AS-BID
SEPTEMBER 2024

LOS ALAMOS

CONTRACT DOCUMENTS
AND
TECHNICAL SPECIFICATIONS

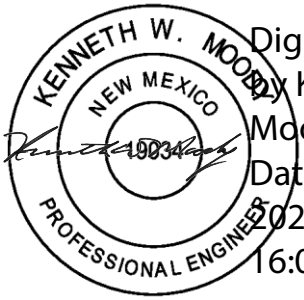
CONSTRUCT T-HANGARS

LOS ALAMOS COUNTY AIRPORT
LOS ALAMOS, NEW MEXICO

NMDOT-AD PROJECT NO. LAM-24-02
COUNTY OF LOS ALAMOS BID NO: IFB25-15

PREPARED FOR:
INCORPORATED COUNTY OF LOS ALAMOS

Digitally signed by Steven R Hart
Date: 2024.09.06 13:34:37-05'00'



Digitally signed by Kenneth W Moody
Date: 2024.09.06 16:02:35 -04'00'

DELTA AIRPORT CONSULTANTS, INC.
7804 Pan American East Freeway NE, Suite 4
Albuquerque, New Mexico 87109

Delta Project No. 23063

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SECTION I

SECTION II

APPENDICES

Invitation to Bid

Project Name: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

Sealed bids for furnishing all labor, materials, and equipment and performing all work for the above items will be received by the Incorporated County of Los Alamos until 2:00 P.M. local time, September 26, 2024 at the Office of the Los Alamos County Purchasing Officer, 101 Camino Entrada, Building 3, Los Alamos, New Mexico 87544, then publicly opened and read aloud in a Microsoft Teams meeting.

The successful bidder must comply with requirements set out in the contract documents including all Federally Required Contract Provisions including but not limited to the Buy American Preference, Foreign Trade Restrictions, Davis Bacon Requirements, Affirmative Action Requirements, Government wide Debarment and Suspension, Government-wide Requirements for a Drug-free Workplace, and Non-Segregated Facilities Requirements.

Copies of Bid Documents and Addenda will be made available for review wherever Solicitation Documents are on file for that purpose. Bid details can be found on the County website under "Doing Business" and "Bids & RFPS".

https://lacnm.com/bids

Alternatively, bid documents for this project may be obtained by contacting the Office of the Purchasing Officer at:

Los Alamos County Procurement Division
Attn: Derrill Rodgers
Deputy Chief Purchasing Officer
101 Camino Entrada, Building 3
Los Alamos, New Mexico 87544
Phone Number: 505-663-3507
E-mail: derrill.rodgers@lacnm.us

Bid documents for this project may be downloaded from the following website:

Egnyte Site: https://losalamosnm.egnyte.com/fl/U8z2IklOp0

Bids in response to this Invitation for Bids (IFB), may be submitted **either** in paper form, in a sealed envelope, or electronically by email in PDF format. Electronic submission is preferred.

ELECTRONIC SUBMISSION: Emails should be addressed to: lacbid@lacnm.us.

Subject line must contain the following information: RESPONSE – IFB25-15 *Construct T-Hangars*

It is strongly recommended that a second, follow up email (without the Bid included or attached) be sent to derrill.rodgers@lacnm.us to confirm the Bid was received.

The body of the email must contain enough information for the identity of the Bidder to be clear, including company name, name of person sending the email, and contact information including email address and phone number.

Only emails with Bids received in the lacbid@lacnm.us email box prior to 2:00 p.m. MT, September 26, 2024, will be reviewed.

Bids submitted by email will be opened only after the closing date and time stated in the solicitation document.

PAPER FORM SUBMISSION: Sealed bids, submit one (1) unbound original and three (3) copies, subject to the conditions set forth in the Instructions to Bidders and in the other Solicitation Documents, will be received at the office of the Los Alamos County Purchasing Officer, 101 Camino Entrada, Building 3, Los Alamos, New Mexico, until 2:00 p.m. MT, September 26, 2024 then publicly opened for the following project:

Incorporated County of Los Alamos

Invitation for Bids Number: IFB25-15

Construct T-Hangars

Bids must be accompanied by a certified check or a bid bond in the amount of not less than five (5) percent of the total amount bid. A Contract Performance Bond and a Contract Payment Bond each equal to 100 percent of the Contract Price will be required for the successful Contractor.

No bid may be withdrawn after the closing date.

A non-mandatory Pre-Bid meeting has been scheduled for 2:00 P.M., September 17, 2024 at Airport Terminal Building, 1040 Airport Road, Los Alamos, New Mexico 87544.

The successful bidder shall commence work with adequate force and equipment on a date to be specified in a written order of the Owner and shall complete work within the time prescribed in the contract documents.

Proposals shall be placed in a sealed envelope addressed to the Incorporated County of Los Alamos at Office of the Los Alamos County Chief Purchasing Officer, 101 Camino Entrada, Building 3, Los Alamos, New Mexico 87544.

In the lower lefthand corner of the sealed proposal envelope, include the following project title:

Construct T-Hangars

The Incorporated County of Los Alamos, 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 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, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

The Incorporated County of Los Alamos reserves the right to reject any or all bids, to waive informalities, and to re-advertise.

Pre-Bid Meeting

Project Name: Construct T-Hangars
Airport: Los Alamos County Airport

MEETING DATE: September 17, 2024

MEETING TIME: 2:00 P.M. Local Time

MEETING LOCATION: Airport Terminal Building
1040 Airport Road
Los Alamos, New Mexico 87544

All bidders are requested to attend to discuss the proposed construction and the plans and specifications. All potential bidders are strongly urged to attend.

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Bidder Question Form

ATTN: Cheryl A. Rodriguez, C.M.
Via EMAIL: crodriguez@deltaairport.com
Project Name: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

NOTE TO BIDDERS:

(1) Questions shall be submitted no later than five (5) business days before bid opening. Questions received beyond this date may not be answered.
(2) Bidders are required to utilize this form, or similar form with same information for questions.

Date: _____

Bidder Name: _____

Contact Person: _____

Contact Phone #: _____

Contact Email: _____

Question:

_____

_____

_____

_____

_____

_____

Attach additional pages as needed. Page 1 of ____

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Bid Proposal Forms

for

Construct T-Hangars

at

Los Alamos County Airport

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Bidder Proposal Checklist

Project Name: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico
Bid Submitted to: Incorporated County of Los Alamos, New Mexico

The Bidder must include the following items, or their bid proposal may be deemed non-responsive. The Bid Proposal Checklist shall be completed and submitted with the bid. The Incorporated County of Los Alamos, New Mexico reserves the right to accept or reject any and all bids that are deemed not to be in the best interest of the Incorporated County of Los Alamos, New Mexico at its sole discretion.

Required Documentation for Non-Federally Funded Projects

[___] Signed Bid Proposal Certification

[___] Completed Bid Schedule Form

[___] Confirm Mobilization price meets Section C-105 requirements

[___] Signed Certification Regarding Federal Contract Language

[___] Signed Subcontractor List

[___] Signed Bid Bond

Name of Bidder: _____

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Bidder Proposal Certification

Name of Bidder: _____

For Project: Construct T-Hangars

At Airport: Los Alamos County Airport
Los Alamos, New Mexico

Submitted to: Incorporated County of Los Alamos, New Mexico

For this solicitation, the terms "proposal" and/or "bid proposal" means all documents, whether attached or incorporated by reference, utilized for soliciting competitive sealed bids.

In compliance with the Invitation for Bids, the undersigned hereby proposes to furnish the materials and labor and to perform the work for the completion of items listed in the schedule included herein in strict conformance with the Invitation for Bids (advertisement), Plans, Construction Details, General and Special Provisions, Technical Specifications, and all other contract documents for the consideration of the prices quoted in the following schedule of bid items. The undersigned agrees, upon receipt of written notice of award, that it will execute a contract in accordance with the bid as accepted and give the required contract bonds with good and sufficient surety, within fifteen (15) calendar days after receipt of notice of formal award of contract and presentation of the prescribed forms.

It is agreed that the undersigned has informed itself fully in regard to all conditions pertaining to the place where the work is to be done, that it has examined the plans and specifications for the work and contractual documents thereto and has read all the special provisions furnished prior to the opening of bids, and that it has satisfied itself relative to the work to be performed.

It is agreed that the description under each item, being stated, implies although it does not mention, all incidentals and that the prices stated are intended to cover all such work, materials, and incidentals as constitute bidders obligations as described in the specifications, and any details not specifically mentioned, but evidently included in the contract shall be compensated for in the item which most logically includes it.

It is understood that this proposal is submitted for the purpose of obtaining the work included in subject project at the Airport. Said work includes the following general items:

(1) Construction of an 8-unit T-Hangar building and associated drainage features.

Said work is described in the project contract documents which also include the place, date, and time of opening proposals.

It is understood that separate contracts on individual schedules of work may be awarded, when included in the bid documents.

It is understood that all workmanship and materials under all items of work are guaranteed for one year from the date of final acceptance.

It is understood that the Owner reserves the right to accept or reject any or all bids and waive informalities.

It is understood that the quantities of work to be done are approximate only and are intended principally to serve as a guide in evaluation of proposals, with the right reserved by the Owner to delete minor bid items.

The undersigned agrees that, if awarded the contract, it will commence the work not later than ten (10) days from receipt of the Notice to Proceed and that it will complete the work within the time stipulated in this proposal.

It is understood that for each calendar day that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in Section 80, paragraph 80-07, *Determination and Extension of Contract Time*) liquidated damages will be assessed in accordance with Special Provision "Liquidated Damages" and will be deducted from any money due or to become due to the Contractor or its Surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in its contract.

Enclosed is security as required, consisting of a certified check or a bid bond payable to the Incorporated County of Los Alamos, New Mexico, in the amount of $_____.

This amount equals five (5) percent of the total amount bid submitted by the Contractor.

It is understood that this project is funded by state and local monies, and the Contractor shall be subject to all laws and regulations applicable to recipients of such funds.

The Contractor shall be a licensed Contractor registered with the State of New Mexico, shall list its registration number at the end of the proposal in the designated location, and shall enclose a copy of its licensing certificate. In the event that the registration is pending, or in process, a statement as to the status shall be included instead.

The undersigned hereby acknowledges the receipt of the following Addenda to the Contract Documents.

Addendum No. One, issued _____
Addendum No. Two, issued _____
Addendum No. Three, issued _____
Addendum No. Four, issued _____
Addendum No. Five, issued _____

Name of Bidder: _____

Physical Business Address: _____
(No P.O. Boxes)

_____

_____

Email Address: _____

Signature: _____

Name: *(type or print)* _____

Official Title: _____

Date: _____

Telephone No.: (_____) _____

New Mexico Contractor's License Number: _____

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Bid Form

for

Construct T-Hangars

at

Los Alamos County Airport

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BID FORM

Date: _____

BASE BID

Bid Proposal Summary For All Work Depicted In The Plans And Specifications

ITEM NO.	APPROX. QUANTITY	ITEM WITH UNIT PRICE WRITTEN IN WORDS	UNIT PRICES IN FIGURES DOLLARS CENTS	EXTENDED TOTAL DOLLARS CENTS
1 C-105	1 LS	MOBILIZATION _____ _____ PER LUMP SUM		
2 P-608	1,200 SY	ASPHALT SURFACE TREATMENT _____ _____ PER SQUARE YARD		
3 M-107	600 LF	AVIATION BARRICADES (CONTRACTOR FURNISHED) _____ _____ PER LINEAR FOOT		
4 M-108	1 LS	T-HANGAR MATERIALS (8 UNITS) _____ _____ PER LUMP SUM		
5 M-108	1 LS	T-HANGAR ERECTION (8 UNITS) _____ _____ PER LUMP SUM		
6 M-108	1 LS	T-HANGAR FOUNDATION (8 UNITS) _____ _____ PER LUMP SUM		
7 M-108	1 LS	T-HANGAR ELECTRICAL (8 UNITS) _____ _____ PER LUMP SUM		
8 P-619	1,600 SF	PAINT REMOVAL (95-100% LEVEL) _____ _____ PER SQUARE FOOT		
9 P-620	300 SF	MARKING (PERMANENT YELLOW) _____ _____ PER SQUARE FOOT		
10 P-620	600 SF	MARKING (PERMANENT BLACK) _____ _____ PER SQUARE FOOT		

BID FORM

BASE BID

Bid Proposal Summary For All Work Depicted In The Plans And Specifications

ITEM NO.	APPROX. QUANTITY	ITEM WITH UNIT PRICE WRITTEN IN WORDS	UNIT PRICES IN FIGURES --- DOLLARS CENTS	EXTENDED TOTAL --- DOLLARS CENTS
11 P-620	1 LS	REFLECTIVE MEDIA _____ _____ PER LUMP SUM		
12 D-701	140 LF	18" SMOOTH WALL HDPE PIPE _____ _____ PER LINEAR FOOT		
13 D-751	1 EA	4' x 4' NMDOT DROP INLET JUNCTION BOX _____ _____ PER EACH		
14 36.SP	200 LF	12" TRENCH DRAIN _____ _____ PER LINEAR FOOT		

Total Bid Amount $ _____

Certification Regarding Federal Contract Language for Obligated Sponsors

In addition to the specific Federal Contract Provisions listed within this proposal form, the bidder/offeror certifies by signing and submitting this bid or proposal, that they have read, understand, and will comply with all of the Federal Contract Provisions contained within the project documents as listed by reference and qualified below:

All Contracts Regardless of Funding Source

Civil Rights – General Provisions

Civil Rights – Title VI

All AIP Funded Contracts

Access to Records and Reports

Buy American Preference

Domestic Preferences for Procurements

Federal Fair Labor Standards Act (Minimum Wage)

Foreign Trade Restriction

Occupational Safety and Health Act

Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

Prohibition of Segregated Facilities

Rights to Inventions

Seismic Safety

Tax Delinquency and Felony Convictions

Veteran's Preference

Additional Provisions for AIP Funded Contracts that are $2,000 and greater

Copeland Anti-Kickback Act

Davis-Bacon Requirements

Additional Provisions for AIP Funded Contracts that are $10,000 and greater

Affirmative Action Requirement

Texting Messaging While Driving

Equal Employment Opportunity

Procurement of Recovered Materials

Termination of Contract

Additional Provisions for AIP Funded Contracts that are $25,000 and greater

Debarment and Suspension

Additional Provisions for AIP Funded Contracts that are $100,000 and greater

Breach of Contract

Clean Air and Water Pollution Controls

Contract Work Hours and Safety Standards

Disadvantaged Business Enterprise

Lobbying Federal Employees

Name of Bidder: _____

Signature: _____

Name: *(type or print)* _____

Official Title: _____ Date: _____

Subcontractor List

All Companies performing work for this project are listed below.

