 108
SULPHUR, LA. 70663
CONTACT CLYDE PALMER 409 883-0231
I will pick-up in Person #196

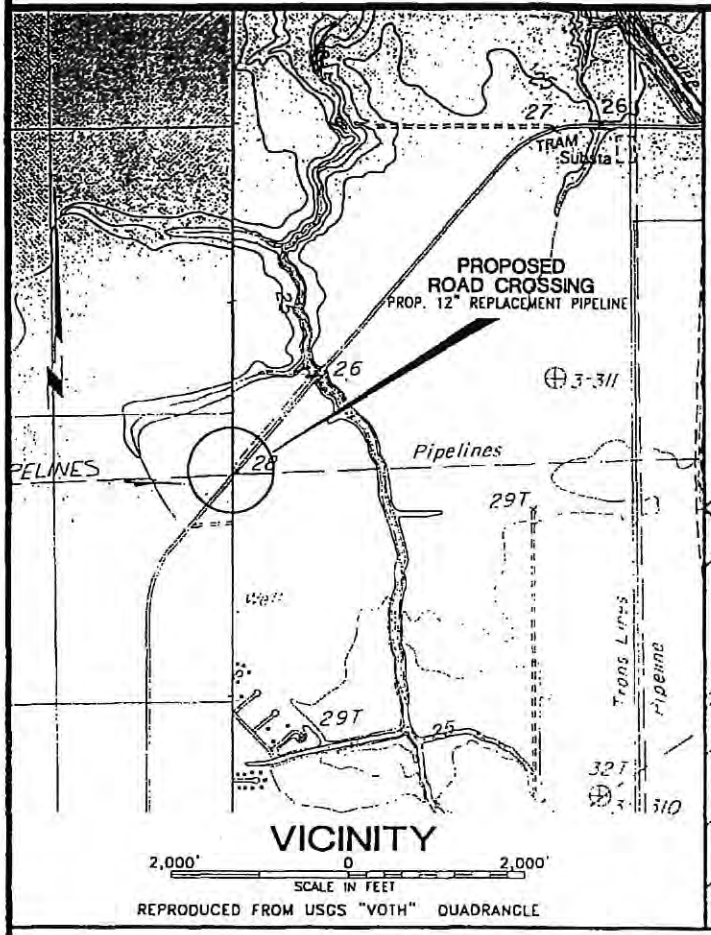
PIPE DATA SHEET
FOR PROPOSED INSTALLATIONS

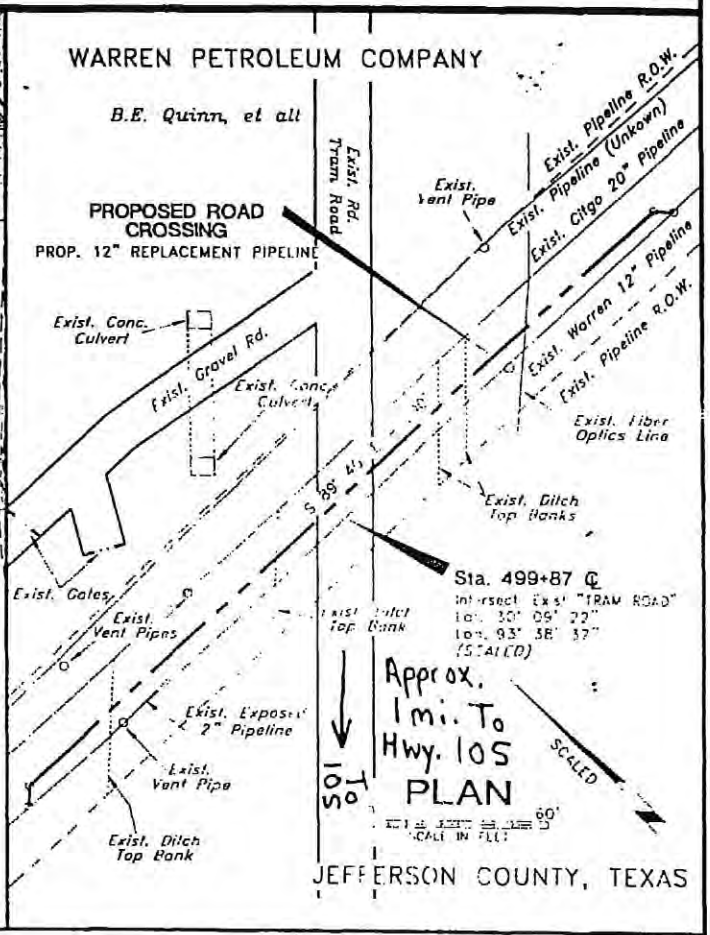
Highway No Tram Road Jefferson Co., Texas

Owner of Proposed Facility WARREN PETROLEUM COMPANY
Warren NGL, Inc.

Data	Carrier Pipe	Casing (if used) N/A
Contents to be handled	LPG	
Pipe Material	Carbon Steel	
Specification & Grade of Pipe	API 5L X 42	
Outside Diameter (inches)	12.750"	
Wall Thickness	0 406	
Yield Strength (psi)	42,000 psi	
Maximum allowable operating pressure (psig)	770	
Class Location (for gas lines)	———	
Type of Joint (welded, mechanical joint, etc)	Welded	
Method of installation (bore, open cut)	Directional Bore	
Location (crossing or parallel)	Crossing	
Min Depth beneath roadway surface	Five (5') feet	
Min Depth beneath ditches or drainage structures	Five (5') feet	
Coating Material	FBE Fusion E Bond	
Cathodic Protection	Yes	

* Placing pipe To comply with uncased crossings





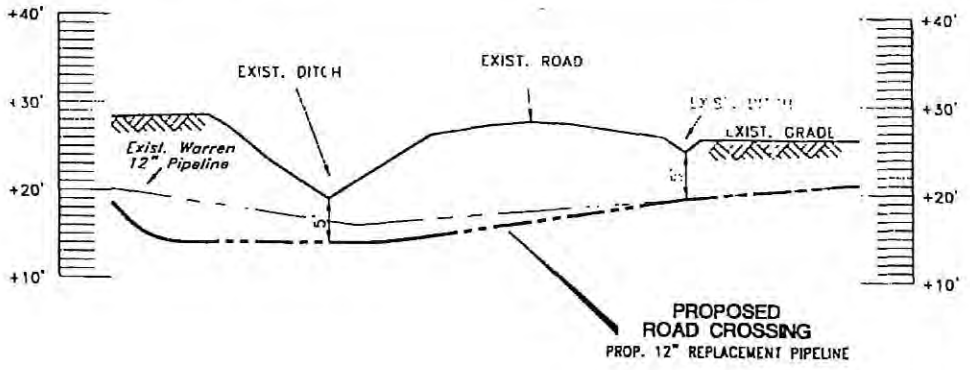
NOTE: PROPOSED PIPELINE TO BE DIRECTIONALLY DRILLED UNDER EXISTING ROAD.

PROFILE

0 60'
SCALE IN FEET
HORIZONTAL

0 20'
SCALE IN FEET
VERTICAL

NOTE: ELEVATION SCALED FROM USGS QUADRANGLE "VOTH"



WARREN PETROLEUM COMPANY

JOHN E. CHANCE & ASSOCIATES, INC. FUGRO
CIVIL ENGINEERS & LAND SURVEYORS – LAFAYETTE, LOUISIANA
A MEMBER OF THE FUGRO GROUP OF COMPANIES

SCALE AS SHOWN

GEODETIC DATUM: NAD 1927
ELLIPSOID: CLARKE 1866
PROJECTION: LAMBERT
ZONE: TEXAS CENTRAL
GRID UNITS: FEET

PROPOSED ROAD CROSSING

Warren Petroleum Company 12" Pipeline

TRAM ROAD CROSSING

JEFFERSON COUNTY, TEXAS

JOB NO.: 975006	DWG BY: MSS	DATE: APRIL 22, 1997	SHEET NO.
FILE: F:\COE\C975006R		REV.:	2 OF 2

Permit No. 06-4-22
Precinct No. 1 & 4

NOTICE OF PROPOSED PLACEMENT OF
PUBLIC UTILITY LINE/COMMON CARRIER PIPLINE WITHIN
JEFFERSON COUNTY RIGHT-OF-WAY
(2003 REVISION)

Date: 3-31-2022

HONORABLE COMMISSIONERS' COURT
JEFFERSON COUNTY
BEAUMONT, TEXAS 77701

Gentlemen:

CenterPoint Energy Resources Corp., (Company) does hereby made application to use lands belonging to Jefferson County, for the purpose of constructing, maintaining or repairing a utility or common carrier pipeline for the distribution of natural gas along S. Pine Island Road and Brooks Road, location of which is fully described as follows:

3 pages of drawings attached.

Construction will begin on or after March 21 20 22

It is understood that all work will comply with requirements of the Utility and Common Carrier Pipeline Policy adopted by Jefferson County Commissioners' Court on Year 2020 and all subsequent revisions thereof to date.

Company CenterPoint Energy

By Perry Luu

Title Consultant Project Manager of EnSiteUSA

Address 3100 S. Gessner Road; Houston, TX 77063

Telephone 832-803-1050

Fax No. _____

FOR COMMON CARRIER PIPELINE COMPANY ONLY

1. Common Carrier Determination form must be attached to application.

2. Corporation/Person product is to be purchased from/delivered to:

Enclosed, please find the required application fee:

0 road crossing @ $100.00 _____ $ 0

1.29 miles parallel @ $150.00/mile or fraction _____ $ 193.00

TOTAL _____ $ 193.00

We understand that a Performance Bond will be required to protect against damage to Jefferson County's property. This will be $5,000.00 per crossing and $50,000.00 per mile or fraction thereof for parallel construction unless a special hazard to Jefferson County's property is judged to exist. No work will begin until the County Engineer has Been furnished such bonds as Jefferson County Commissioners' Court may choose to require.