Company		Contract		Certified DBE (Y/N)*
Name		**Amount**		
Address		**Work to Be Performed**		
Name		**Amount**		
Address		**Work to Be Performed**		
Name		**Amount**		
Address		**Work to Be Performed**		
Name		**Amount**		
Address		**Work to Be Performed**		
Name		**Amount**		
Address		**Work to Be Performed**		

*****Indicate "Y" only for Certified DBE in New Mexico.

Name of Bidder: _____

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Bid Bond

Policy Number: _____

Effective Date: _____

KNOW ALL MEN BY THESE PRESENTS, THAT WE,

_____, as Principal, hereinafter called the Principal, and

_____, a corporation duly organized under the laws of the State of_____, as Surety, hereinafter called the Surety, are held and firmly bound unto Incorporated County of Los Alamos, New Mexico, hereinafter called the Obligee, in the sum of

_____ Dollars ($_____) 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 the project Construct T-Hangars and associated items for work at the Los Alamos County Airport in accordance with Plans and Specifications prepared by Delta Airport Consultants, Inc., 7804 Pan American Freeway NE, Suite 4, Albuquerque, NM 87109, Telephone: (505) 797-4921, Fax: (505) 797-1725.

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 material 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 _____ day of _____ 20___.

_____

(Principal) (Seal)

_____

(Title)

_____

(Witness)

_____

(Surety) (Seal)

_____

(Title)

_____

(Witness)

Contract Forms

for

Construct T-Hangars

at

Los Alamos County Airport

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Contract

THIS AGREEMENT, dated the _____ of _____, 2024, between the Incorporated County of Los Alamos, New Mexico (Party of the First Part, hereinafter called the Owner) and
_____ (Party of the Second Part, hereinafter called the Contractor).

WITNESSETH: That the said Contractor has agreed and by these presents does agree with the said Owner, for the consideration herein mentioned in his/her proposal and under the penalty expressed in Bonds, hereto attached, to furnish all equipment, tools, material, skill and labor of every description necessary to carry out and complete in good, firm, substantial, and workmanlike manner, the work specified in strict conformity with the Drawings, and the Specifications hereinafter set forth. The work covered by this Agreement includes all work shown on the plans and specifications and listed in the attached Proposal, for the Construct T-Hangars project at Los Alamos County Airport.

The Contractor shall commence the work with adequate force and equipment on a date to be specified in a written order of the Owner and shall complete the work within the calendar day contract time, to include any Milestone time periods, specified in the Drawings and Specifications from and including said date. The Contractor shall fully guarantee his/her workmanship and materials furnished for a period of one year following the date of final acceptance of the work. The performance and payment bonds shall remain in full force for this one-year period. As a condition of final acceptance, the Contractor shall have executed, and submit to the Owner, the "Warranty of Construction" and the "Lien and Claims Release" forms that have been attached to this contract document.

If said work is not completed within the time stated above, the Contractor shall be liable and hereby agrees to pay to the Owner as liquidated damages and not as a penalty, the amount specified in the Drawings and Specifications per calendar day for each and every part of a day thereafter that said work remains substantially uncompleted.

The Owner shall pay and the Contractor shall receive the unit prices stipulated in the Contractor's Proposal hereto attached as full compensation for everything furnished and done by the Contractor in the estimated total of _____($_____), based on the quantities completed in an acceptable manner, which sum shall be paid in the manner and terms specified in the Contract Documents, but, before issuance of certificates of payments if the Contractor shall not have submitted evidence satisfactory to the Owner that all payrolls, materials, bills, and other indebtedness connected with the work have been paid, the Owner may withhold, in addition to the retained percentages such amount or amounts as may be necessary to pay just claims for labor and services rendered and materials in and about the work, and such amount or amounts withheld or retained may be applied by the Owner to the payment of such just claim. Items of work called out in the plans or specifications, that are not specifically listed in the bid form, shall be considered as incidental to a listed bid item(s), or to the project as a whole.

It is further mutually agreed between the parties hereto that if, at any time after the execution of this agreement and the surety bond hereto attached for its faithful performance, the first party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the second party shall at its expense, within five days after the receipt of notice from the first party so to furnish an additional bond or bonds in such form and amount, and with surety or sureties as shall be satisfactory to the first party. In such event, no further payment to the second party shall be deemed to be due under this agreement until such new or additional

security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the first party.

In the event that it should become necessary, any question or controversy regarding formation, construction, interpretation, validity, and enforcement of this Agreement, and the rights or obligations of the signatory parties hereto, shall be resolved only by lawfully instituted proceedings in the Circuit Court of the County of Los Alamos, New Mexico, and the substantive law of the State of New Mexico or federal law, where applicable, shall govern resolution of any such question or controversy. In the event any provisions of this Agreement shall be held to be invalid or unenforceable, the remaining provisions shall be valid and binding upon the parties.

The _____ of the _____ was authorized to sign this Agreement on behalf of _____ by Resolution of said _____, adopted on the _____ of _____, 20_____.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the _____ of _____, 20_____.

OWNER:

Incorporated County of Los Alamos, New Mexico
1000 Central Avenue, Suite 160
Los Alamos, NM 87544

ATTEST:

_____
Signature

_____
Signature

_____
Name *(print)*

_____
Name *(print)*

_____
Title

CONTRACTOR:

Name of Contractor To Be Determined
Address
City, State Zip

ATTEST:

_____
Signature

_____
Signature

_____
Name *(print)*

_____
Name *(print)*

_____
Title

(SEAL)

Approved As To Form

BY:_____
(Owner's Attorney)

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Federal Contract Provisions for Obligated Sponsors

Federal laws and regulations require that a Sponsor (a recipient of federal assistance) include specific provisions in certain contracts, solicitations, or specifications, regardless of whether the project is federally funded, to remain compliant with its obligations.

Unless otherwise stated, the following federally required contract provisions also flow down to subcontracts and sub-tier agreements. The Contractor (including all subcontractors) is required to insert these contract provisions in each lower tier contract (e.g., subcontract or sub-agreement). For work done under any purchase orders, rental agreements, and other agreements for supplies or services, the Contractor (including all subcontractors) is required to incorporate the requirements of these contract provisions by reference.

The prime Contractor is responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor, or service provider.

A1: ACCESS TO RECORDS AND REPORTS

Not applicable

A2: AFFIRMATIVE ACTION REQUIREMENT: NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

Not applicable

A3: BREACH OF CONTRACT TERMS

Not applicable

A4: BUY AMERICAN PREFERENCE

Not applicable

A5: GENERAL CIVIL RIGHTS PROVISIONS

Source: *49 USC § 47123*

Contract Dollar Threshold: $0

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A6: TITLE VI SOLICITATION NOTICE

Sources: *49 USC § 47123; FAA Order 1400.11*

Contract Dollar Threshold: $0

The Incorporated County of Los Alamos, New Mexico, 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 for 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 no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

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 USC § 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 USC § 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 USC § 794 et seq.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (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 (42 USC § 12101, et seq) (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) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;

- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 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 (ensures nondiscrimination 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. 74087 (2005)];
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

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. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability 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.

A7: CLEAN AIR AND WATER POLLUTION CONTROL

Not applicable

A8: CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Not applicable

A9: COPELAND "ANTI-KICKBACK" ACT

Not applicable

A10: DAVIS-BACON REQUIREMENTS

Not applicable

A11: DEBARMENT AND SUSPENSION

Not applicable

A12: DISADVANTAGED BUSINESS ENTERPRISES REQUIRED PROVISIONS

Not applicable

A13: TEXTING WHEN DRIVING

Not applicable

A14: PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Sources: *2 CFR § 200, Appendix II(K); 2 CFR § 200.216*

Contract Dollar Threshold: $0

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

A15: DRUG-FREE WORKPLACE REQUIREMENTS

Not applicable

A16: EQUAL OPPORTUNITY CLAUSE

Not applicable

A17: FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Sources: *29 USC § 201, et seq; 2 CFR § 200.430*

Contract Dollar Threshold: $0

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, 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 with 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.

A18: CERTIFICATION REGARDING LOBBYING

Not applicable

A19: PROHIBITION OF SEGREGATED FACILITIES

Not applicable

A20: OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Source: *29 CFR Part 1910*

Contract Dollar Threshold: $0

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. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer 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 (29 CFR Part 1910). The employer 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.

A21: PROCUREMENT OF RECOVERED MATERIALS

Not applicable

A22: RIGHT TO INVENTIONS

Not applicable

A23: SEISMIC SAFETY

Not applicable

A24: CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

Not applicable

A25: TERMINATION OF CONTRACT

Not applicable

A26: TRADE RESTRICTION CERTIFICATION

Not applicable

A27: VETERAN'S PREFERENCE

Not applicable

A28: CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

Sources: *2 CFR § 200.322; 2 CFR Part 200, APPENDIX II(L)*

Contract Dollar Threshold: $0

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

End of Federal Contract Provisions for Obligated Sponsors

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State Wage Rates

for

Construct T-Hangars

at

Los Alamos County Airport

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LABOR RELATIONS DIVISION

401 Broadway NE
Albuquerque, NM 87102
Phone: 505-841-4400
Fax: 505-841-4424

226 South Alameda Blvd
Las Cruces, NM 88005
Phone: 575-524-6195
Fax: 575-524-6194

WWW.DWS.STATE.NM.US

Wage Decision Approval Summary

1) Project Title: Construct T-Hangars
Requested Date: 08/29/2024
Approved Date: 08/30/2024
Approved Wage Decision Number: LA-24-2860-B

Wage Decision Expiration Date: 12/28/2024

2) Physical Location of Jobsite for Project:
Job Site Address: 1040 Airport Road
Job Site City: Los Alamos
Job Site County: Los Alamos

3) Contracting Agency Name (Department or Bureau): Los Alamos County
Contracting Agency Contact's Name: Manuel Martinez
Contracting Agency Contact's Phone: (505) 709-0919 Ext.

4) Estimated Contract Award Date: 10/01/2024

5) Estimated total project cost: $1,105,020.00
a. Are any federal funds involved?: No
b. Does this project involve a building?: Yes - To construct 8 new T-Hanger units that will provide storage and protection, install new storm drain system, connect new hangars to electrical system, remove existing tie-downs, taxi-lane markings and seal- coat pavement within hanger boundaries.
c. Is this part of a larger plan for construction on or appurtenant to the property that is subject to this project?: No
d. Are there any other Public Works Wage Decisions related to this project?: No
e. What is the ultimate purpose or functional use of the construction once it is completed?: Tp provide 8 new T-hangars units for plane storage and protection.

6) Classifications of Construction:

Classification Type and Cost Total	Description
Highway/Utilities (A) **Cost:** $205,020.00	Install a new storm drain system, remove existing tie-downs and taxi-lane markings and seal-coat pavement with-in hangar boundaries.
General Building (B) **Cost:** $900,000.00	Construction of a new 8 unit T-Hangar and connect the new hangars to electrical service,

TYPE "B" – GENERAL BUILDING

Effective January 1, 2024

Trade Classification	Base Rate	Fringe Rate	Apprenticeship
Cement Mason	24.31	11.16	0.60
Millwright/pile driver	39.00	29.40	0.60
Plasterer	24.76	9.99	0.60
Plumber/Pipefitter	36.91	14.75	0.60
Sprinkler Fitter	35.75	24.56	0.60
Asbestos Workers/Heat and Frost Insulators			
Asbestos Workers/Heat and Frost insulators	35.86	12.46	0.60
Asbestos Workers/Heat and Frost insulators: Los Alamos County	38.29	12.46	0.60
Boilermaker/Blacksmith			
Boilermaker/blacksmith	35.88	32.28	0.60
Boilermaker/blacksmith: San Juan County	36.83	31.88	0.60
Bricklayer/Block Layer/Stonemason			
Bricklayer/Block layer/Stonemason	27.03	10.99	0.60
Bricklayer/Block layer/Stonemason Curry, DeBaca, Quay and Roosevelt counties	23.10	8.98	0.60
Bricklayer/Block layer/Stonemason Dona Ana, Otero, Eddie and Lea counties	26.42	8.98	0.60
Carpenter			
Carpenter/Lather	29.11	12.79	0.60
Carpenter: Los Alamos County	33.18	13.58	0.60
Electricians-Outside Classifications: Zone 1			
Ground man	26.32	12.79	0.60
Equipment Operator	37.76	17.13	0.60

Trade Classification	Base Rate	Fringe Rate	Apprenticeship
Lineman or technician	47.70	19.92	0.60
Cable Splicer	48.87	20.22	0.60
Electricians-Outside Classification: Zone 2			
Ground man	26.32	12.79	0.60
Equipment Operator	37.76	17.13	0.60
Lineman or technician	47.70	19.92	0.60
Cable Splicer	48.87	20.22	0.60
Electricians-Outside Classifications: Los Alamos County			
Ground man	27.07	12.81	0.60
Equipment Operator	38.85	17.17	0.60
Lineman or technician	48.95	20.24	0.60
Cable Splicer	53.75	21.44	0.60
Electricians-Inside Classifications: Zone 1			
Wireman/low voltage technician	38.30	12.60	0.60
Cable Splicer	42.13	12.71	0.60
Electricians-Inside Classification: Zone 2			
Wireman/low voltage technician	41.75	12.70	0.60
Cable Splicer	45.58	12.82	0.60
Electricians-Inside Classification: Zone 3			
Wireman/low voltage technician	44.05	12.72	0.60
Cable Splicer	47.88	12.89	0.60
Electricians-Inside Classification: Zone 4			
Wireman/low voltage technician	48.26	12.90	0.60
Cable Splicer	52.09	13.01	0.60

Trade Classification	Base Rate	Fringe Rate	Apprenticeship
Electricians-Inside Classification: Doña Ana, Hidalgo, Luna and Otero Counties			
Wireman/low voltage technician	32.72	9.65	0.60
Cable splicer	32.72	9.65	0.60
Electricians-Inside Classification: Los Alamos County			
Wireman/low voltage technician	44.05	14.97	0.60
Cable Splicer	47.88	15.28	0.60
Elevator Constructor			
Elevator Constructor	49.77	39.19	0.60
Elevator Constructor Helper	34.84	39.19	0.60
Glazier			
Glazier/Fabricator	21.75	7.10	0.60
Glazier: Los Alamos County	21.75	7.10	0.60
Ironworker			
Ironworker Journeyman	28.49	18.71	0.60
Probationary Ironworker	22.79	18.71	0.60
Painter			
Painter	21.00	5.75	0.60
Painter: Los Alamos County	31.18	11.50	0.60
Paper Hanger			
Paper Hanger	21.00	5.75	0.60
Paper Hanger: Los Alamos County	32.06	11.50	0.60
Drywall Finisher/Taper - Light Commercial & Residential			
Ames tool operator	27.40	8.86	0.60
Hand finisher/machine texture	26.40	8.86	0.60

Trade Classification	Base Rate	Fringe Rate	Apprenticeship
Drywall Finisher/Taper – Light Commercial & Residential: Los Alamos County	31.18	11.50	0.60
Roofer			
Roofer Journeyman	26.94	9.36	0.60
Roofer Helper	16.16	9.36	0.60
Sheet Metal Worker			
Zone 1	37.50	19.08	0.60
Zone 2 – Industrial	38.50	19.08	0.60
Zone 3 – Los Alamos County	39.50	19.08	0.60
Soft Floor Layer			
Soft Floor Layer	21.00	9.20	0.60
Soft Floor Layer: Los Alamos County	31.20	11.62	0.60
Tile Setter			
Tile Setter	24.46	8.81	0.60
Tile Setter Helper/Finisher	16.53	8.81	0.60
Laborers			
Group I- Unskilled	20.44	7.96	0.60
Group II – Semi-skilled	20.44	7.96	0.60
Group III- Skilled	21.44	7.96	0.60
Group IV - Specialty	23.69	7.96	0.60
Operators			
Group I	24.49	8.22	0.60
Group II	26.76	8.22	0.60
Group III	27.24	8.22	0.60
Group IV	27.70	8.22	0.60

Trade Classification	Base Rate	Fringe Rate	Apprenticeship
Group V	27.90	8.22	0.60
Group VI	28.12	8.22	0.60
Group VII	28.23	8.22	0.60
Group VIII	31.43	8.22	0.60
Group IX	33.94	8.22	0.60
Group X	37.51	8.22	0.60
Truck Drivers			
Group I-VII	16.65	8.27	0.60
Group VIII	16.71	8.27	0.60
Group IX	18.65	8.27	0.60

NOTE: All contractors are required to pay SUBSISTENCE, ZONE, AND INCENTIVE PAY according to the particular trade. More information available at https://www.dws.state.nm.us/public-works.

For more information about the Subsistence, Zone, and Incentive Pay rates, or to file a wage claim, contact the New Mexico Department of Workforce Solutions Labor Relations Division at (505) 841-4400 or visit us online at www.dws.state.nm.us.

Performance Bond

KNOW ALL MEN BY THESE PRESENTS, that _____ as Principal, hereinafter called Contractor, and _____ a corporation duly organized under the laws of the State of _____ , as Surety, hereinafter called Surety, are held and firmly bound unto the Incorporated County of Los Alamos, New Mexico, as Obligee, hereinafter called Owner, in the amount of _____ Dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Contractor has by written agreement dated _____, 20_____, entered into a contract with Owner for Construction of the Construct T-Hangars project and other associated items at the Los Alamos County Airport in accordance with Plans and Specifications prepared by Delta Airport Consultants, Inc., 7804 Pan American East Freeway NE, Suite 4, Albuquerque, NM 87109, Telephone: (505) 797-4921, Fax: (505) 797-1725, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then his/her obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever the Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, or

(2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and made available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators, or successors of the Owner.

Signed and sealed this _____day of _____, 20_____.

_____	_____
Principal	Surety
_____	_____
Signature	Signature
_____	_____
Name *(print)*	Name *(print)*
_____	_____
Title	Title
Seal By:	Seal By:
_____	_____
Title	Title
(SEAL)	(SEAL)

Labor and Material Payment Bond

100% OF THE CONTRACT AMOUNT

KNOW ALL MEN BY THESE PRESENTS, that _____ as Principal, hereinafter called Contractor, and _____ a corporation duly organized under the laws of the State of _____ , as Surety, hereinafter called Surety, are held and firmly bound unto the Incorporated County of Los Alamos, New Mexico, as Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the amount of _____ Dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Contractor has by written agreement dated _____, 20_____, entered into a contract with Owner for Construction of the Construct T-Hangars project and other associated items at the Los Alamos County Airport in accordance with Performance Specifications prepared by Delta Airport Consultants, Inc., 7804 Pan American East Freeway NE, Suite 4, Albuquerque, NM 87109, Telephone: (505) 797-4921, Fax: (505) 797-1725, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly make payment to all claimants as hereinafter defined, for all labor and material, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Contractor or with a Subcontractor of the Contractor for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor, and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

(2) The above named Contractor and Surety hereby jointly and severally agree with the Agent that every claimant as herein defined, who has not been paid in full before the expiration of period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Agent or Owner shall not be liable for the Payment of any costs or expenses of any such suit.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless claimant other than one having a direct contract with the Contractor shall have given written notice to any two of the following: The Contractor, the Agent, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Contractor, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Contractor ceased work on said Contract, it being understood, however, that if any limitation embodied on this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to equal to the minimum period of limitation permitted by such law.

(c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

(4) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' lien which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this _____ day of _____, 20_____.

_____	_____
Principal	Surety
_____	_____
Signature	Signature
_____	_____
Name *(print)*	Name *(print)*
_____	_____
Title	Title

Seal By:

_____

Title

(SEAL)

Seal By:

_____

Title

(SEAL)

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Warranty of Construction

Project: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

Date of Final Acceptance: _____

_____ (Contractor), located at _____, hereby guarantees that all labor and material furnished and work performed under the above Contract are in accordance with the contract drawings and specifications and authorized alterations and additions thereto, and that all of the work under the Contract is free from faulty materials and improper workmanship, and guaranteed against injury from proper and usual wear, and agreeing (and we do hereby so agree) that should any defect develop during the contract guarantee period, as hereinafter defined, due to improper materials, workmanship or arrangement, we will, upon written notice, replace or re-execute such defective work, together with any other work affected in making good such defects, at the convenience of, and without expense to the Owner.

The Contractor further warrants that all manufacturer's or other warranties on all materials and equipment furnished by Contractor shall run directly to or be specifically assigned to Owner on demand. The Contractor warrants that the installation of any and all materials and equipment shall be in strict accordance with manufacturer's requirements. In the event Owner seeks to enforce a claim based upon a manufacturer's warranty and should such manufacturer then fail to honor its warranty based, in whole or in part, on a claim of defective installation, Owner shall be entitled to enforce said warranty against Contractor in accordance with the terms of said warranty, except that a claim of defective installation shall not be a defense to any such warranty claim by Owner against Contractor.

The contract guarantee period shall be a period of one (1) year from final acceptance, as noted above, except in the cases of LED light fixtures, manufacturer's or other required extended warranties that extend for periods greater than one year from final acceptance, whereby the contract guarantee period shall extend to match for the items that are so warrantied.

All LED light fixtures with the exception of obstruction lighting (AC 150/5345-43) must be warranted for a minimum of four (4) years after date of installation inclusive of all electronics.

The warranty for any work repaired or replaced during the guarantee period shall run for a period of one (1) year from the date of repair or replacement.

_____

Contractor's Signature

Subscribed and sworn before me in the State of New Mexico, this _____ day of _____, 20_____.

_____

Notary Public

_____

My Commission Expires

Lien and Claims Release

Project: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

_____ (Contractor), located at _____, hereby certifies that the work for the above project has been completed in accordance with the Contract Documents, and that all previous progress payments received from the Owner on account of work performed under the Contract referred to has been applied by the undersigned to discharge in full all obligations of the undersigned incurred in connection with the work covered by prior requisitions for payment under said Contract and that all materials and equipment covered by the final requisition for payment are free and clear of all liens, claims, security interests and encumbrances. All persons, firms and partnerships who have furnished labor and/or material to date on said project have been paid.

_____
Contractor's Signature

Subscribed and sworn before me in the State of New Mexico, this _____ day of _____, 20_____.

_____
Notary Public

_____
My Commission Expires

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Other Forms

for

Construct T-Hangars

at

Los Alamos County Airport

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Electronic File Release Agreement

_____ (RECIPIENT) has requested that Delta Airport Consultants, Inc., (ENGINEER) provide electronic files for the RECIPIENT's use on the Construct T-Hangars project at Los Alamos County Airport, subject to the following terms and conditions. Electronic files are available only to the successful low bidder.

The ENGINEER's electronic files are compatible with AutoCAD 2018 or newer releases. The ENGINEER makes no representation as to the compatibility of these files with your hardware or your software.

Data contained in these electronic files is part of the ENGINEER's instruments of service, who shall be deemed the author and shall retain all common law, statutory law, and other rights, without limitation, including copyrights, and shall not be used by you or anyone else receiving this data through or from you for any purpose other than _____. Any other use or reuse by you or others will be at your sole risk and without liability or legal exposure to the ENGINEER. The RECIPIENT agrees to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against the ENGINEER, its officers, directors, employees, agents or subconsultants which may arise out of or in conjunction with the RECIPIENT's use or reuse of the electronic files for any purpose.

Furthermore, the RECIPIENT shall, to the fullest extent permitted by law, indemnify and hold harmless the ENGINEER from all claims, damages, losses, and expenses, including attorney's fees, arising out of or resulting from such use or reuse, by the RECIPIENT or others, of these electronic files.

These electronic files are not contract documents, nor are they considered as being the engineering drawings for the project. Significant differences may exist between these electronic files and corresponding hard copy contract documents (project engineering drawings) due to addenda, change orders, or other revisions. The ENGINEER makes no representation regarding the accuracy or completeness of the electronic files received by the RECIPIENT. In the event a conflict arises between the signed contract documents prepared by the ENGINEER and electronic files, the signed contract documents shall govern. The RECIPIENT is responsible for determining if any conflicts exist. By the RECIPIENT's use of these electronic files, the RECIPIENT is not relieved of his duty to fully comply with the contract documents, including and without limitation, the need to check, confirm, and coordinate all dimensions and details, take measurements, verify field conditions and coordinate your work with that of other contractors for the project.

Because of the potential that the information presented on the electronic files can be modified, unintentionally or otherwise, the ENGINEER reserves the right to remove all indicia of its ownership and/or involvement from each electronic display or file.

Signature of this agreement shall cover any and all digital correspondence released from the ENGINEER to the RECIPIENT.

Under no circumstances shall delivery of the electronic files for use by the RECIPIENT be deemed a sale by the ENGINEER and the ENGINEER makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall the ENGINEER be liable for any loss of profit or any consequential damages as a result of your use or reuse of these electronic files.

_____	_____
RECIPIENT (please print name of company)	RECIPIENT's Representative Signature
_____	_____
RECIPIENT's Representative Name (please print)	Witness Signature
_____	_____
RECIPIENT's Email Address (please print)	RECIPIENT's Phone Number

Certificate of Substantial Completion

Project: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

Contract Date: _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents and approved Change Orders for the Construct T-Hangars project completed by _____ (CONTRACTOR) for Incorporated County of Los Alamos, New Mexico (OWNER).

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR, and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents as of _____.

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by the CONTRACTOR within thirty (30) calendar days of the above Date of Substantial Completion.

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

ENGINEER: Delta Airport Consultants, Inc.

Name: (*print)* _____

Signature: _____ Date: _____

CONTRACTOR: _____

Name: (*print)* _____

Signature: _____ Date: _____

OWNER: Incorporated County of Los Alamos, New Mexico

Name: (*print)* _____

Signature: _____ Date: _____

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Certificate of Final Acceptance

Project: Construct T-Hangars
Airport: Los Alamos County Airport
Location: Los Alamos, New Mexico

Contract Date: _____

This Certificate of Final Acceptance applies to all Work under the Contract Documents and approved Change Orders for the Construct T-Hangars project completed by _____ (CONTRACTOR) for Incorporated County of Los Alamos, New Mexico (OWNER).