ENGINEERING ACTION FORM

The minimum standard bond required is $ N/A

County Engineer

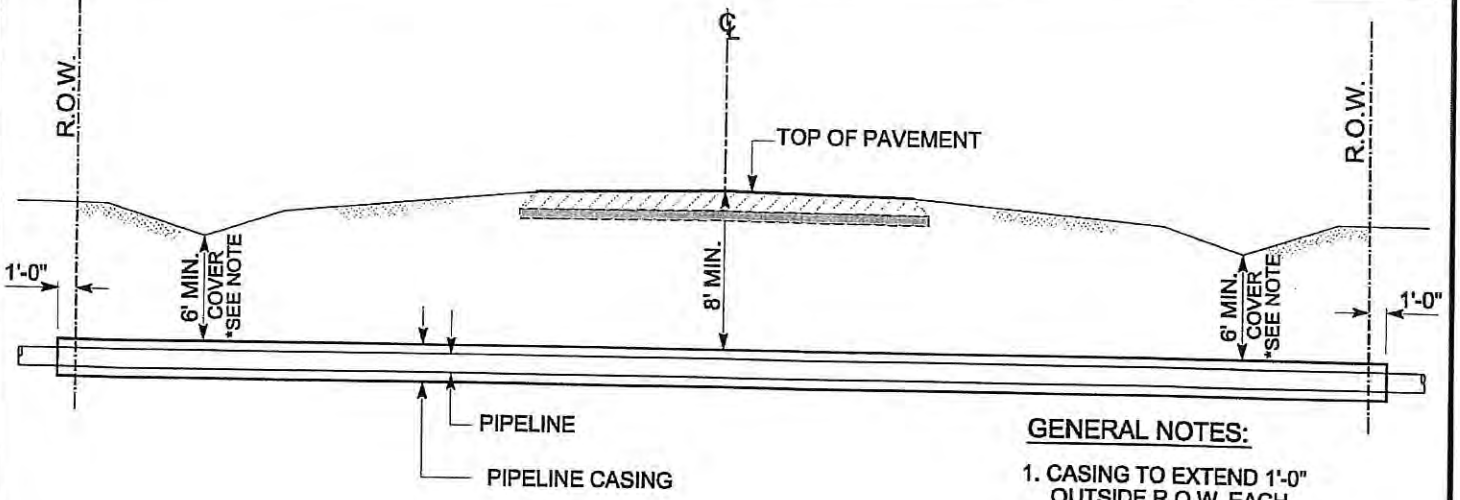
04/19/22
Date

COMMISSIONERS COURT ORDER

On this date the attached application of a utility or common carrier pipeline came on for the Courts consideration, and the Court having considered the application is of the opinion that the applicant is a utility or common carrier pipeline company meeting all the requirements of County Policy for installation of a line in County roads and that the plans or details presented with said application did not appear to violate the County Regulations. It is ORDERED that said applicant shall comply with all provisions of the Utility and Common Carrier Pipe Line Policy adopted by this Court, and all subsequent revisions. The bond required shall be $ N/A.
Special conditions of construction (are/are not) attached hereto.

COMMISSIONERS COURT

By _____
County Judge

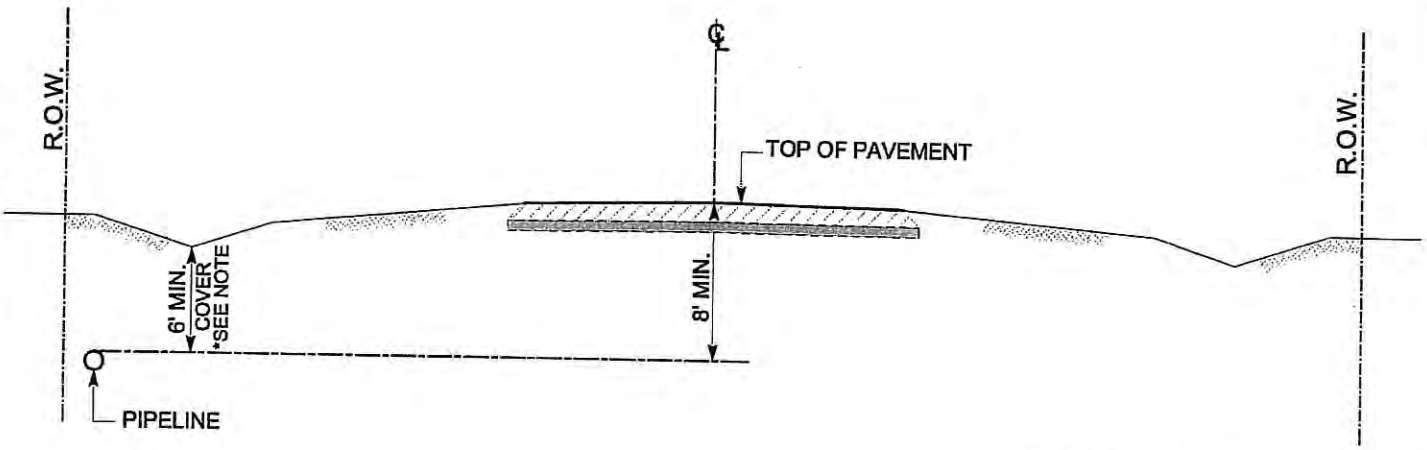


GENERAL NOTES:

1. CASING TO EXTEND 1'-0" OUTSIDE R.O.W. EACH SIDE OF ROAD
2. JEFFERSON COUNTY MAY EXEMPT CASING IN LIEU OF OTHER SUFFICIENT METHODS FOR PROTECTING THE PIPELINE AND PUBLIC RIGHT OF WAY
3. * 6'-0" MINIMUM COVER AT LOWEST DITCH FLOW LINE ELEVATION

1.) STANDARD PIPELINE CROSSING

N.T.S



GENERAL NOTES:

1. * 6'-0" MINIMUM COVER AT LOWEST DITCH FLOW LINE ELEVATION

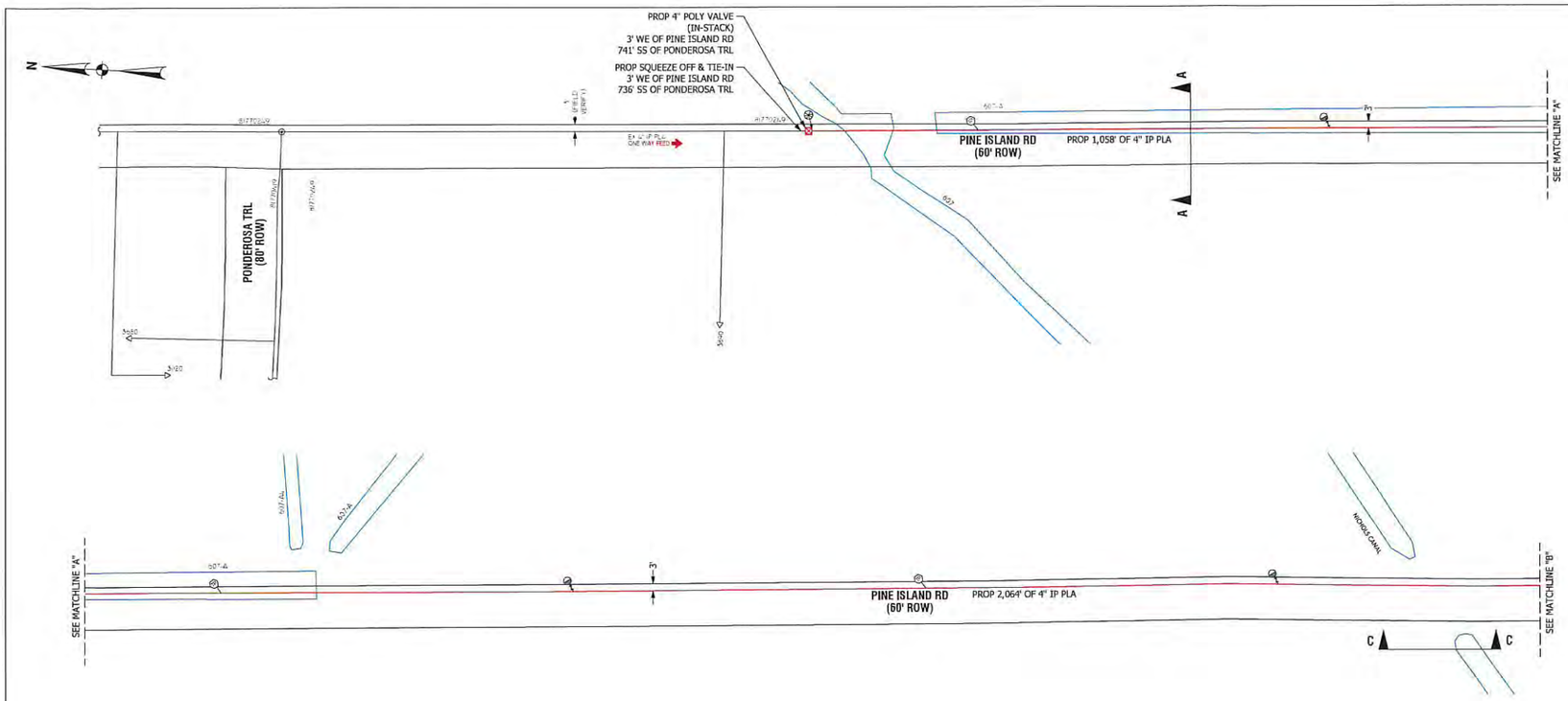
2.) STANDARD PARALLEL LINE

N.T.S

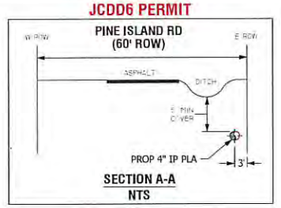
JEFFERSON COUNTY ENGINEERING DEPARTMENT

PIPELINE DETAILS (STD)