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR, and ENGINEER, and that Work is hereby accepted as complete on _____.

The following documents and information are attached to and made a part of this Certificate:

(1) Warranty of Construction
(2) Lien and Claims Release

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

ENGINEER: Delta Airport Consultants, Inc.

Name: (*print)* _____

Signature: _____ Date: _____

CONTRACTOR: _____

Name: (*print)* _____

Signature: _____ Date: _____

OWNER: Incorporated County of Los Alamos, New Mexico

Name: (*print)* _____

Signature: _____ Date: _____

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Part 1 – General Contract 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.

Paragraph Number	Term	Definition
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.
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.

Paragraph Number	Term	Definition
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.

Paragraph Number	Term	Definition
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.
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.

Paragraph Number	Term	Definition
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 the Incorporated County of Los Alamos, New Mexico.
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.
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.'

Paragraph Number	Term	Definition
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.

Paragraph Number	Term	Definition
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.
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 Engineer, and who shall supervise and direct the construction.

Paragraph Number	Term	Definition
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.
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.

Paragraph Number	Term	Definition
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.
	Owner Defined Terms:	
10-66	**ADDENDA**	Written or graphic instruments issued prior to the opening of bids which clarify, correct or change the bidding documents or the contract documents and become a part thereof.
10-67	**FAA ADVISORY CIRCULAR (AC)**	A document prepared by the Federal Aviation Administration to provide guidance and information in a designated aviation related subject area, including standards, materials, and/or methods. The most current edition of ACs, approved by the FAA, can be found on the FAA web site at https://www.faa.gov/regulations_policies/advisory_circulars/
10-68	**INSTALL**	Unless described otherwise in the plans or specifications, "install" shall mean to furnish the item(s) referenced and to provide all materials, labor, equipment, and tools necessary to establish the referenced items(s) in place and in the correct working order.
10-69	**NOTICE OF AWARD**	The written notice by the Owner to the apparent low bidder that they are the successful bidder and, that upon compliance with the contract conditions, the Owner intends to execute the contract with the apparent low bidder.
10-70	**SHOP DRAWINGS**	All drawings, diagrams, illustrations, schedules and other data which are prepared by the Contractor, a subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the work. All shop drawings shall be approved by the Contractor and submitted to the Engineer for review and acceptance for reasonable conformance to the contract documents.

Paragraph Number	Term	Definition
10-71	**SUBCONTRACTOR**	An individual, firm or corporation having a direct contract with the Contractor or with any other subcontractor for the performance of a part of the work at the site.
10-72	**SUBSTANTIAL COMPLETION**	The work has progressed to the point where, in the opinion of the Owner as evidenced by the Engineer's definitive Certificate of Substantial Completion, it is sufficiently complete in accordance with the contract documents, so that the work can be utilized for the purposes for which it is intended.
10-73	**NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION**	The New Mexico Department of Transportation Standard Specifications for Highway and Bridge Construction, Current Edition, utilized for highway construction. These specifications may be incorporated by reference in some of the technical specifications for this project and shall have the same force and effect as if included in the contract physically.
10-74	**NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION**	The New Mexico Department of Transportation Standard Drawings for Highway and Bridge Construction, Current Edition, utilized for highway construction. These standards may be incorporated by reference in some of the plans and technical specifications for this project and shall have the same force and effect as if included in the contract physically.

END OF SECTION 10

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Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders).

A copy of the advertisement for the project has been incorporated in the front of these specifications.

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 to10 percent of the total project cost.

A prebid conference will be held for 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; and unique airfield paving construction requirements.

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.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

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 writing, by fax, or by email 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 five (5) business/working 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 **NO LATER THAN OCTOBER 15, 2024**, ~~calendar days of the date specified for publicly opening proposals~~, 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*.

THE FORM OF THE BONDS SHALL BE AS INCLUDED IN THESE CONTRACT DOCUMENTS AND THE SURETY SHALL BE AUTHORIZED TO DO BUSINESS IN THE PROJECT LOCALE. IN THE CASE OF DEFAULT ON THE PART OF THE CONTRACTOR, ALL EXPENSES INCIDENTAL TO ASCERTAINING AND COLLECTING LOSSES UNDER THE BONDS, INCLUDING BOTH ENGINEERING AND LEGAL SERVICES SHALL LIE AGAINST THE 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 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

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 Engineer's opinion, is necessary for completion of the extra work.

When determined by the Engineer to be in the Owner's best interest, the Engineer 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, Engineer 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. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

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 Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer 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 Engineer 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 Engineer; 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 Engineer's approval in advance of such use.

Should the Engineer 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 Engineer 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

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Section 50 Control of Work

50-01 Authority of the Engineer. The Engineer has final authority regarding the interpretation of project specification requirements. The Engineer 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 Engineer 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 Engineer 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 Engineer will advise the Owner of their determination that the affected work be accepted and remain in place. The Engineer 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 Engineer 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 Engineer'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 Engineer'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 Engineer'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 Engineer 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 Engineer 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 Engineer 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 the Special Provisions section of the specification.

50-05 Cooperation of Contractor. The Contractor shall be supplied with five 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 Engineer 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 Engineer 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 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 the Engineer. 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 Engineer 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 Engineer. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the Engineer for each area of construction and for each placement of material as specified to allow the Engineer 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 Engineer prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): AutoCAD 2018 or newer.

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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as established by the Engineer, 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 Engineer made under the provisions of this subsection, the Engineer 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 Engineer 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 Engineer'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 Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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 Engineer 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

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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 Engineer 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 Engineer'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 Engineer before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the Engineer 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 Engineer, 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 Engineer. 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 Engineer.

A copy of all Contractor QC test data shall be provided to the Engineer 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 Engineer 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 Engineer 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 Engineer.

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 Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The Engineer 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 Engineer conduct plant inspections, the following conditions shall exist:

a. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The Engineer 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 Engineer, 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 Engineer 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. An Engineer/RPR field office is not required.

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 Engineer. 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 Engineer. 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 Engineer 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 Engineer.

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 Engineer 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

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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:~~

Except as AUTHORIZED BY THE OWNER~~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 Engineer.

A LISTING OF UTILITIES OR OTHER FACILITIES WHICH MAY BE ENCOUNTERED DURING THE WORK HAS BEEN PROVIDED BELOW.

Facility or Utility	Person to Contact (Name and Title)	Telephone/Email
Airport Facilities	Eric Martinez	505-662-8101
New Mexico 811	N/A	811 or 1-800-321-2537 www.nm811.org
Local Utilities	James Alarid, Deputy Utility Manager	505-662-8333

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 Engineer, 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 Engineer. If the Engineer 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 Engineer 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 CONTAINED IN APPENDIX D.

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~~ SHALL BE 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.

Upon completion of any portion of work ~~listed above~~ INDICATED IN THE CSPP AND THE PROJECT PLANS, 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 Engineer, 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 Engineer'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.

See paragraph 70-04 for a list of all known services or utility providers with associated contact information.

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 Engineer.

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 Engineer.

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 Engineer 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 Engineer 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.

70-15.1 FAA facilities and cable runs. Section not used.

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 Engineer. The Engineer 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.

a. Insurance Coverage. The Contractor shall, at its sole expense, purchase and maintain, and shall require its subcontractors of any tier to purchase and maintain, in full force and effect during the performance of any contract issued hereunder the following insurance coverages with companies acceptable to the Owner:

(1)Workmen's Compensation Insurance (including employer's liability insurance) which complies with the laws of all states where services are rendered pursuant to any contract issued hereunder, and any state where employees performing such work are normally employed. The Contractors and Subcontractors of any tier's Workmen's Compensation and Employer's Liability policies shall include an Alternate Employer Endorsement naming the Owner and the Engineer as Alternate Employers.

(2)Commercial General Liability Insurance written on an occurrence basis at limits of not less than:

General Aggregate	$2,000,000
Products-Complete Operations Aggregate	$2,000,000
Personal & Advertising Injury	$1,000,000
Each Occurrence	$1,000,000
Fire Damage (Any One Fire)	$ 50,000
Medical Expense (Any One Person)	$ 5,000

Such insurance shall include, but shall not necessarily be limited to, specific coverage for contractual liability encompassing the indemnification provisions in Paragraph 70-21(d) *Indemnity*, broad form property damage liability, and products, completed operations liability. The Owner and the Engineer shall be named as Additional Insured under the commercial general liability insurance.

(3) Automobile Liability Insurance providing liability coverage on a Symbol 1 basis (any auto) and uninsured motorists coverage on a Symbol 6 basis (owned autos subject to a compulsory uninsured motorists law) at limits of not less than $1,000,000.

(4) Builders' Risk "Special Causes of Loss" Insurance. For projects which include buildings, before commencement of the work, the Contractor and any subcontractor shall obtain for the period of the Construction Contract, Builders' Risk "Special causes of loss" Completed Value Insurance Coverage (including faulty workmanship, collapse, boiler and machinery, earthquake and flood) upon the entire project which is the subject of the Construction Contract. Such insurance shall include as additional named insured: The Owner; the Engineer; and each of their officers, agents, employees, and any other persons with an insurable interest as may be designated by the Owner.

b. Proof of Insurance. The Contractor shall furnish to the Owner a satisfactory Certificate of Insurance or a certified copy of policy or policies of insurance covering the work as required in the attached specifications for himself, herself and all subcontractors. This shall be furnished at the same time as Performance and Payment Bonds. Neither approval by the Owner, nor a failure to disapprove insurance furnished by the Contractor, shall release the Contractor from full responsibility for liability, damages, and accidents, as set forth herein.

c. Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Engineer, Engineer's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this agreement or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Engineer, Engineer's consultants, separate contractors, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of the other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

d. Indemnity. In addition to the above requirements to obtain and maintain Insurance, the Contractor shall agree to hold harmless, indemnify and defend the Owner and Engineer from all claims made against the Engineer, the Owner, their officers, agents, and employees, which arise out of or alleged to arise from any action or omission of the Contractor, or any subcontractor, or any of their officers, employees, or agents, and any and all claims which result from any condition created or maintained by the Contractor or Subcontractor, or any of their officers, employees or agents, which condition was not specified to be created or maintained by this Contract. The agreement to hold Engineer and the Owner, their officers, agents, and employees, harmless shall not be limited to the limits of the Liability Insurance required under the provisions of these Specifications or the Contract, of which these Specifications are made a part.

END OF SECTION 70

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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 Engineer.

The Contractor shall perform, with his organization, an amount of work equal to at least 51 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 Engineer 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 Owner’s 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 Engineer at least 48 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 Engineer’s review and acceptance at least 10 days prior to the start of work. The Contractor’s progress schedule, once accepted by the Engineer, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The Engineer 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 Engineer’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 Engineer at least 48 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.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. 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 Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the Engineer 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) ~~and as listed below,~~ 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 as DETAILED IN THE CONSTRUCTION SAFETY AND PHASING PLAN, ~~follows:~~

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 Engineer , does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, 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 Engineer.

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 Engineer 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 Engineer. 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 Engineer 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 Engineer 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 Engineer 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 Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with their own claim information

substantiating the amount shown on the claim. The Engineer 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 days 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 PLANS	

~~The maximum construction time allowed for Schedules [ ] will be the sum of the time allowed for individual schedules but not more than [ ] days.~~ 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 Engineer 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 Engineer 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 Engineer.

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 Engineer 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 Engineer, 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 Engineer.

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 Engineer 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 Engineer 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 (907 km) 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 Engineer. 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 Engineer directs, and each truck shall bear a plainly legible identification mark.

Term	Description
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 (liter) or ton (kg). 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 (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
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.

Term	Description
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 Engineer 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 (454 grams). 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 Engineer can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) 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.

Term	Description
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 Engineer. 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 Engineer 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 Engineer 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 Engineer'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 Engineer'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 Engineer'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 Engineer, 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 Engineer, the Engineer 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 Engineer 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 Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer 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. Section not used.

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 Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer 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 Engineer 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 Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer'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 Engineer's final estimate, and after the Engineer'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. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

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 Engineer 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

Special Provisions

01. SP Additional Insured Requirements

The Contractor shall specify the Owner and the Engineer as named additional insured in all insurance required under the provisions of Section 70-21 *Insurance Requirements*. The cost for adding the Owner and Engineer shall be incidental to the overall project.

02. SP FAA Specifications

All FAA specifications are denoted with the AC reference and date of revision at the beginning of each specification section. The title of any non-FAA specification will be in all capital letters (EXAMPLE). Modifications by way of additions to the FAA standard text are denoted in all capital letters (EXAMPLE).

03. SP Conflict With Other Controls

In the event of conflict between these requirements and pollution control laws, rules, or regulations or other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply. The Contractor shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

04. SP Pavement Loading

The existing airport pavements are designed for aircraft on single and dual gear configurations. The Contractor shall preserve and/or protect existing and new pavements from damage due to construction operations. Existing pavements which are damaged shall be replaced or repaved at the Contractor's expense. The Contractor shall take immediate action to alleviate the problem.

05. SP Communications

The Contractor shall keep the Engineer and/or Resident Project Representative apprised of his/her scheduled construction activities in order to allow proper notification of the airport manager and airport operators. As a minimum, weekly meetings to discuss construction progress and location should be anticipated.

The Contractor shall have a two-way radio at the jobsite at all times work is in progress. The Contractor shall monitor the ground control frequency or the Common Traffic Advisory Frequency (CTAF) or Airport UNICOM frequency.