DRAWN:	J.D.		SHEET NO. 1 OF 1
CHECKED:	S.S.	REVISED: 01/15/2020	

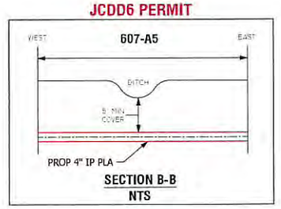


JCDD6 PERMIT



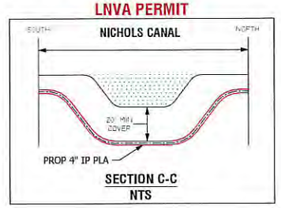
SECTION A-A
NTS

JCDD6 PERMIT



SECTION B-B
NTS

LNVA PERMIT



SECTION C-C
NTS

PERMITS REQUIRED FOR CONSTRUCTION

- ☐ NO PERMITS REQUIRED
- ☐ TXDOT
- ☐ CITY:
- ☐ COUNTY:
- ☑ FLOOD CONTROL/DRAINAGE: JCDD6
- ☑ OTHER: LVNA, SWPPP

GENERAL NOTES:

1. FIELD VERIFY & LOCATE ALL EXISTING FEEDS, MAINS & SERVICES.
2. MAINTAIN A MINIMUM DEPTH OF 3' UNLESS OTHERWISE NOTED.
3. USE GAUGES TO MONITOR & MAINTAIN FEEDS & PRESSURE. CONTACT DESIGNER (ROHIT KRISHNAN (713-207-5644) WITH ANY NECESSARY FIELD CHANGES.
4. THIS PROJECT IS SUBJECT TO SEWER LATERAL INSPECTION TO VERIFY CLEARANCE, PER THE OPTIONS STATED IN THE CONSTRUCTION AND SERVICE MANUAL. ENGINEERING WAS UNABLE TO VERIFY THE CLEARANCE WITH MAPS AND RECORDS.
5. TAKE NECESSARY PRECAUTIONS WHEN CUT, CAP & REMOVING STEEL MATERIAL. ASSUME ALL TAR WRAP PIPE CONTAINS ASBESTOS AND FOLLOW CONSTRUCTION AND SERVICE MANUAL PROCEDURES (SECTION: CS-8-1-.330) FOR REMOVAL OF PIPE AND GASKETS WITH ASBESTOS CONTAINING MATERIAL OR PRESUMED ASBESTOS CONTAINING MATERIAL.
6. FOR IP PIPE TEST PRESSURE AT 100 PSIG IN ACCORDANCE WITH SECTION CS-8-1.220 OF THE CONSTRUCTION & SERVICE MANUAL. HP LINE TEST PRESSURE AND DURATION ARE AS NOTED.
7. ALL SERVICE LINES MUST HAVE AN EFV OR CURB VALVE INSTALLED IN ACCORDANCE WITH SECTION CS-FORM 1.150 OF THE CONSTRUCTION AND SERVICE MANUAL AND EFV SIZING CHART.
   •CONTACT ENGINEERING FOR ADDITIONAL SIZING RECOMMENDATIONS.
8. COORDINATE CATHODIC PROTECTION WITH THE CORROSION DEPARTMENT (CLINT GDEN 903-759-8919) AND ENSURE CP DEPARTMENT IS ON SITE DURING CONSTRUCTION TO MAKE BONDS.
9. DIMENSION ALL TIE-IN LOCATIONS FROM ESTABLISHED RIGHT OF WAYS.
10. CRITERIA TO BE USED FOR TRACER WIRE SELECTION WHEN INSTALLING PLASTIC GAS LINES:
    A. USE #14 TRACER WIRE FOR ALL RESIDENTIAL SERVICE LINES.
    B. USE #14 TRACER WIRE FOR SHORT BORES UP TO 300' AND ALL OTHER NON-BORE INSTALLATIONS.
    C. USE #10 TRACER WIRE WITH ALL BORES LONGER THAN 300'.
    D. USE #8 TRACER WIRE AS NEEDED FOR LARGE BAYOU CROSSINGS AND OTHER EXTRAORDINARY SITUATIONS AND COMPLEX BORES. INSPECTOR APPROVAL REQUIRED PRIOR TO WORK.

GAS STAKING

JOB NO:_____ BY:_____ DATE:_____
ESMTS. DED. BY:_____ ESMT. DOCUMENTS:_____
MONUMENTATION FND.:_____ PLAT DISTS. CHK.=D:_____
ESMTS. NEEDED AT:_____
NON-STD. STAKING:_____ REASON:_____

LEGEND AND NOTES

EXISTING MAIN
PROP 4" IP PLA, SDR 11.5 PE 2708 WO#:98821159 — 6,794'
PROP LOC/TEST POINT
PROP 5# ZINC ANODE
PROP MARKER BALL

GCO#: 47369

STAKING REQUEST#: 98821159

F:4218010026 | O:421200024

EnSiteUSA
www.EnSiteUSA.com

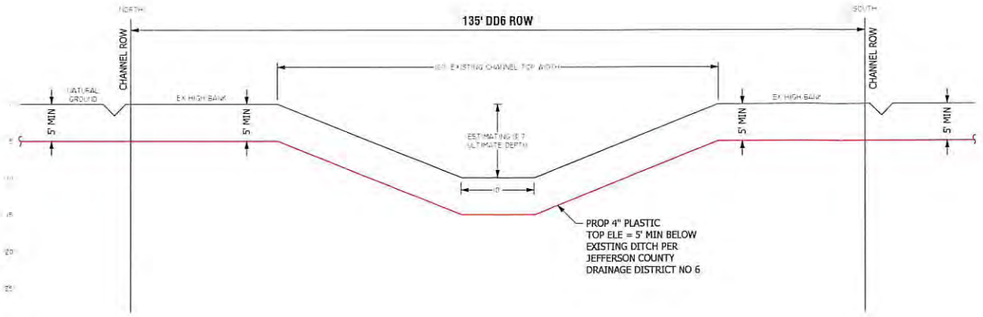
OFFICES:
HOUSTON, TX 713-456-7880 | LEXINGTON, KY 859-873-0076
TULSA, OK 918-307-7600

DESIGNED BY: PERRY LUU	832-803-1050	RECOMMENDED BY: ROHIT KRISHNAN	DATE: 08/09/21	DRAWN BY: JSL	BETZ TO BEAUMONT SYSTEM TIE-IN JEFFERSON COUNTY, TEXAS
DATE NEEDED: 5-1-22				DATE: 07/01/2021	
START DATE:	CONTRIBUTION: $	APPROVED BY: JOE MAAS	DATE: 08/09/21	SCALE: 1:100	
ESTIMATED COMPLETE DATE:				SHEET: 1 OF 1	
PURPOSE AND NECESSITY: SYSTEM RELIABITILITY AND CONSOLIDATION					

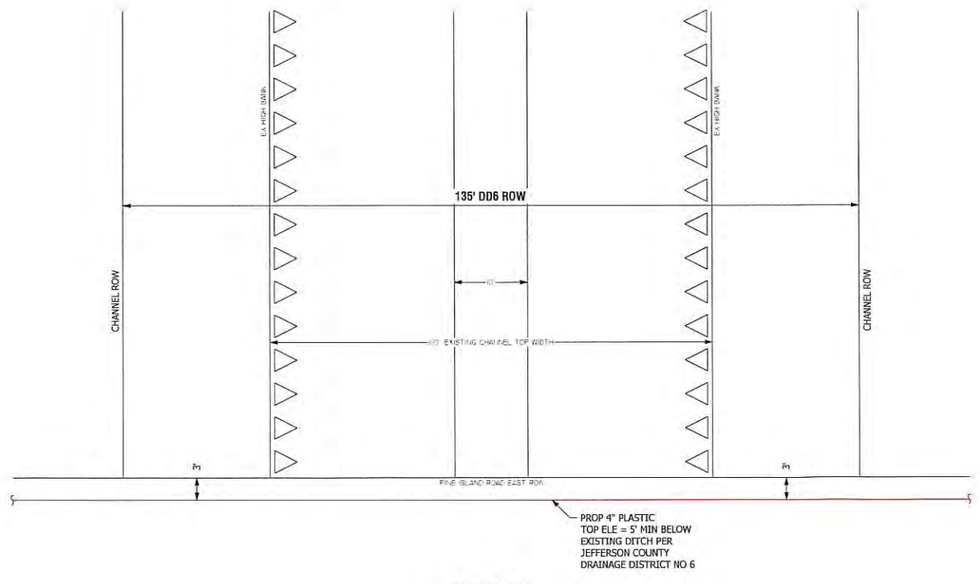
CenterPoint. Energy — Texas Region • Houston Gas Engineering
DWG NO: ED2-211672

EDITED $TIME$ $FILE$

N



LOCATION MAP



PINE ISLAND RD
(60' ROW)

EnSiteUSA
www.EnSiteUSA.com

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LEXINGTON, KY 859-873-0076
TULSA, OK 918-307-7600

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PURPOSE AND NECESSITY: SYSTEM RELIABITILITY AND CONSOLIDATION					

F:4218010026 | O:421200024

JEFFERSON COUNTY DD6
CROSSING DITCH 607
LOOKING EAST

CenterPoint. Energy
Texas Region • Arkansas Gas Engineering

DWG NO: ED2-211672

$DATE$ $TIME$ $FILE$

N

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LEGEND AND NOTES

EXISTING MAIN

PROP 4" IP PLA, SDR 11.5 PE 2708 — 9,794'
WO#: 98821159

GCO#: 47369

STAKING REQUEST%: 98821159

F:4218010026 | O:421200024

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LEXINGTON, KY 859-873-0076
TULSA, OK 918-307-7600

DESIGNED BY: PERRY LUU	832-803-1050	RECOMMENDED BY:	DATE:	DRAWN BY: NLR	BETZ TO BEAUMONT SYSTEM TIE-IN JEFFERSON COUNTY, TEXAS
DATE NEEDED: 5-1-22	ESTIMATED COST: $	-	-	DATE: 03/31/2022	CenterPoint. Energy Texas Region - Houston Gas Engineering
START DATE:	CONTRIBUTION: $			SCALE: NTS	
ESTIMATED COMPLETE DATE:		APPROVED BY:	DATE:	SHEET: 3	DWG No: ED2-211672
PURPOSE AND NECESSITY: SYSTEM RELIABILITY AND CONSOLIDATION		-	-		

$DATE$ $TIME$ $FILE$

UTILITY AND COMMON CARRIER PIPELINE POLICY

GENERAL REQUIREMENTS

Who Must Apply

Any person company, corporation, or public agency desiring to place utility or common carrier pipelines in or above the rights-of-way of public roads in Jefferson County shall obtain a Commissioners' Court Order from Jefferson County Commissioners' Court for the construction, operation and maintenance of said line. The applicant shall comply with all rules, regulations, principles, and specifications herein contained and any other subsequently adopted by Jefferson County Commissioners' Court prior to issuance of the order.

Application

The permitee must complete, in quintruplicate (5), the form herein contained, outlining in detail the proposed installation and its location in public right-of-way. The completed application form must be returned to Jefferson County Engineering Department, at 1149 Pearl Street, 5th Floor, Beaumont, Texas 77701, for approval by Commissioners' Court prior to the start of construction.

Determination

Commissioners' Court shall determine, within a reasonable time after filing of a complete application in the opinion of the County Engineer, the following:

a. If applicant is a utility, whether applicant is a public utility serving a public purpose; and
b. If applicant is a pipeline carrier, whether:
    1. It is a common carrier; and
    2. It serves a public purpose; and
    3. The proposed pipeline is a parallel line to be placed within fifteen (15) feet of the improved portion of said right-of-way.

If Commissioners' Court determines that applicant is not a public utility, or that it is not a common carrier, or that its utility or pipeline shall not serve a public purpose, or that its propose pipeline will be a parallel line placed within fifteen (15) feet of the improved portion of any right-of-way, then, in the event of any such finding, applicant's application shall be denied and its bond returned.

Such applicant may then apply for a permit under the County's "Pipeline Permit Policy" and any bond, in lieu of returning it to applicant, may be applied to the permit application.

Maintenance, Alteration or Removal

Advance notification in writing will be required for all maintenance, alteration or removal operations except in emergency situations where the safety of the public would be endangered by a delay in repairs. In any such emergency, contact the County Engineer by phone at (409) 835-8584, and inform him of the proposed emergency repairs. As soon as practical, but no later than 48 hours after the start of emergency repairs, the permitee shall notify the County Engineer in writing of the emergency repairs effected, detailing the repairs and the reasons immediate action was required.

Time Limits

A time period of three months is allowed from the issuance of the order to start construction. Once started, the applicant is allowed three months to complete all work. All construction must be completed within six (6) months from the date of issuance. Upon application, extensions may be granted by the Jefferson County Commissioners' Court. Such applications for extensions must be received by the Court at least thirty days before the expiration of the six-month period.

Existing Permits

Any permit, franchise, or instruments of a similar character previously executed by Commissioners' Court shall be subject to the time limit and requirements herein unless specifically stated to the contrary in said permit, franchise or instrument.

GENERAL PRINCIPLES

No utility or common carrier pipeline shall ever be installed or maintained in such manner as to interfere with construction, maintenance or repair of any public road whether currently existing or hereafter constructed on future public right-of-way. Should a utility or common carrier pipeline installed by the applicant ever be found to interfere with the construction, maintenance of repair of an existing public road or future public road, the applicant shall, upon the request of the Commissioners' Court, or the County Engineer, promptly change or alter such installation, at its own expense, in such manner that the same no longer interferes with such construction, maintenance or repair.

No utility or common carrier pipeline shall ever be installed so as to interfere with the use of a public road for vehicular or pedestrian traffic, nor so as to interfere with any drainage now or hereafter effected on or along any such road.

Whenever the relocation of public utility is necessitated by the improvement of a county road; such relocation shall be promptly made by the utility company or common carrier company at the rate, cost and expense of said company.

Responsibility for Repairs

The applicant, in accordance with the specifications herein contained and/or the directions of the County Engineer or his designated representatives, shall immediately, at its own expense, repair, or replace all public property and all private property, including, but not limited to, driveways, fences, and mail boxes, located in, along or adjacent to public right-of-way, which may be damaged or destroyed by any action or inaction of the applicant.

In any case in which the public welfare demands immediate action to remedy conditions arising out of the actions or inactions of the applicant and in which it is judged that the applicant cannot provide such immediate action, and in any case in which the permitee has failed to comply with the directions of Commissioners' Court or the County Engineer or his representative, or to comply with the rules of Jefferson County to perform or cause to e performed, at the remedy such conditions or provide compliance with such directions.

SPECIFICATIONS

General

The applicant shall comply with the rules, regulations, principles, and specifications contained here and/or the directions of the County Engineer, or his representatives. Should the County Engineer or his representatives find that the applicant is not in compliance with said rules, regulations, principles, specifications and directions, he will require that the applicant cease all work until such compliance can be obtained. Failure to comply with said rules, regulations, specifications and directions will be cause for issuance of a "Stop Work Order" until such time as said defects are corrected.

Line Crossing, Method of Placement (See Standard Detail)

Any utility or common carrier pipeline crossing a public road, regardless of roadway surfacing or lack thereof, shall be bored, jacked or driven under the roadway and shall be placed in an iron, steel or other approved casing of approximately the same diameter as the utility or common carrier pipeline. Such casing shall extend one hundred and twenty (120) feet or the width of the right-of-way, plus one foot on each side of the right-of-way, whichever is greater with the casing location to be determined by the Jefferson County Engineering Department.

Water jetting will not be allowed. Excavation will not be allowed within the road right-of-way.

A minimum cover of six (6) feet must be provided under road ditches.

Uncased, protected lines must have a minimum cover of eight (8) feet.

Where evidence is presented indicating the impracticality of boring, jacking, or driving the line under the roadway, Commissioners' Court may at its option, grant permission for placement by open cut or require relocations of the crossing to another location where the line can be successfully installed by the specified method.

Where placement by open cut is allowed by Commissioners' Court, it shall be in compliance with these specifications:

a. Casing The line will be fully cased for one hundred and twenty (120) feet or the width of the right-of-way, plus one foot on each side of the right-of-way, whichever is greater; with the casing location to be determined by the Jefferson County Engineering Department.

b. Backfill The line must be properly bedded to prevent settlement or damage to the line. The excavation shall be backfilled with cement stabilized sand (1 ½ sack per cubic yard) to within 2" of the sub-base and compacted.

c. Base The base shall be replaced with crushed limestone base material from 2" below the existing bass to 1" below the existing op of base and compacted to a minimum 95% Proctor density. In no case shall the compacted thickness of the replacement base e less than 6".

d. Surface

1. Dirt, Shell or Gravel Surface The original surface shall be replaced with an equal thickness of shell or gravel, but in no case less than 6" of well-compacted material will be accepted.

2. Bituminous Surface The original surface shall be replaced with a 1" greater thickness of hot mix, hot laid, asphaltic concrete, but in no case less than 2" thick.

3. Concrete Surface The original surface shall be replaced with 1" greater thickness of minimum 3000 psi Portland Cement concrete, in no case less than 6" thick. Concrete must be replaced in full panel sections only. Replacement concrete is to be reinforced with ½" diameter deformed reinforcing steel bars, 12" on center or equal. Replacement sections must be accurately positioned with reference to existing sections by means of steel dowel bars. Bituminous overlays or concrete shall be replaced with an equal thickness of hot mix, hot laid asphaltic concrete.

Where a line is installed outside of the roadway area, the excavation may be backfilled with excavated material compacted in 6" lifts, and the right-of-way shall be reshaped to its original contours. Excess excavation shall be hauled away.

Lines paralleling Method of Placement (See Standard Detail)

Where the right-of-way is available, no lines shall be placed closer than ten (10) feet to the edge of pavement nor closer than twenty feet from the center line of a road where the road is not paved. No line shall be placed less than three feet below the flow-line of a road ditch without the permission of Jefferson County Commissioners' Court. (See Standard Detail)

Lines may be placed by an open cut of the road shoulder. When excavated material from the cut is piled along the cut, the permitee shall provide minimum 12" wide weep holes at maximum 200-foot intervals and at all low places to allow drainage of the road and adjacent property into the road ditch.

The line shall be properly bedded and may be backfilled with the excavated material compacted in 6" layers. Excess excavation must be hauled away.

Pole, Lines, Location

Utility lines for the transmission of electrical power, or for telephone or telegraph communications, or for similar purposes, may be installed above ground on timber or other sturdy poles. Poles shall be placed as close as practical to the right-of-way lines but in no case closer than fifteen (15) feet from the edge of pavement without the permission of Commissioners' Court.