06. SP Aircraft Operations

It is the intent of the Owner to minimize interference with aircraft operations. The Contractor shall coordinate his/her activities while working near the aircraft operational area, so as to create minimal interference with aircraft operations. Before starting his/her operations at any location on the airport, the Contractor shall assure proper safety precautions and separations are in place in accordance with the Plans, Construction Safety Phasing Plan (CSPP) and the contractor's Safety Plan Compliance Document (SPCD), all prepared in accordance with FAA Advisory Circular (AC) 150/5370-2G, *Operational Safety on Airports During Construction*.

07. SP Record Drawings

The Contractor shall maintain during the work and shall provide the Engineer with one set of marked prints showing any modifications between the original plans and final "as-constructed" conditions. The Contractor shall provide the marked set of drawings to the Engineer at the final inspection.

08. SP Final Inspections

The Engineer will attend a final inspection and if necessary, one follow-up final inspection of the completed work and the completed punch list items, respectively. These inspections will be scheduled when the Contractor indicates that the work is complete and ready for final inspection or that the punch list is totally complete, and the final inspection can be made. If the Engineer is required to conduct more than two (2) final inspections outlined above, the charges for the Engineer's services associated with such additional inspections shall be deducted by the Owner from the Contractor's final payment for the project.

09. SP Existing Airfield Features

The Contractor shall protect existing items on the airfield that are not identified to be removed or modified. This may include pavements, markings, lighting fixtures, signs, survey monuments, etc. An inventory of conditions of the project and all items that are to remain shall be taken before construction begins and the Contractor shall be responsible for the cost of replacement of any fixtures damaged by his operations.

10. SP Project Schedule

The Contractor shall submit prior to the Preconstruction Conference a detailed progress schedule for the entire project. The schedule shall be developed in a "Critical Path Method" (CPM) format to include production rates per work period and time for mobilization and demobilization. Once the Contractor's schedule has been reviewed by the Engineer, any deviations must be incorporated into an updated schedule and submitted for review by the Engineer. The initial schedule will be used as a baseline for determining impacts to the critical path items of the schedule due to weather or other items as may be documented by the contractor that is potentially a reason to extend the contract time period.

The Contractor shall review the project schedule with the Engineer prior to submittal of the monthly Contractor Pay Request. Any update seemed necessary by the Engineer or Contractor shall be incorporated into an updated schedule. The updated schedule shall be submitted with the pay request. The Pay Request will not be processed unless an accurate up-to-date schedule is on file with the Engineer.

11. SP Contract Time Extensions

The Contractor shall be responsible for providing justification and documentation for proposed time extensions. The Contractor shall submit the justification and documentation along with a copy of the original and updated project schedules to the Engineer for review.

The number of calendar days specified in the Contract includes an allowance for 85 percent of the calendar days available for productive work (i.e., 15% of the project time anticipates rain or other impacts to the overall schedule).

The Contractor will be entitled to an automatic extension in contract time if requested, when the available days for productive work are less than 85 percent of the established contract time. The Engineer will furnish the Contractor with a copy of his/her weekly statement of the number of calendar days available for productive work. The Engineer shall base his/her weekly statement of available days for productive work on the following considerations:

A day will be considered available for productive work regardless of whether the Contractor actually worked or not, if, in the Engineers opinion, the Contractor could have been able to proceed with a principal work item for at least a 6-hour work period during normal work hours for the project.

The Contractor will be allowed one (1) week in which to file a written protest setting forth his/her objections to the Engineer’s weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

In the event the number of available calendar days for productive work is less than 80 percent, the contract time will be extended until the allowance number of available productive days is achieved.

No provisions of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Contractor, for any other delay provided for in the contract, plans, or specifications.

12. SP Construction Flags and Amber Lights

During work in the Air Operation Area (AOA), the Contractor shall furnish amber flashing hazard beacons or aircraft warning flags on all vehicles and equipment in accordance with Advisory Circular (AC) 150/5210-5D, *Painting, Marking, and Lighting of Vehicles Used on an Airport*. Amber flashing hazard beacons or aircraft warning flags may be used during the day.

The beacons shall be mounted on the uppermost part of the vehicle structure or equipment so that it will be visible from any direction, day and night, including from the air.

The flags shall be at least a 3-foot square having a checkered pattern of international orange and white squares at least 1 foot on each side in accordance with AC 150/5210-5D. Flags on equipment shall be mounted on a staff not less than 8 feet in length.

13. SP Utility Conflicts

The Contractor should anticipate conflicts with existing utilities. Where conflicts are encountered, the Contractor shall reroute electrical conduits, ducts, water pressure lines and/or force mains around gravity lines which will take precedence over pressure lines for maintaining vertical alignment as shown on plans. Conflicts between pressure lines shall be resolved as ordered by the Engineer. No additional payment will be made for rerouting utilities due to conflicts.

The Contractor shall be responsible for repair to utilities in service which are damaged by the Contractor's men and equipment. The Contractor shall assume all risk and liability for any inconvenience, delay, or expense that may be occasioned by public utilities. No additional compensation will be allowed for delays, inconvenience, or damage sustained by the Contractor due to interference from the said utility appurtenances or the operations of moving them. The time for completion may be extended if it is determined by the owner that a project delay to critical path work items has occurred.

14. SP Materials Testing

The Contractor shall provide actual test results and/or certifications for all materials incorporated into the work to assure his/her compliance with the contract specifications. Current ASTM, AASHTO, and/or federal specifications on the date of advertisement for bids shall be used. The latest edition of other referenced specifications, handbooks or documents shall be used. Prior to installing, placing, or incorporating any materials into the work, the Contractor shall provide four (4) copies of the materials tests and/or certifications required by the specifications to the Engineer.

The Testing/Certification submittals required by the specifications shall be provided by the Contractor to the Engineer at the Contractor's expense. The required submittals shall be all tests and certifications required by the specifications.

15. SP Dust Control

The Contractor is advised that aircraft maintenance operations are conducted adjacent to the project. Special attention to dust control will be required during the course of the project. The use of water and calcium chloride shall be anticipated. The Engineer reserves the right to halt work or hauling in non-conforming areas if corrective actions are not promptly taken by the Contractor to control dust.

16. SP On-Site Contractor Supervision

The Contractor shall keep on the project at all times during its progress, a competent resident superintendent whose name and qualifications shall be furnished to the Engineer at the Pre-Construction Meeting and who shall not be replaced without prior written notice to the Engineer, except under extraordinary circumstances, in which event immediate written notice shall be given to the Engineer. The superintendent will be the Contractor's representative at the site and shall have the authority to act on behalf of the Contractor and to receive any and all notices or instructions given pursuant to the Contract Documents. The superintendent shall be an employee of the Contractor. The Contractor shall provide competent and suitable personnel, equipment and supplies to perform the work required by the Contract Documents. He/she shall at all times maintain good discipline and order at the site.

17. SP Storage / Staging Area

All construction material storage, equipment, and vehicle parking will be designated by the Owner. Under no circumstances shall material, equipment, and/or vehicles be stored in such a place as to create an obstruction to vehicular traffic. All storage shall be limited to the designated area(s) on the project site; no storage of any equipment or material shall be allowed at any place other than the project site unless otherwise approved by the Owner. Climate conditioning for stored materials shall be the responsibility of the Contractor.

18. SP Security

The Contractor shall be responsible for the security of his equipment and materials, as well as the security of the equipment and materials of his agents and Subcontractors. Further, he shall be responsible for the security of all entrances to the project site.

The Contractor shall provide the Owner or its designated representative a list of all his employees as well as a list of all the employees of his Subcontractors and shall, during the work of the project, advise such designated agent of changes to the list of personnel working on the project. The Contractor shall be responsible for the direct supervision of his employees, those of his agents and Subcontractors at all times while on the project site.

The Contractor shall exercise and take all precautions in the storage and dispensing of all flammable liquids such as, but not limited to, gasoline, fuel, and lubricants.

19. SP Motorized Vehicles

The Contractor shall be responsible for the actions of his employees, agents, and Subcontractors. Personnel who do not abide by the applicable rules and regulations shall be subject to prosecution.

All motorized vehicles and equipment operating on the project site and anywhere else on the Airport shall not exceed a speed of 15 mph, and all aircraft shall have priority over all motorized vehicles and equipment.

20. SP Debris

Waste and loose material shall be removed immediately and continuously during the construction work of the project. The removal and disposal of all debris shall be the responsibility of the Contractor. All debris shall be disposed of off the project site and the Airport property in conformance with prevailing local ordinances, codes, and Federal laws.

21. SP Contractor's Contact Persons

The Contractor shall provide the name and mobile phone number of at least two (2) people to be contacted in case of emergencies at the work site during non-working hours. The contact people must be qualified and have the authority to make decisions on behalf of the Contractor. There must be at least one (1) contact person on-call and available to be at the site within one (1) hour. This item is to be considered incidental to the project and no additional or separate payment will be made.

The Contractor shall provide the name of the Project Manager. This person will be the Contractor's representative to whom the Engineer and Owner shall address all relevant correspondence or communications. The Contractor shall not change the Project Manager without approval of the Engineer and/or Owner.

The names of the Project Manager and the two (2) Emergency Contact Persons shall be provided at the Preconstruction Conference.

22. SP Safety Plan Compliance Document (SPCD)

Introduction:

The Contractor is responsible for compliance with FAA Advisory Circular (AC) 150/5370-2G, *Operational Safety on Airports During Construction* and the project Construction Safety and Phasing Plan (CSPP) and is responsible for preparing a project specific Safety Plan Compliance Document (SPCD) describing their plan for said compliance.

Definitions and References:

AC 150/5370-2G – Operational Safety on Airports During Construction

This FAA Advisory Circular document outlines the responsibilities and requirements for CSPPs and SPCDs, as well as operational safety requirements. A copy is attached as an appendix to these specifications.

CSPP – Construction Safety & Phasing Plan

This Owner document is prepared in accordance with AC 150/5370-2G and outlines the project specific requirements for airfield operational safety, work area milestones, and sequencing during construction of the project. It is a project specific document that is prepared by the Owner. A copy is attached as an appendix to these specifications.

SPCD – Safety Plan Compliance Document

This Contractor document is prepared in accordance with AC 150/5370-2G and outlines the specific methods and actions to be taken by the Contractor to ensure compliance with the CSPP. The Contractor is responsible for developing a project specific SPCD and submitting it to the Owner for review prior to the start of construction. The document shall include the items listed in AC 150/5370-2G, Chapter 2.4.2.

Summary:

The Contractor is responsible for complying with AC 150/5370-2G, the Owner prepared CSPP, and the Contractor prepared SPCD.

In accordance with the contract documents, jobsite safety is the sole responsibility of the Contractor. The Engineer is not responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto. In reviewing any documents prepared by the Contractor, neither the Owner nor Engineer are assuming any responsibility for jobsite safety.

No separate measurement of payments shall be made for completion of the SPCD, or compliance with the noted three documents.

23. SP Shop Drawings and Samples

The Contractor shall review and approve all shop drawings and submittals for conformance to the contract documents before submittal to the Engineer. After reviewing the plans and specifications and/or verifying all field measurements, the Contractor shall submit to the Engineer for review and approval copies of all shop drawings, certificates, and samples. These drawings shall bear a stamp or specific written indication that the Contractor has satisfied the Contractor's responsibilities under the Contract Documents with respect to the review of the submission. The Contractor shall certify the following by placing a stamp or specific written indication on the shop drawings.

"This shop drawing has been reviewed by NAME OF CONTRACTOR and approved with respect to the means, methods, techniques, sequences, procedures of construction, safety precautions and programs incidental thereto. NAME OF CONTRACTOR also warrants that this shop drawing complies with the contract documents and comprises no variations thereto, unless noted below."

"NAME OF CONTRACTOR certifies that this shop drawing complies with Buy American requirements as established under 49 USC Section 50101. Steel products must be 100% U.S. domestic product Manufactured Products. Preference shall be given to products that are 100% manufactured and assembled in the U.S. Manufactured products not meeting the 100% U.S. domestic preference may only be used on the project is the FAA has officially granted a permissible waiver to Buy American Preferences."

All submissions shall be identified as the Engineer may require. The data shown on the shop drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable the Engineer to review the information.

The Contractor shall also submit to the Engineer for review and approval with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that the Contractor has satisfied the Contractor's responsibilities under the Contract Documents with respect to the review of the submission and shall be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

Before submission of each shop drawing or sample, the Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each shop drawing or sample with other shop drawings and samples and with the requirements of the work and the Contract Documents.

At the time of each submission, the Contractor shall give the Engineer specific written notice of each variation that the shop drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each shop drawing submitted to the Engineer for review and approval of each such variation.

For each shop drawing or sample submittal, the Contractor shall utilize a cover sheet similar in format and content to the "Sample Submittal Form" attached as an appendix to these specifications.

The Engineer will review with reasonable promptness, shop drawings and samples, but the Engineer's review will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor shall make corrections required by the Engineer and shall return the required number of corrected copies of shop drawings and submit as required new samples for review and approval. The Contractor shall direct specific attention, in writing, to revisions other than the corrections called for by the Engineer on previous submittals.

The Engineer's review of the shop drawings or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has, in writing, called the Engineer's attention to each such variation at the time of submission and the Engineer has given written concurrence of each such variation by a specific written notation thereof, incorporated in, or accompanying the shop drawings or sample approval; nor will any review by the Engineer relieve the Contractor from responsibility for errors or omissions in the shop drawings.

Where a shop drawing or sample is required by the Specifications, any related work performed prior to the Engineer's review of the pertinent submission will be the sole expense and responsibility of the Contractor.

The Contractor shall submit shop drawings electronically, via the Engineers Newforma/Info Exchange site.

Contractor shall submit electronic versions of each individual submittal to the Engineer in a printable PDF format. Submittals that are larger than 11x17 shall be submitted with one hard copy in addition to the electronic version. Formatting of the PDF drawings shall be of the same size as the hard copy submittal.

The Contractor will be provided access to the Engineer's secured project hosting site (Newforma) via a personalized password protected account. This site utilizes a web browser interface that requires internet access, and an individual email account. The Engineer will provide the Contractor with submittal protocol and process documentation for the hosting site when the account information is verified and configured by the Engineer.

The Engineer will return submittals electronically in PDF format.

The Contractor shall furnish one hard copy of each individual approved submittal as part of the final bound Operations and Maintenance Manuals, prior to the Final Inspection.

24. SP Subgrade Drainage

Subgrades and construction areas are highly susceptible to damage from intrusion of surface water. Surface water should not be allowed to collect in or on prepared subgrades during or after construction. The Contractor shall be responsible for protection of the subgrade from standing water by constructing drainage ditches or by grading the site to sheet flow towards natural or artificial drainage features. Excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface water. Subgrades should be crowned or sloped to prevent collection of water and a means of escape provided for runoff. Subgrades shall be sealed with a smooth-drum roller, or covered with a mud-mat of lean concrete or other easily removable materials if the possibility of precipitation arises. Positive site drainage should be provided throughout the construction area to reduce infiltration of surface water around the perimeter of the site.

Subgrade repairs or undercut resulting from the Contractor's failure to provide positive site drainage shall be the responsibility of the Contractor and shall be completed as ordered by the Engineer at no cost to the Owner.

25. SP Cost Breakdown – Lump Sum Items

A cost breakdown of all lump sum bid item costs shall be submitted to the Owner and Engineer for review a minimum of 10 days prior to the Preconstruction Meeting. Unless otherwise noted in the specifications, the cost breakdown schedule (Schedule of Values) will be the basis for determining the value of the monthly progress payment as applicable. The total value of all construction activities shall equal the total lump sum bid amount for that bid item.

26. SP Contract Time

The Contractor shall have the following contract time to complete the project:

- 100 Calendar Days

27. SP Liquidated Damages

Liquidated damages for failure to complete the project within the allotted contract time shall be as follows:

- Two Thousand Dollars ($2,000.00) per calendar day will be assessed against the Contractor for each calendar day or portion thereof that the total contract time is exceeded.

28. SP Submittals Schedule

The Contractor shall submit a detailed listing of all submittals and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

- Specification item number
- Item description
- Description of submittal
- Specification paragraph requiring submittal
- Scheduled date of submittal

29. SP Documentation

The Contractor shall maintain daily records of all work, inspections, and tests performed. These records shall include a summary of the work performed and factual evidence that the required inspections or tests (as applicable) have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviation, causes for rejection, etc.; proposed remedial action; and corrective action.

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 Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Project Superintendent.

30. SP Maintenance Bond

A maintenance bond in the amount of 20 percent of the Contractor's last pay request shall be obtained by the Contractor at the Contractors expense, upon due notice from the Contractor of presumptive completion of the entire project, final inspection and notice from the Engineer in writing of final acceptance as of the date of the final inspection. The maintenance bond shall be valid for a period of one (1) calendar year from the date of final acceptance of the project. The Maintenance Bond shall only be exercised by the Owner, should the Contractor fail to maintain the project area(s) as related to required BMP maintenance items such as seeding, mulching, erosion control, drainage inadequacies and unfinished punch list items that the Contractor willingly fails to maintain during the course of the 1-year maintenance period. This does not waive or relieve the Contractor of responsibility to correct defective work or repair damage caused by the Contractor or waive any other remedy to which the Owner is entitled at law or in equity.

The Owner shall notify the Contractor in writing within fourteen (14) calendar days prior to the expiration of the Maintenance Bond period their desire to exercise the Maintenance Bond in full force payable to the Owner. The Contractor shall then have fourteen (14) calendar days following the expiration date of the Maintenance Bond to notify the Owner in writing and remedy the deficiencies to the satisfaction of the Owner or be subject to the exercising of the Maintenance Bond in full force payable to the Owner.

31. SP Final Payment

The final ten percent (10%) of the contract value shall not be paid until the Owner receives final payment from the funding agency(s). This requires executing and submitting the final contractor pay request, final change order, certificate of substantial completion, warranty of construction, lien and claims release, and certificate of final acceptance. Once all final project documents are executed and submitted, the documents shall be submitted by the Owner to the funding agencies for final review and payment. Once final payment has been received by the Owner, the contractor shall receive final payment.

32. SP Bidders Notice

Bidders are hereby notified and agree by submission of their bid that should, after award of the contract, additional items not listed in the bid become necessary and require unit prices not established by their bid, that the unit prices of such items shall be negotiated and shall be directly proportional to the established unit prices of similar bid items.

33. SP Contractor's Application for Payment Form

The Contractor shall provide a Contractor's Application for Payment Form to submit for payment. At a minimum, the form shall include the following:

- Name of Project
- Name and address of Owner
- Name and address of Contractor
- Application number and date
- Applicable Project Numbers (Owner, Engineer, Contractor, etc.)
- Original contract amount
- Sum of approved change orders
- Total value of work completed to date
- Total value of materials stored on hand in accordance with Section 90-07 of the Specifications
- Amount retained in accordance with Section 90-06 of the Specifications
- Total amount earned to date
- Total amount received to date
- Amount currently due
- Balance to finish
- Contractor's Certification
- Line item for each bid item from the Bid Proposal with the following included:
    - Item No.
    - Specification No.
    - Description
    - Unit
    - Unit Price

    - Contract Quantity
    - Quantity this Request
    - Quantity to Date
    - Amount this Request
    - Amount to Date
- Total DBE participation to date
- Total DBE participation current application
- Signature blocks for the Contractor, Resident Project Representative (as applicable), and Engineer

The Contractor shall submit a draft Contractor's Pay Application Form prior to the Preconstruction Conference for review and approval prior to use.

34. SP Wage Rate Determination

The Contractor shall comply with the wage requirements of the State of New Mexico Department of Workforce Solutions. Wage determinations have been included under the Contract Forms section of this specification.

35. SP Trench Drain

This item shall consist of the installation of ~~slotted~~ trench drain systems installed in the locations shown on the plans. Trench drain grates and interior inverts shall follow the elevations indicated on the plans (levelor sloping). Drain systems shall be a commercially manufactured product specific to the purpose intended. Trench systems shall consist of a concrete or polymer concrete body and grates shall be ductile iron rated for a minimum H20 loading. Approved shop drawing required. A 4,000 PSI Concrete Mix Design is to be used in accordance with the most current version of the NMDOT Specifications for Highway and Bridge Construction, Section 450 - NM Portland Cement Concrete (PCCP).

Trench drain systems shall be mechanically anchored to the surrounding pavement with shear studs or other manufacturer-approved means. Where installed in new concrete, the concrete mix utilized in the surrounding pavement shall be utilized to backfill and install the trench drain system. Placement and bedding of the trench drain system shall be per the manufacturer's requirements.The trench drain system shall be terminated on the upstream and downstream ends as indicated on the plans. The cost of these terminations is included in the cost of the trench drain system. Refer to the plan details for additional details on the slotted trench drain installation.

The length of ~~slotted~~ trench drain system to be paid for shall be measured by the linear foot. This payment shall include all installation, parts, and miscellaneous items, plus any additional system length required for transitions, connections, terminations, or continuity of drainage to the next payable structure indicated on the plans.

Payment shall be made under:

Item 36.SP 12" Trench Drain – per linear foot

36. SP New Mexico Gross Receipts Tax

The Contractor shall **not** include the New Mexico Gross Receipts Tax (NMGRT) in their bid item unit prices. The Engineer will calculate the associated NMGRT based on the total awarded contract amount. The NMGRT will be paid as a part of each Contractor's pay request based on percentage of partial payment approved by the Engineer.

End of Special Provisions

Part 2 – General Construction Items

Item C-105 Mobilization

DESCRIPTION

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 20 percent of the total project cost. THE MOBILIZATION AMOUNT SHALL BE DOCUMENTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. ANY MOBILIZATION COSTS OVER THE STATED PERCENTAGE WILL BE PAID FOR ON AN AS-INCURRED BASIS. ANY NON-INCURRED COSTS WILL NOT BE PAID.

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 Engineer/RPR field office. An Engineer/RPR field office is not required.

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 as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation*, the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105 Mobilization

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

Part 3 – Sitework

Item P-101 Preparation/Removal of Existing Pavements

DESCRIPTION

101-1 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.

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Engineer. 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 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. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the Engineer.

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 OR AS DIRECTED BY THE ENGINEER. 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, THE ASPHALT PAVEMENT SHALL BE SCARIFIED AND SUFFICIENTLY BROKEN UP TO ALLOW THE MATERIAL TO BE PICKED UP AND HAULED TO THE ONSITE WASTE AREA.

c. Repair or removal of Base, Subbase, and/or Subgrade. Section not used.

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Section not used.

101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat, or remarking. Section not used.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair. Section not used.

101-3.5 Cold milling. Section not used.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Section not used.

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 Engineer. 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. Section not used.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Section not used.

101-3.10 Removal of Pipe and other ~~Buried~~ Structures.

a. Removal of Existing Pipe Material. Section not used.

b. Removal of Inlets/Manholes. Section not used.

c. Removal of Lights, Signs, and Systems. Section not used.

d. Miscellaneous Demolition. Any miscellaneous demolition items shown on the plans shall be demolished or removed, and all materials therefrom shall be removed from the site. The remaining or existing foundations, and all like structures, shall be destroyed by breaking out, or breaking down, the materials of which the foundations, etc., are built to a depth at least 2 feet below proposed subgrade elevations, bottom of foundation elevations, or the existing surrounding ground. All broken concrete, blocks, or other objectionable material shall be removed and disposed of off-site by the Contractor. The holes or openings shall be backfilled with acceptable material and properly compacted in accordance with P-152.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. Pavement removal SHALL NOT BE MEASURED BUT SHALL BE CONSIDERED INCIDENTAL TO ITEM D-701 AND ITEM D-751.

101-4.2 Joint and crack repair. Not required.

101-4.3 Removal of Foreign Substances/contaminates. Not required.

101-4.4 Spalled and failed asphalt pavement repair. Not required.

101-4.5 Concrete Spall Repair. Not required.

101-4.6 Cold milling. Not required.

101-4.7 Removal of Existing Pipe Material. Not required.

101-4.8 Removal of Inlets/Manholes/Handholes. Not required.

101-4.9 Removal of Lights, signs, and systems. Not required.

101-4.10 Miscellaneous demolition. ~~The unit of measurement for miscellaneous demolition shall be lump sum. Miscellaneous demolition is demolition that is not otherwise specified in this section as a pay item.~~ MISCELLANEOUS DEMOLITION SHALL BE INCIDENTAL TO THE PROJECT COST.

BASIS OF PAYMENT

101-5.1 Payment. ~~Payment shall be made at the 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,~~ **REMOVAL**~~, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.~~ PAVEMENT REMOVAL AND MISCELLANEOUS DEMOLITION ARE INCIDENTAL TO THE PROJECT COST. NO PAYMENT WILL BE MADE.

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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Part 8 – Surface Treatments

Item P-608 Emulsified Asphalt Seal Coat

DESCRIPTION

608-1.1 This item shall consist of the application of a emulsified asphalt surface treatment composed of an emulsion of natural and refined asphalt materials, water and a polymer additive, for taxiways and runways with the application of a suitable aggregate to maintain adequate surface friction; and airfield secondary and tertiary pavements including low-speed taxiways, shoulders, overruns, roads, parking areas, and other general applications with or without aggregate applied as designated on the plans. The terms seal coat, asphalt sealer, and asphalt material are interchangeable throughout this specification. The term emulsified asphalt means an emulsion of natural and refined asphalt materials.

MATERIALS

608-2.1 Aggregate. The aggregate material shall be a dry, clean, dust and dirt free, sound, durable, angular shaped manufactured specialty sand, such as that used as an abrasive, with a Mohs hardness of 6 to 8. The Contractor shall submit the specialty sand manufacturer's technical data and a manufacturer's Certificate of Analysis (COA) indicating that the specialty sand meets the requirements of the specification to the Engineer prior to start of construction. The sand must be approved for use by the Engineer and shall meet the following gradation limits when tested in accordance with ASTM C136 and ASTM C117:

Aggregate Material Gradation Requirements[1]

Sieve Designation (square openings)	Individual Percentage Retained by Weight
No. 10 (2.00 mm)	0
No. 14 (1.41 mm)	0-4
No. 16 (1.18 mm)	0-8
No. 20 (850 µm)	0-35
No. 30 (600 µm)	20-50
No. 40 (425 µm)	10-45
No. 50 (300 µm)	0-20
No. 70 (212 µm)	0-5
No. 100 (150 µm)	0-2
No. 200 (75 µm)	0-2

1 Locally available sand or abrasive material that is slightly outside of the gradation requirements may be approved by the Engineer with concurrence by the seal coat manufacturer for the use of locally available sand or abrasive material. The Engineer and manufacturer's field representative should verify acceptance during application of Control strips indicated under paragraph 608-3.2.

The Contractor shall provide a certification showing particle size analysis and properties of the material delivered for use on the project. The Contractor's certification may be subject to verification by testing the material delivered for use on the project.