No guy wires may be anchored within the right-of-way except in the outer one-foot on each side.

Care shall be taken in the placement of poles to minimize the danger that they present to vehicular traffic. The applicant may in some cases be required to construct guardrails for the protection of the public.

Care shall be taken in the placement of poles to avoid damage to existing underground lines. No poles will be placed where they will block drainage.

Pole lines crossing public roads must provide a minimum twenty-two (22) foot vertical clearance.

Inspection Notice

The permitee will notify the County Engineer, (409) 835-8584, at least 48 hours in advance of the start of construction, or of the resumption of construction if discontinue for more than 5 working days.

Line Markers

All lines crossing pubic roads shall be identified with appropriate markers installed three (3) feet above ground on metal posts located at the point where such line crosses the right-of-way line.

Lines paralleling shall be marked with similar markers every 400 feet, but in no event less than one city block. Lines paralleling shall be marked with similar markers at all angle points. Such markers shall be placed on the right-of-way line and the offset to the line indicated.

Traffic Control

The applicant shall maintain at least one lane of traffic in each direction open at all times unless permission to the contrary is granted by the County Engineer.

The applicant shall provide all necessary flagmen, barricades, flashers and any other traffic control devices necessary for the protection of the public and of his own personnel.

Bonds

The common carrier applicant will provide a performance bond as Jefferson County Commissioners' Court may require to provide for the protection of public property. The minimum bond required shall be $5,000.00 per crossing and $50,000.00 per mile of parallel construction or fraction thereof.

Significantly larger bonds may be required if judged necessary by Jefferson County Commissioners' Court. No work will begin until the County Engineer has been furnished such bond.

Application Fee

The common carrier application fee shall be $100.00 per road crossing and $150.00 per mile of parallel construction or fraction thereof.

ROUTE MAP

Applicant shall submit with application five (5) prints of the County Road Map accurately showing the location and alignment of the line, including all angle points and all tie-ins for crossings of roads and major streams. Applicant shall use the official Jefferson County Road Map at a scale of 1" = 3 miles. This map can be obtained through the office of the County Engineer.

AIR PRODUCTS

RELEASE OF LIABILITY

The undersigned, **Jefferson County**, Texas, hereby acknowledges receipt of payment of $115,300.84, and acknowledges sufficiency of said payment, from **Air Products And Chemicals, Inc., a Delaware corporation (Air Products),** whose address is 16945 Northchase Drive, Suite 800, Houston, Texas 77060, for good and valuable consideration, in full settlement of all claims for damages sustained by the undersigned by reason of Air Products accessing Erie Street for the initial construction and operations of a helium logistics facility located at 6900 Erie Street, Beaumont, Texas, referred to in that certain Road Use Agreement dated April 6, 2021, by and between **Jefferson County and Air Products and Chemicals, Inc.** which granted Air Products rights to transport equipment and/or loads over and across Erie Street.

In consideration of such payment of $115,300.84 by Air Products, the undersigned hereby discharges and releases Air Products and its respective agents, employees, and contractors from all claims, demands, actions, and causes of action which the undersigned has for damage arising out of accessing said Erie Street as of April 1, 2022.

It is understood that this release does not in any way cover damage which may be sustained in the future by reason of Air Products transporting equipment and/or loads over and across Erie Street after April 1, 2022.

Signed this 19 day of April, 2022.

The Honorable Jeff Branick, Jefferson County Judge

Release Obtained By:

Air Products and Chemicals, Inc.
Shauna Burke, 4/11/22

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Signed this 29th day of March, 2022.

Everette D. Alfred

EVERETTE D. ALFRED

Print Name

Title: Commissioner Precinct 4

Release Obtained By:

Air Products and Chemicals, Inc.

Shannon Burke 3-28-22

Submitted by PRECINCT #4
PER ROAD USE AGREEMENT & PERMIT 02-0W-21

Erie Street Total Rebuild (Air Products Repairs Estimate)

Equipment

Footage	Equipment	Hours	Price of Equipment Use
L 3782 ft	Bo Mag	12	$3,669.72
x W 22 ft	Motor Grader	14	$1,176
	Packer	8	$270
	Iron Wheel Roller	10	$287.50
	Rubber Tire Roller	10	$82.50
	Oil Truck	16	$420
	Haul Trailer	4	$45
	Fork Lift	4	$54
	Sweeper	1	$54
	Rock Box	16	$928
	5 x Dump Trucks	16	$3,380
	2 x Water Trucks	21	$2,152.50

Equipment Total = $12,519.22

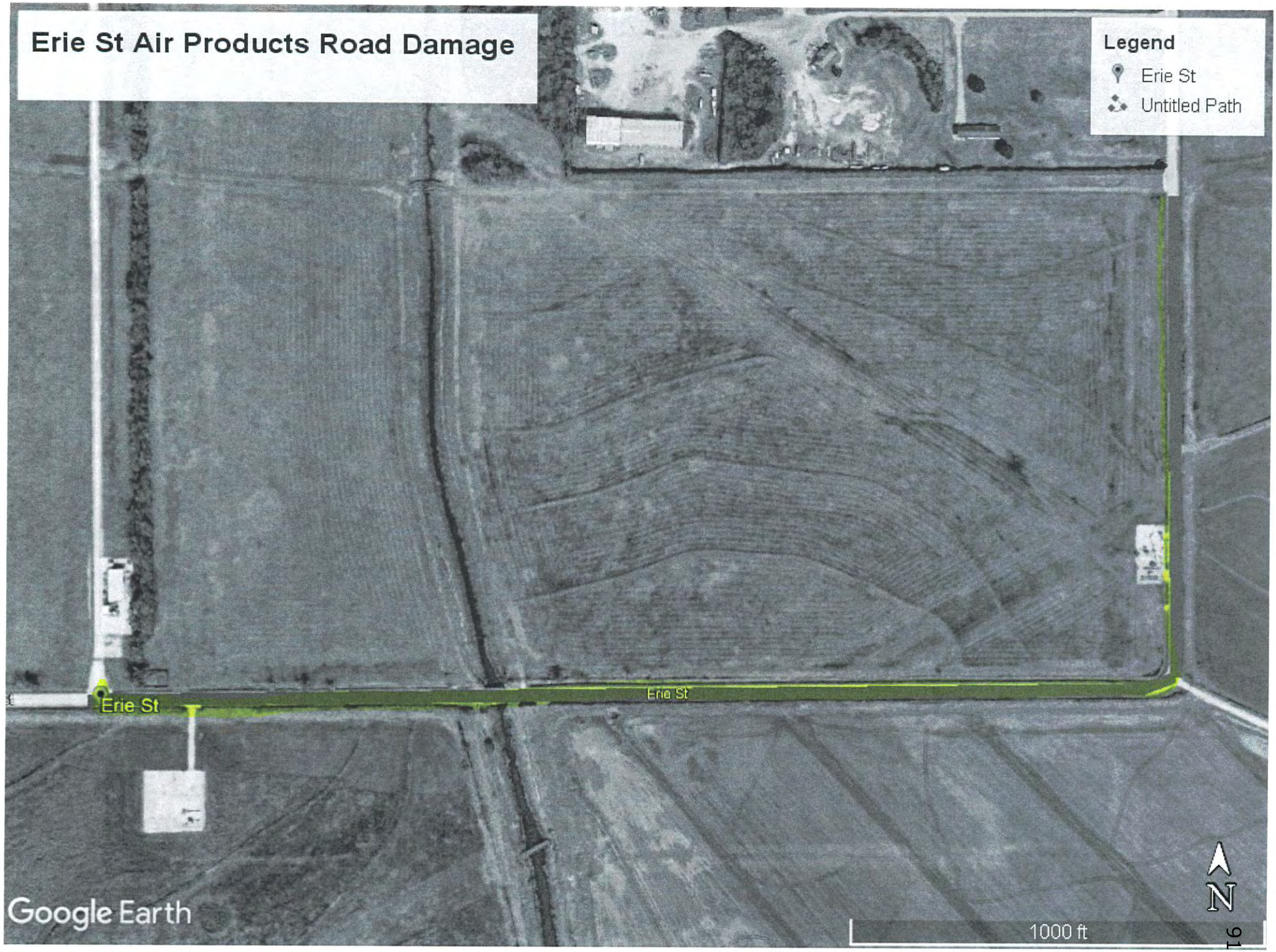
Materials

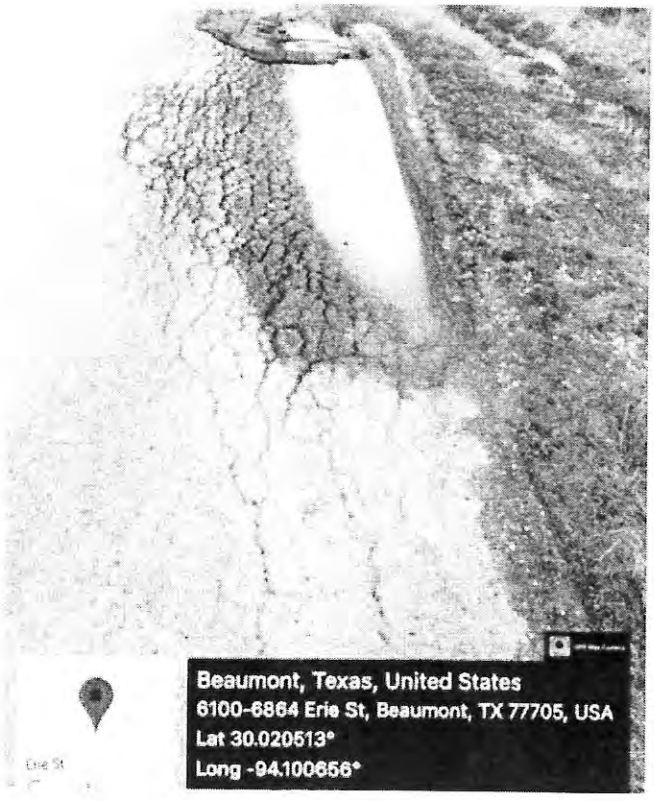
Road Name	Material	Quantity	Price per	Total Price
	Base Seal	16 drums	$1,210	$19,360
	Top Shield	8 drums	$1,210	$9,680
	CRS2	6,009 gallons	$2.00	$12,018
	PB3 – (Big Rock)	416 tons	$66.34	$27,597.44
	PB4 – (Small – Rock)	277 tons	$66.34	$18,376.18
	3 Sack Stabilized Base	450 tons	$35.00	$15,750