608-2.2 Asphalt Emulsion. The asphalt emulsion shall meet the properties in the following table:

Concentrated Asphalt Emulsion Properties

Properties	Specification	Limits
Viscosity, Saybolt Furol at 77°F	ASTM D7496	20 – 100 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	57% minimum
Sieve Test	ASTM D6933	0.1% maximum
24-hour Stability	ASTM D6930	1% maximum
5-day Settlement Test	ASTM D6930	5.0% maximum
Particle Charge[1]	ASTM D7402	Positive 6.5 maximum pH

1 pH may be used in lieu of the particle charge test which is sometimes inconclusive in slow setting, asphalt emulsions.

The asphalt material base residue shall contain not less than 20% gilsonite, or uintaite and shall not contain any tall oil pitch or coal tar material and shall contain no less than one percent (1%) polymer.

Tests on Residue from Distillation or Evaporation

Properties	Specification	Limits
Viscosity at 275°F (135°C)	ASTM D4402	1750 cts maximum
Solubility in 1, 1, 1 trichloroethylene	ASTM D2042	97.5% minimum
Penetration	ASTM D5	50 dmm maximum
Asphaltenes	ASTM D2007	15% minimum
Saturates	ASTM D2007	15% maximum
Polar Compounds	ASTM D2007	25% minimum
Aromatics	ASTM D2007	15% minimum

The asphalt emulsion, when diluted in the volumetric proportion of two parts concentrated asphalt material to one part hot water shall have the following properties:

Two-to-One Dilution Emulsion Properties

Properties	Specification	Limits
In Ready-to-Apply Form, two parts concentrate to one part water, by volume		
Viscosity, Saybolt Furol at 77°F (25°C)	ASTM D7496	5 – 50 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	38% minimum
Pumping Stability[1]	--	Pass

1 Pumping stability is tested by pumping one pint (475 ml) of seal coat diluted one (1) part concentrate to one (1) part water, at 77°F (25°C), through a 1/4-inch (6 mm) gear pump operating 1750 rpm for 10 minutes with no significant separation or coagulation.

The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt delivered to the project. If the asphalt emulsion is diluted at other than the manufacturer's facility, the Contractor shall provide a supplemental COA from an independent laboratory verifying the asphalt emulsion properties.

The COA shall be provided to and approved by the Engineer before the emulsified asphalt is applied. The furnishing of the vendor's certified test report for the asphalt material shall not be interpreted as a basis

for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

The asphalt material storage and handling temperature shall be between 50°F - 160°F (10°C - 70°C) and the material shall be protected from freezing, or whenever outside temperature drops below 40°F (4°C) for prolonged time periods.

Contractor shall provide a list of airport pavement projects, exposed to similar climate conditions, where this product has been successfully applied within at least 5 years of the project.

608-2.3 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. Water used in making and diluting the emulsion shall be potable, with a maximum hardness of 90ppm calcium and 15ppm magnesium; deleterious iron, sulfates, and phosphates maximum 7ppm, and less than 1ppm of organic byproducts. Water shall be a minimum of 140°F (60°C) prior to adding to emulsion.

608-2.4 Polymer. The polymer shall meet the properties in the following table:

Polymer Properties

Properties	Limits
Solids Content	47% to 65%, Percent by Weight
Weight	8.0 to 9.0 pounds/gallon (1.07 to 1.17 kg/L)
pH	3.0 to 8.0
Particle Charge	Nonionic/Cationic
Mechanical Stability	Excellent
Film Forming Temperature, °C	+5°C, minimum
Tg, °C	22°C, maximum

The manufacturer shall provide a copy of the Certificate of Analysis (COA) for the polymer used in the seal coat; and the Contractor shall include the COA with the emulsified asphalt COA when submitting to the Engineer.

608-2.5 Seal Coat with Aggregate. The Contractor shall submit friction test data from no less than one of the airport projects identified under 608-2.2. The test data must be from the same project and include technical details on application rates, aggregate rates, and point of contact at the airport to confirm use and success of sealer with aggregate.

Friction test data in accordance with AC 150/5320-12, at 40 or 60 mph wet, must include as a minimum; the friction value prior to sealant application; two values, between 24 and 96 hours after application, with a minimum of 24 hours between tests; and one value between 180 days and 360 days after the application. The results of the tests between 24 and 96 hours shall indicate friction is increasing at a rate to obtain similar friction value of the pavement surface prior to application, and the long-term test shall indicate no apparent adverse effect with time relative to friction values and existing pavement surface.

Seal coat material submittal without required friction performance will not be approved. Friction tests performed on this project cannot be used as a substitute of this requirement.

COMPOSITION AND APPLICATION RATE

608-3.1 Application Rate. The approximate amounts of materials per square yard (square meter) for the asphalt surface treatment shall be as provided in the table for the treatment area(s) at the specified dilution rate(s) as noted on the plans. The actual application rates will vary within the range specified to suit field

conditions and will be recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation.

Application Rate

Dilution Rate	Quantity of Emulsion gal/yd^2	Quantity of Aggregate lb/yd^2
2:1	0.08-0.17	0.20-0.50

608-3.2 Control areas and control strips. Prior to full application, the control strip must be accepted by the Engineer. The surface preparation, personnel, equipment, and method of operation used on the test area(s) and control strip(s) shall be the same as used on the remainder of the work.

A qualified manufacturer's representative shall be present in the field to assist the Contractor in applying control areas and/or control strips to determine the appropriate application rate of both emulsion and aggregate to be approved by the Engineer.

A test area(s) and control strip(s) shall be applied for each differing asphalt pavement surface identified in the project. The test area(s) and control strip(s) shall be used to determine the material application rate(s) of both emulsion and sand prior to full production.

a. For taxiway, taxilane and apron surfaces. Prior to full application, the Contractor shall place test areas at varying application rates as recommended by the Contractor's manufacturer's representative to determine appropriate application rate(s). The test areas will be located on representative section(s) of the pavement to receive the asphalt surface treatment designated by the Engineer.

b. For runway and high-speed exit taxiway surfaces. Section not used.

If the control strip should prove to be unsatisfactory, necessary adjustments to the application rate, placement operations, and equipment shall be made. Additional control strips shall be placed and additional skid resistance tests performed and evaluated. Full production shall not begin without the Engineer's approval of an appropriate application rate(s). Acceptable control strips shall be paid for in accordance with paragraph 608-8.1.

CONSTRUCTION METHODS

608-4.1 Worker safety. The Contractor shall obtain a Safety Data Sheet (SDS) for both the asphalt emulsion product and sand and require workmen to follow the manufacturer's recommended safety precautions.

608-4.2 Weather limitations. The asphalt emulsion shall be applied only when the existing pavement surface is dry and when the weather is not foggy, rainy, or when the wind velocity will prevent the uniform application of the material. No material shall be applied in strong winds that interfere with the uniform application of the material(s), or when dust or sand is blowing or when rain is anticipated within eight (8) hours of application completion. The atmospheric temperature and the pavement surface temperature shall both be at, or above 60°F (16°C) and rising. Seal coat shall not be applied when pavement temperatures are expected to exceed 130ºF within the subsequent 72 hours if traffic will be opened on pavement within those 72 hours. During application, account for wind drift. Cover existing buildings, structures, runway edge lights, taxiway edge lights, informational signs, retro-reflective marking and in-pavement duct markers as necessary to protect against overspray before applying the emulsion. Should emulsion get on any light or marker fixture, promptly clean the fixture. If cleaning is not satisfactory to the Engineer, the Contractor shall replace any light, sign or marker with equivalent equipment at no cost to the Owner.

608-4.3 Equipment and tools. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Pressure distributor. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour (13 km per hour) or seven hundred (700) feet per minute (213 m per minute). The equipment will be tested under pressure for leaks and to ensure proper set-up before use. The Contractor will provide verification of truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application per nozzle manufacturer, spray-bar height and pressure and pump speed appropriate for the viscosity and temperature of sealer material, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a 12-foot (3.7-m), minimum, spray bar with individual nozzle control. The distributor truck shall be capable of specific application rates in the range of 0.05 to 0.25 gallons per square yard (0.15 to 0.80 liters per square meter). These rates shall be computer-controlled rather than mechanical. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy.

The distributor truck shall effectively heat and mix the material to the required temperature prior to application in accordance with the manufacturer's recommendations.

The distributor shall be equipped with a hand sprayer to spray the emulsion in areas not accessible to the distributor truck.

b. Aggregate spreader. The asphalt distributor truck will be equipped with an aggregate spreader mounted to the distributor truck that can apply sand to the emulsion in a single pass operation without driving through wet emulsion. The aggregate spreader shall be equipped with a variable control system capable of uniformly distributing the sand at the specified rate at varying application widths and speeds. The aggregate spreader must be adjusted to produce an even and accurate application of specified aggregate. Prior to any seal coat application, the aggregate spreader will be calibrated onsite to ensure acceptable uniformity of spread. The Engineer will observe the calibration and verify the results. The aggregate spreader will be re-calibrated each time the aggregate rate is changed either during the application of test strips or production. The Contractor may consult the seal coat manufacturer representative for procedure and guidance. The sander shall have a minimum hopper capacity of 3,000 pounds (1361 kg) of sand. Push-type hand sanders will be allowed for use around lights, signs and other obstructions, if necessary.

c. Power broom/blower. A power broom and/or blower shall be provided for removing loose material from the surface to be treated.

d. Equipment calibration. Asphalt distributors must be calibrated within the same construction season in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the Engineer.

608-4.4 Preparation of asphalt pavement surfaces. Clean pavement surface immediately prior to placing the seal coat so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film. Remove oil or grease from the asphalt pavement by scrubbing with a detergent, washing thoroughly with clean water, and then treat these areas with a spot primer. Any additional surface preparation, such as crack repair, shall be in accordance with Item P-101, paragraph 101-3.6.

a. New asphalt pavement surfaces. Allow new asphalt pavement surfaces to cure so that there is no concentration of oils on the surface.

Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. (Cast approximately one gallon (4 liters) of clean water out over the surface. The water should sheet out and wet the surface uniformly without crawling or showing oil rings.) If signs of crawling or oil rings are apparent on the pavement surface, additional time must be allowed for additional curing and retesting of the pavement surface prior to treatment.

608-4.5 Emulsion mixing. The application emulsion shall be obtained by blending asphalt material concentrate, water and polymer, if specified. Always add heated water to the asphalt material concentrate, never add asphalt material concentrate to heated water. Mix one part heated water to two parts asphalt material concentrate, by volume.

Add 1% polymer, by volume, to the emulsion mix. If the polymer is added to the emulsion mix at the plant, submit weight scale tickets to the Engineer. As an option, the polymer may be added to the emulsion mix at the job site provided the polymer is added slowly while the asphalt distributor truck circulating pump is running. The mix must be agitated for a minimum of 15 minutes or until the polymer is mixed to the satisfaction of the Engineer.

608-4.6 Application of asphalt emulsion. The asphalt emulsion shall be applied using a pressure distributor upon the properly prepared, clean and dry surface at the application rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for each designated treatment area. The asphalt emulsion should be applied at a temperature between 130°F (54°C) and 160°F (70°C) or in accordance with the manufacturer's recommendation.

If low spots and depressions greater than 1/2 inch (12 mm) in depth in the pavement surface cause ponding or puddling of the applied materials, the pavement surface shall be lightly broomed with a broom or brush type squeegee until the pavement surface is free of any pools of excess material.

During all applications, the surfaces of adjacent structures shall be protected to prevent their being spattered or marred.

608-4.7 Application of aggregate material. Immediately following the application of the asphalt emulsion, friction sand at the rate recommended by the manufacturer's representative and approved by the Engineer from the test area/sections evaluation for each designated application area, shall be spread uniformly over the asphalt emulsion in a single-pass operation simultaneous with the sealer application. The aggregate shall be spread to the same width of application as the asphalt material and shall not be applied in such thickness as to cause blanketing.

Sprinkling of additional aggregate material, and spraying additional asphalt material over areas that show up having insufficient cover or bitumen, shall be done by hand whenever necessary. In areas where hand work is necessitated, the sand shall be applied before the sealant begins to break.

Minimize aggregate from being broadcast and accumulating on the untreated pavement adjacent to an application pass. Prior to the next application pass, the Contractor shall clean areas of excess or loose aggregate and remove from project site.

QUALITY CONTROL (QC)

608-5.1 Manufacturer's representation. The manufacturer's representative, knowledgeable of the material, procedures, and equipment described in the specification, is responsible to assist the Contractor and Engineer in determining the appropriate application rates of the emulsion and aggregate, as well as recommendations for proper preparation and start-up of seal coat application. Documentation of the

manufacturer representative's experience and knowledge for applying the seal coat product shall be furnished to the Engineer a minimum of 10 work days prior to placement of the control strips. The cost of the manufacturer's representative shall be included in the Contractor's bid price.

608-5.2 Contractor qualifications. The Contractor shall provide documentation to the Engineer that the seal coat Contractor is qualified to apply the seal coat, including personnel, and equipment, and has made at least three (3) applications similar to this project in the past two (2) years.

MATERIAL ACCEPTANCE

608-6.1 Application rate. The rate of application of the asphalt emulsion shall be verified at least twice per day.

608-6.2 Friction tests. Section not used.

METHOD OF MEASUREMENT

608-7.1 Asphalt surface treatment. The quantity of asphalt surface treatment shall be measured by the square yards of material applied in accordance with the plans and specifications and accepted by the Engineer.

The Contractor must furnish the Engineer with the certified weigh bills when materials are received for the asphalt material used under this contract. The Contractor must not remove material from the tank car or storage tank until initial amounts and temperature measurements have been verified.