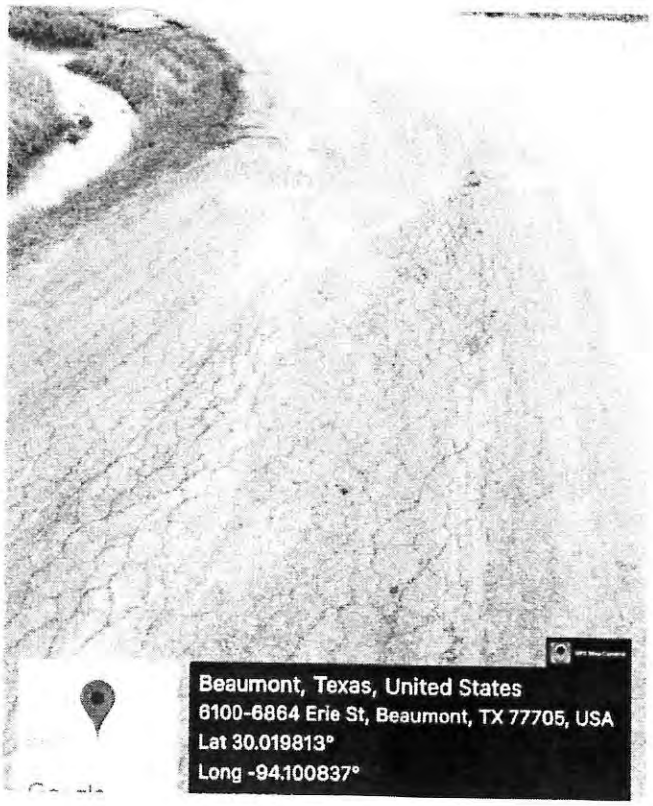
Materials Total = $102,781.62

Final Total = $115,300.84

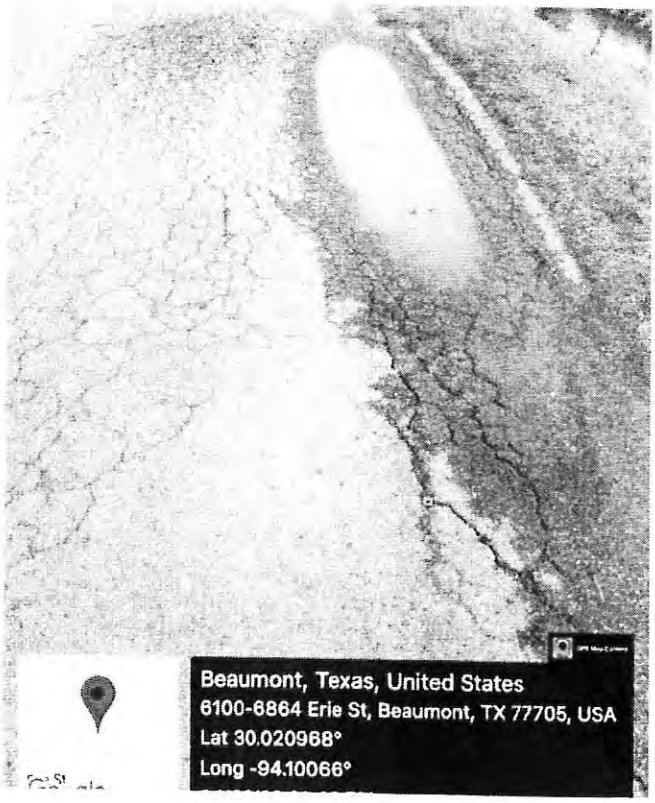
3-22-2022 -NR

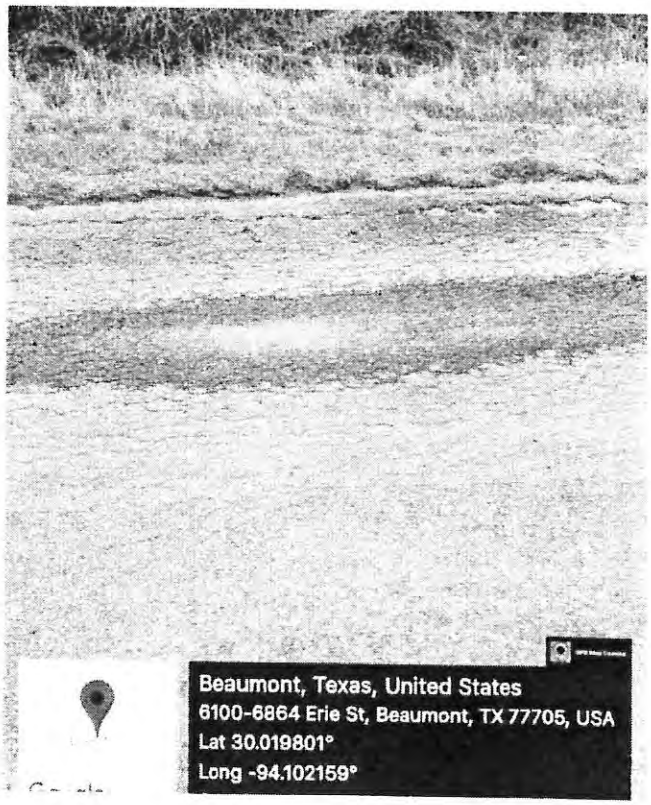

Erie St Air Products Road Damage
Legend
Erie St
Untitled Path
Erie St
Erie St
Google Earth
1000 ft
N



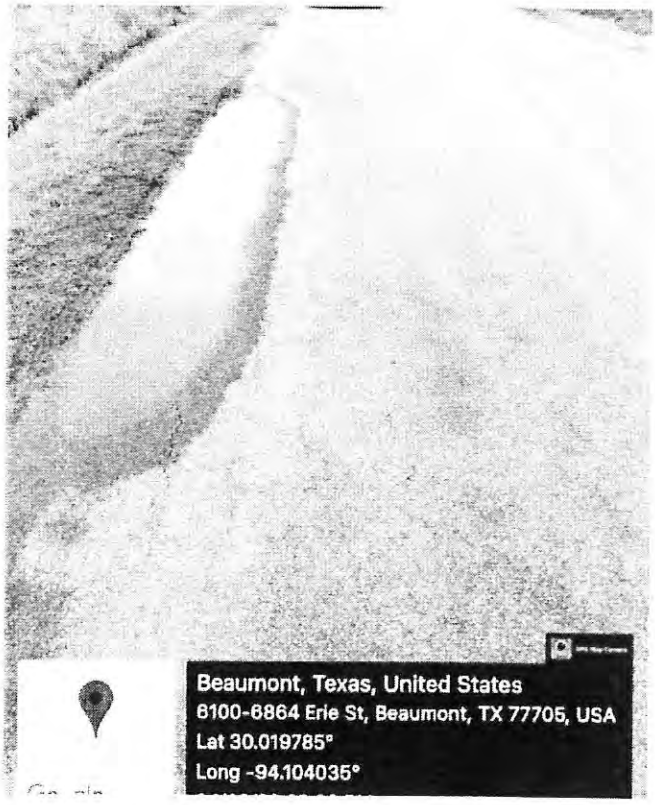


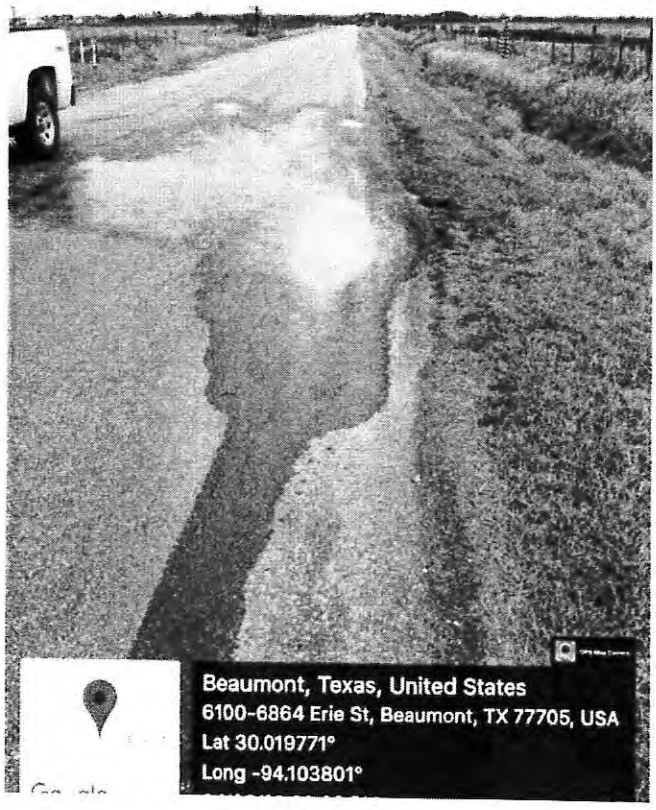
Erie St - (P1-4) - Damage Road - (02-07-2022) NR





Erie St - (P5-8) - Damage Road - (02-07-2022) NR





Erie St - (P-9) - Damage Roadway - (01-07-2022) DN

JEFFERSON COUNTY
OVERWEIGHT VEHICLE PERMIT

Application Date: 8-Mar-2021 Permit #: 02 -OW- 21 Precinct#: 4

Business Name: Air Products and Chemicals, Inc. Business Phone: 610-481-4911

Business Address: Attn: Manager Real Estate 7201 Hamilton Boulevard Allentown, PA 18195

Local Representative: Jonathan Knoll Local Phone: 610-481-3408

State Permit No. (if applicable): See attached road use agreement.

Bond Amount: $200,000.00 Bond #: K15329804

Description of Work/Type/Location: A new industrial gas logistics facility owned by Air Products and located at 6900 Erie St Beaumont, TX 77705.

See attached road use agreement.

Description of Route: Traveling along a 2 mile stretch of Erie Street from Cardinal Drive to 6900 Erie St Beaumont, TX 77705

This Overweight Vehicle Permit is granted by Jefferson County. Permittee agrees to be responsible for any and all damage to the roadway and related structures and will in all ways conform to the terms and conditions of this permit as set forth in the Jefferson County Overweight Vehicle Permit Resolution.

Signed this 8th day of March 20 21 .

Air Products and Chemicals, Inc.
Name of Company (Permittee)

By: Jonathan Knoll

Title: Project Manager

Applicant's Signature

Applicant's Printed Name

JEFFERSON COUNTY

By:
Director of Engineering

By:
Precinct Supervisor

JEFFERSON COUNTY
OVERWEIGHT VEHICLE PERMIT
(Engineering Department Use Only)

Date Approved: 03/30/21 Application Approved ✓ Yes ____ No

If No, give reason: ____

ERIE STREET BRIDGE Inspected by TXDOT and loads OK as POSTED. 24,000 lbs Per Axle.

Processed By: Ernest Clement

Title: ENGINEERING SPECIALIST

Processor's Signature

Ernest Clement

Processor's Printed Name

STATE OF TEXAS

COUNTY OF JEFFERSON

COMMISSIONERS' COURT

OF JEFFERSON COUNTY, TEXAS

AN ORDER REGARDING ROAD USE IN JEFFERSON COUNTY

1. Pursuant to Transportation Code Chapter 251.003, the Commissioners Court may make and enforce all necessary rules and orders for the construction and maintenance of public roads; and
2. Jefferson County has suffered extensive damage to its roads as a result of persons and entities hauling loads that exceed the weight limits of such roads; and.
3. Jefferson County has been required to expend monies it did not budget to repair of roads damaged by those hauling excessively heavy loads; and
4. The Commissioners Court of Jefferson County, Texas finds it necessary to require that persons, firms or entities who will haul loads, which exceed the weight limits of county roads, first enter into an agreement to pay for costs of repairs occasioned by their hauling excessively heavy loads.

The Commissioners Court of Jefferson County, Texas does hereby adopt the attached Road Use Agreement to be executed by those who will haul loads which exceed the weight limit of any Jefferson County, Texas road.

Read and adopted by a vote of 4 ayes and 0 nays.

Signed this 26 day of August, 2013

JUDGE JEFF R. BRANICK
County Judge

STATE OF TEXAS §
§
COUNTY OF JEFFERSON §

ROAD USE AGREEMENT BETWEEN JEFFERSON COUNTY
AND Air Products and Chemicals, Inc.

WHEREAS, Air Products and Chemicals, Inc. (hereinafter "Company") intends to conduct construction and operations of a helium logistics facility [describe operation], (hereinafter the "Project") at a site located on 6900 Erie St Beaumont, TX 77705)county road name) located in Precinct No. 4 ; and

WHEREAS, the proposed project will require the transportation of heavy equipment or loads (loads shall include any building supplies, material or other bulk loads, including rock, gravel, cement, asphalt, timber, etc. in amounts that exceed the capacity of the road) over one or more Jefferson County, Texas road(s) identified as: [1st road name] and County [2nd road name]:

1. County Road Erie Street ,
2. County Road _____ ; and

WHEREAS, the weight of the equipment will exceed the load bearing capacity of the identified county roads and bridges on the proposed route; and

WHEREAS, the transportation of the equipment or loads may cause substantial damage to the county roads and bridges; and

WHEREAS, Company and Jefferson County, Texas (hereinafter "County") agree that the transportation of this equipment or loads is necessary for the Project and that the County should be compensated for any damages or additional maintenance costs incurred by the County as a result of the Project; and

WHEREAS, the Company and County hereby agree and contract as follows:

1. Company may utilize County road Erie Street and County road _____ for the transport of all necessary equipment and/or loads to the Project location on the designated county roads without weight limitations for a time period from a commencement date of 01 April , 2021 to a termination date of 01 April , 2022 The Project time period may be extended only by written agreement of the County after not less than five (5) days notice of a need for extension by Company.

2. Company shall pay County its actual cost, including labor, equipment use (including fuel, depreciation and overhead costs) and materials, for all repairs, replacement or maintenance incurred as a result of the transport of equipment to or from the Project location. An estimate of these costs is attached as Exhibit 1 and incorporated herein by reference.

3. Company shall provide County details of preliminary work Company will perform prior to use of road, for example: install two 1" X 8' X 25' steel plates across the bridge located north of the intersection of County [road name: _____] and County [2nd road name: _____] for additional support.

4. Company shall provide a surety bond in the sum of [$ $200,000.00 Estimated cost] dollars with the County Treasurer of Jefferson County, Texas upon execution of this agreement. All provisions of this agreement are contingent upon review and approval of the bond by the Jefferson County, Texas Commissioners Court. The bond shall provide for prompt payment by the surety upon demand by County for the repairs, replacement and maintenance costs incurred to return the road to substantially the same condition the road possessed prior to the commencement date of the project. However, the liability of Company for such costs is not limited to the face amount of the bond and Company agrees to pay any additional sums actually incurred to return the road to substantially the same condition of the road prior to the commencement date upon demand.

5. Company agrees to provide 48 hours notice to the County Commissioner or Road Superintendant for Precinct No. 4 of Jefferson County, Texas before transporting any equipment on County [road name: Erie Street and County [2nd road name:] that would interrupt the normal flow of traffic. Company agrees to bear the cost of any County manpower and equipment necessary to interrupt and redirect traffic during any interruption of the normal flow of traffic.

Agreed and executed this 6th day of April, 2021

Jefferson County Judge

Approved by Jefferson County Commissioners Court on the 6th day of April, 2021

Attest:

Jefferson County Clerk

Authorized Agent for Air Products and Chemicals, Inc.

COMMISSIONERS COURT JEFFERSON COUNTY, TEXAS

THE STATE OF TEXAS, §
§
COUNTY OF JEFFERSON §

I, Karla J. Tizol a notary public, do hereby certify that on this 7th day of April, 2021, personally appeared before me _____, being by me first duly sworn, declared that he is the Project Manager of Air Products & Chemicals Inc. and that he has been duly authorized to execute the foregoing document on behalf of the Company

SWORN TO AND SUBSCRIBED before me on this 7th day of April. 21.

KARLA J. TIZOL
Notary Public, State of Texas
Comm. Expires 12-23-2024
Notary ID 130509653

Karla J Tizol
Notary Public, State of Texas
Notary's Typed/Printed Name
My commission expires

Exhibit 1

Estimate of Cost:

Length of [1st road name]:
Type of road surface/material:
Number of culverts/bridges:
Any other special features:
Length of [2nd road name]:
Type of road surface/material:
Number of culverts/bridges:
Any other special features:

Anticipated cost of Repair:
Repeat for each Road: [1st road name]

Labor: (Rate includes salary/benefits/overtime, where applicable)
Foreman $ 30 per hour x _____ hours = $_____

Equipment Operator $ 28 per hour x _____ hours = $_____

Other $ 26 per hour x _____ hours = $_____

Equipment: (Rate includes fuel, depreciation and overhead costs (insurance).
Truck $ 60 per hour x _____ hours = $_____

Grader $ 75 per hour x _____ hours = $_____

Other $ 100 per hour x _____ hours = $_____

Material: (Rate includes cost to acquire and transport to location)
Base mtl $ 95 Per Ton + $_____ per hour x _____ hours = $_____

Asphalt $ 100 Per Ton + $_____ per hour x _____ hours = $_____

Other at $ 100 Per Ton + $_____ per hour x _____ hours = $_____

Total for [1st road name] $_____

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF LEHIGH

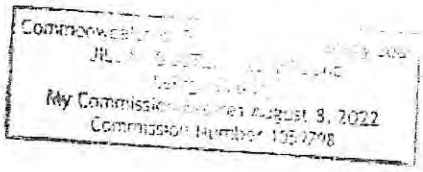
BEFORE ME, the undersigned authority, on this _____day of _____, 2021, personally appeared Jonathan Knoll, Project Manager of Air Products and Chemicals, Inc., a Delaware corporation, to me known to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the foregoing instrument in the capacities stated, as the act of said entity for the purposes and considerations therein expressed.

_____

Notary Public in and for the Commonwealth of Pennsylvania

Print Name: _____

Commission expires: _____



JEFFERSON COUNTY, TEXAS
ROAD AND BRIDGE DEPARTMENT
PERMIT BOND FOR HEAVY LOADS

KNOW ALL MEN BY THESE PRESENTS:

THE STATE OF TEXAS }
COUNTY OF JEFFERSON }

THAT WE, Air Products and Chemicals, Inc. (Company Name) of 7201 Hamilton Boulevard Allentown, PA 18195 (Address) ,as principal, and Federal Insurance Company (surety company) a corporation duly licensed to do business in the State of Texas, as Surety, are held and firmly bound unto The County of Jefferson,Texas in the penal sum of $200,000.00, to the payment of which, well and truly be made, we hereby bind ourselves, our heirs, executors, administrators and assigns.

With this bond, the Principal and/or Surety will pay the County of Jefferson, for any and all damages that it causes to any road, bridge, or any other structure owned or maintained by the County of Jefferson, these damages include those by virtue of the operation of any equipment by the Principal, its agents, employees, or subcontractors.

DATED this 12th day of February, 2021.

SURETY (SIGNATURE)	PRINCIPAL (SIGNATURE)
Peter M Feno Attorney-in-Fact	Karen L Harwick
(PRINT OR TYPE NAME)	(PRINT OR TYPE NAME)
Federal Insurance Company	Air Products and Chemicals, Inc.
COMPANY NAME AND ADDRESS	COMPANY NAME AND ADDRESS
436 Walnut Street, Philadelphia, PA 19106	7201 Hamilton Boulevard Allentown, PA 18195
PHONE NO.: 215-640-2697	PHONE NO.: 610-481-2561

(ATTACH POWER OF ATTORNEY)

Bond Expiration Date: February 12th, 2022 Bond Number: K15329804

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Eugene A. Bartoli, Mike Cominsky, Peter M. Feno, Janine Krystofosky, Louri Weidow and Derek Zambino of Wilkes Barre, Pennsylvania ----------

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** have each executed and attested these presents and affixed their corporate seals on this 11th day of **February, 2020.**

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney

Stephen M. Haney, Vice President

STATE OF NEW JERSEY
County of Hunterdon ss.

On this 11th day of **February, 2020** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros and Stephen M. Haney, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros and Stephen M. Haney, being by me duly sworn, severally and each for herself and himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316885
Commission Expires July 16, 2024

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY on August 30, 2016; WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006; and ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

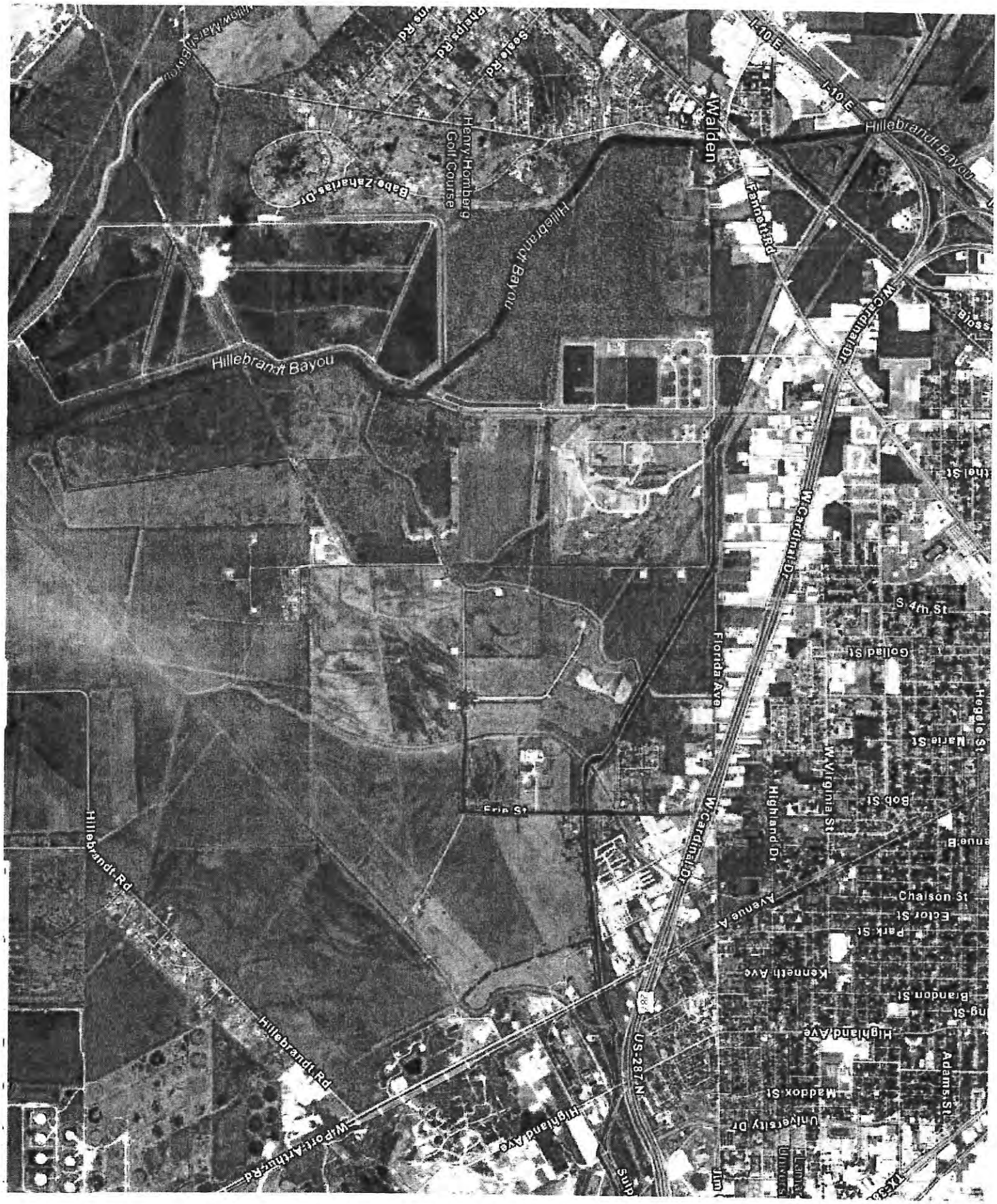
(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this 12th day of February, 2021

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com


I-10 E
I-10 E
Hillebrandt Bayou
Walden
Fannett Rd
W Cardinal Dr
Henry Homberg Golf Course
Babe Zaharias Dr
Hillebrandt Bayou
Hillebrandt Bayou
Florida Ave
W Cardinal Dr
S 4th St
Gollad St
W Virginia St
Highland Dr
Bob St
Erin St
Hillebrandt Rd
Hillebrandt Rd
Avenue A
Chaison St
Kenneth Ave
Highland Ave
Madddox St
Adams St
US-287 N
Highland Ave
W Port Arthur Rd

ORIGINAL BOND

Permit 02-OW-21 931

JEFFERSON COUNTY, TEXAS
ROAD AND BRIDGE DEPARTMENT
PERMIT BOND FOR HEAVY LOADS

KNOW ALL MEN BY THESE PRESENTS:

THE STATE OF TEXAS }
COUNTY OF JEFFERSON }

THAT WE, Air Products and Chemicals, Inc. (Company Name) of 7201 Hamilton Boulevard Allentown, PA 18195 (Address) ,as principal, and Federal Insurance Company (surety company) a corporation duly licensed to do business in the State of Texas, as Surety, are held and firmly bound unto The County of Jefferson,Texas in the penal sum of $200,000.00, to the payment of which, well and truly be made, we hereby bind ourselves, our heirs, executors, administrators and assigns.

With this bond, the Principal and/or Surety will pay the County of Jefferson, for any and all damages that it causes to any road, bridge, or any other structure owned or maintained by the County of Jefferson, these damages include those by virtue of the operation of any equipment by the Principal, its agents, employees, or subcontractors.

DATED this 12th day of February, 2021.

Peter M. Feno
SURETY (SIGNATURE)

Peter M Feno Attorney-in-Fact
(PRINT OR TYPE NAME)

Federal Insurance Company
COMPANY NAME AND ADDRESS

436 Walnut Street, Philadelphia, PA 19106

PHONE NO.: 215-640-2697

Karen L. Harwick
PRINCIPAL (SIGNATURE)

Karen L. Harwick
(PRINT OR TYPE NAME)

Air Products and Chemicals, Inc.
COMPANY NAME AND ADDRESS

7201 Hamilton Boulevard Allentown, PA 18195

PHONE NO.: 610-481-2561

(ATTACH POWER OF ATTORNEY)

Bond Expiration Date: February 12th, 2022

Bond Number: K15329804

CHUBB

Power of Attorney

Federal Insurance Company | Vigilant Insurance Company | Pacific Indemnity Company
Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **FEDERAL INSURANCE COMPANY**, an Indiana corporation, **VIGILANT INSURANCE COMPANY**, a New York corporation, **PACIFIC INDEMNITY COMPANY**, a Wisconsin corporation, **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Eugene A. Bartoli, Mike Cominsky, Peter M. Feno, Janine Krystofosky, Louri Weidow and Derek Zambino of Wilkes Barre, Pennsylvania ----------

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said **FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** have each executed and attested these presents and affixed their corporate seals on this **11th** day of **February, 2020.**

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney, Vice President

STATE OF NEW JERSEY
County of Hunterdon ss.

On this **11th** day of **February, 2020** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros and Stephen M. Haney, to me known to be Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros and Stephen M. Haney, being by me duly sworn, severally and each for herself and himself did depose and say that they are Assistant Secretary and Vice President, respectively, of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and know the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that their signatures as such officers were duly affixed and subscribed by like authority.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 16, 2024

Notary Public

CERTIFICATION

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(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

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(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, PACIFIC INDEMNITY COMPANY, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this 12th day of February, 2021

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

ADJOURN

SPECIAL MEETING

April 19, 2022

There being no further business to come before the Court at this time, the Special Meeting is adjourned, April 19, 2022.