BASIS OF PAYMENT

608-8.1 Payment shall be made at the contract unit price per square yard for the asphalt surface treatment applied and accepted by the Engineer~~, and the contract unit price per lump sum for runway friction testing~~. This price shall be full compensation for all surface preparation, furnishing all materials, delivery and application of these materials, for all labor, equipment, tools, and incidentals necessary to complete the item and any costs associated with furnishing a qualified manufacturer's representative to assist with control strips.

Payment will be made under:

Item P-608-8.1 Asphalt Surface Treatment – 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	Standard Test Method for Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D5	Standard Test Method for Penetration of Asphalt Materials

ASTM D244	Standard Test Methods and Practices for Emulsified Asphalts
ASTM D2007	Standard Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method
ASTM D2042	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene
ASTM D2995	Standard Practice for Estimating Application Rate of Bituminous Distributors
ASTM D4402	Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
ASTM D5340	Standard Test Method for Airport Pavement Condition Index Surveys

Advisory Circulars (AC)

AC 150/5320-12	Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces
AC 150/5320-17	Airfield Pavement Surface Evaluation and Rating (PASER) Manuals
AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements

END OF ITEM P-608

Part 9 – Miscellaneous

ITEM M-107 AVIATION BARRICADES

DESCRIPTION

107-1.1 Aviation barricades shall be furnished by the Contractor and placed and maintained as shown on the plans or as ordered by the Engineer. The aviation barricades shall be installed when ordered by the Engineer. The aviation barricades shall remain in-place, clearly visible, until ordered removed by the Engineer. Flashing or steady burning red lights shall be placed on the barricades for nighttime use. Aviation barricades shall be placed a maximum of four (4) feet apart.

MATERIALS

107-2.1 Materials shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), with the New Mexico State Department of Transportation, Standard Specifications for Highway and Bridge Construction, Latest Edition, or as shown on the plans.

METHOD OF MEASUREMENT

107-3.1 Aviation barricades shall be measured per linear foot of the area barricaded including spaces between the barricades. No separate measurement will be made for relocation of the aviation barricades.

BASIS OF PAYMENT

107-4.1 The accepted quantity of aviation barricades will be paid for at the contract unit price per linear foot. The price shall be full compensation for furnishing all materials, labor and incidentals, necessary to install, inspect and maintain the barricades for the duration of the project.

Payment will be made under:

Item M-107-4.1 Aviation Barricades – per linear foot

END OF ITEM M-107

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ITEM M-108 T-HANGAR

DESCRIPTION

108-1.1 This item shall consist of furnishing all equipment, materials, utility services, labor, and incidentals necessary to supply, construct, and place into operation as a completed unit a 8-unit nested T-Hangar building to the satisfaction of the Owner. The building(s) shall be furnished and installed in accordance with the design, dimensions, and details as shown on approved plans as submitted by the Contractor, which meet the minimum specifications as outlined below. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the T-Hangar in operation as a completed unit to the satisfaction of the Engineer.

The Contractor shall submit to the Engineer for review a set of plans sealed by a professional engineer registered and licensed in New Mexico. These plans shall be in compliance with the 2021 International Building Code and shall have as minimum standards the items outlined in the following specifications. The building(s) shall be constructed in accordance with the design, dimensions, and details as shown on the plans submitted by the Contractor.

The Contractor shall provide a list of any special inspections required, and all inspections shall be completed by an International Code Council certified inspector.

Materials shall match to the maximum extent possible the existing hangars located in the vicinity of this project.

Upon completion of the hangar building, Contractor shall furnish the Owner two (2) hard copies and an electronic document (PDF) of operating and maintenance manuals for all equipment installed under this item, and shall provide a listing of all equipment with make, model and serial number.

EQUIPMENT AND MATERIALS

108-2.1 General. 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 Engineer.

The Contractor shall install the approved T-Hangar at the specified location as shown on the plans.

When items are required to be painted or repainted it shall be of the color selected by the Owner.

108-2.2 Dimensions. All T-Hangars shall be constructed in a nested configuration able to accommodate single and light twin engine aircraft. At a minimum, each unit shall have a total depth of 33 feet; a wing depth of 21 feet; and a tail width of 20 feet. The clear door opening shall be 41 feet, 6 inches wide, 12 feet high. The end units of the T-Hangar shall be squared off as shown on the plans to provide a clean, neat line.

The Contractor shall install all garage style doors and pedestrian doors as shown on the plans and as required by local, state, and national building codes.

108-2.3 Building Foundations. The Contractor shall include in the bid proposal, all costs for providing an engineered foundation plan design sealed by an engineer licensed in the state of New Mexico for the pre-engineered metal building proposed and installation of all required foundation work such as, but not limited to, excavation, concrete work, forms, anchor bolts, hairpins, or other thrust devices, etc.

The Contractor shall submit to the Engineer a foundation plan, completely dimensioned and detailed in all aspects including foundation elevations and design loads to accommodate the proposed metal building and related work.

A report of the geotechnical investigation completed during the design phase is included in the appendix to these specifications. Additional geotechnical investigation may be required to complete the foundation design.

Foundation design is subject to review and approval by the New Mexico Regulation and Licensing Department - Construction Industries Division (CID). Bid price shall include the costs to complete the design and approval process.

108-2.4 Design Codes. Frames and other welded members shall be designed in accordance with the requirements of the American Institute of Steel Construction "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings," current edition.

All welding shall conform to the requirements of the American Welding Society. All welders shall be certified for the type of weld performed.

Light gauge cold-formed members shall be designed in accordance with the requirements of American Iron and Steel Institute "Specifications for the Design of Light Gauge Cold-Formed Steel Structural Members," current edition.

The building shall be designed in accordance with the latest requirements of the Americans With Disabilities Act – Accessibility Guidelines for Buildings and Facilities. At a minimum two (2) units shall be designed to accommodate individuals with disabilities.

The building shall be designed and constructed in accordance with the requirements of The 2021 Edition of the International Building Code (IBC), International Fire Code (IFC), and International Energy Code (IEC), as adopted by the local building authority with jurisdiction.

The building and foundation design shall conform to requirements for Seismic Zone C.

108-2.5 Materials. Flange materials for built up sections shall be fabricated from material having a minimum yield stress of 50,000 psi. Structural steel members (rolled or built-up section) shall be fabricated from material having a minimum yield stress of 36,000 psi and conform to ASTM A36.

All light gauge cold-formed structural members shall be fabricated from steel having a minimum yield stress of 50,000 psi.

High tensile bolts shall conform to the requirements of ASTM A-325-71a. Bolts shall be electrogalvanized plated followed by supplementary standard shop paint.

Machine bolts shall conform to the requirements of ASTM A-307-68. Bolts shall be electrogalvanized plated.

Galvanized steel shall conform to the requirements of ASTM A-525-71. The class of zinc coating shall be 1.25 ounces per square foot.

Diagonal brace rods shall be fabricated from steel conforming to the requirements of ASTM A-36-70a. All diagonal cable shall be fabricated from galvanized seven (7) wire strand extra high strength grade with a minimum guaranteed proof load.

108-2.6 Wall and Roof Coverings. Wall panels shall be pre-painted on both sides (prime color exterior finish/whitewash interior finish). Roof panels shall be Galvalumed on both sides. Standard material thickness shall be 26 gauge minimum.

Wall panels shall have a minimum end lap of four inches. Roof panels shall have a minimum end lap of six (6) inches. End laps shall occur only over a purlin or girt.

The ridge of the building shall be made weather tight by the use of die-formed ridge panels. The ridge panels shall have the same standard rib configuration as the roof panel. Auxiliary ribs may be added in the center of the ridge panel to aid in the forming process.

Gable ends of the building shall be made weather tight by use of a rake trim conforming in cross section to that shown on the approved plans. The trim shall be pre-painted. At the eave, the rake trim shall be closed at the end with a plastic closure conforming in cross section and color to the rake trim.

The corner trim shall be a 90-degree formed trim to match the color of end wall panels.

Standard mastic shall be pre-formed bead type meeting or exceeding Military Specification MIL-C-18969, Type 2, Grade B.

At roof side laps, a permanently pliable three-sixteenths inch bead of mastic shall be placed in the mastic groove of the under lapping rib in a bead of constant cross section to insure continuous contact of the mastic with the upper and lower panels.

At roof end laps two, three-sixteenths inch permanently pliable mastic shall be applied one inch (1") on center as shown on the plans. Standard finish for wall covering shall be colors as selected by the Engineer from the manufacturer's standard color.

Base angle shall be 18-gauge material pre-painted.

Base angle for side wall shall be 14-gauge minimum cold-formed angles fabricated from unpainted steel and prime painted.

108-2.7 Fasteners. Wall panel side lap fasteners shall be blind rivets or self-tapping screws, colored to match panel color.

108-2.8 Paint. All steel surfaces of the structural framework shall be cleaned conforming to the requirements of Steel Structures Painting Council Specification SSPC-SP-2, and one shop coat of rust inhibiting zinc primer shall be applied. The paint shall be comparable to the performance requirements of Federal Specification TT-P-636D, and MIL-P-8585A. The primer coat thickness shall be 2.5 mil average. Second coat (finish coat) shall be zinc, 3.5 mils, color as selected by the Engineer.

After erection of the structural framework, all **burned and damaged areas** shall be thoroughly cleaned and touched up with the same finish coat.

The metal exterior shall be given a pre-treatment prior to finishing consisting of cleaning and chemical reaction to an inorganic coating on the metal surface. After proper cleaning and preparation, a zinc chromate pigmented bond coat shall be applied to the exterior side at a thickness no less than 0.15 mil (dried and cured). The final color coat shall be a siliconized polyester color applied at a thickness of 1.0 mil. Other exterior finishes will be accepted. Independent of the finish, the manufacturer shall warrant the coating will not blister, peel, crack, or chip or experience rust through for a period of 20 years. The exterior color shall match to the maximum extent possible the exterior color of the existing T-Hangars located in the vicinity of the project.

Contractor shall confirm the Owner's selection of paint color with Engineer prior to painting or repainting any item associated with this project.

108-2.9 Electric Bi-Fold Doors. Electric bi-fold doors for nested T-Hangar shall be sized to match the T-Hangar provided with a minimum clear opening of forty-one foot six inches (41' 6") wide by twelve foot (12') high. The door shall conform to the specifications of those bi-fold doors manufactured by Wilson Industrial Doors, Inc., P.E. Box 372, Elkhorn, Wisconsin 53121; Fulfab, Inc.; Erect-A-Tube, Inc.; or an

approved equivalent. Each bi-fold door shall have a three foot (3') x six foot eight inches (6'8") (min.) passage service door with cylinder type lock set. The passage door locks shall be keyed different but shall have a master key to fit all doors. The master key shall match the airports master key system. Operating motor shall be 120 VAC, 60 Hz.

108-2.10 Garage Style Roll-Up Doors. Roll-up style "garage doors" constructed of similar materials and of comparable quality as the proposed electric bi-fold doors shall be installed at the general locations shown on the plans. These doors shall have electronic openers capable of being activated through remote control. Each roll-up door shall be set to separate remote frequencies enabling the doors to be operated independently. The Contractor shall supply two (2) remote controls for each roll-up door. When open, these doors shall provide a twelve foot (12') wide by ten foot (10') high opening. In addition, three foot (3') wide by six foot eight inches (6'8") high passage doors shall be provided to provide access and satisfy local fire code regulations. At a minimum, two (2) passage doors shall be provided. These passage doors shall be keyed different from the other passage doors but shall also be keyed for the master key. Operating motors shall be 120 VAC, 60 Hz.

108-2.11 ADA Accessible Doors. When required by code or when required by Owner, ADA accessible doors shall be installed. The doors shall meet the latest requirements of the American Disabilities Act. Materials used to construct the doors shall be comparable to that of all other doors installed on the project.

108-2.12 Wall Partitions. Interior wall partitions between T-hangar units shall be full length, floor to ceiling high partitions. Interior wall partitions of end units shall be full length, full heigh partitions. Partition sheets shall be 26 gauge (minimum) galvanized steel in pressed rib form.

108-2.13 Lock Sets. Keyed doors shall be furnished with a cylindrical lock conforming to Federal Specification FF-H-106a, Series 160 with a U.S. 10 finish and full mortised hinges conforming to Federal Specification No. T2127 with U.S. Prime finish.

108-2.14 Roof Ventilators. Roof ventilators shall be of the continuous type with a throat diameter of six (6) inches minimum. Ventilator shall be configured to prevent rainwater from entering the building. Ventilator shall consist of ten (10) foot section. Ventilators shall be spaced forty feet six inches (40'6") maximum center-to-center. One ventilator shall be installed at each hangar bay and maintenance end unit. Ventilators shall be installed with preformed closure strips and permanently pliable mastic. Finish shall be galvanized both sides or pre-painted on both sides to match exterior wall panels.

108-2.15 Insulation. Contractor shall comply with all applicable provisions of the International Energy Code and ASHRAE 90.1.

108-2.16 Electrical Equipment/Power Supply. All work shall be completed in strict accordance with all rules and regulations of the National Electrical Code (NEC) latest edition and all other appropriate State and Local electrical codes. Where various codes conflict, the most restrictive code shall apply.

a. Panelboards The panelboards shall be of the deadfront, automatic circuit breaker type utilizing bolt-in type breakers having equivalent frame sizes to accommodate the design loads for the facility. In addition, each obstruction light should be placed on its own circuit, if obstruction lights are required. All breakers shall be of the quick make, quick break type as manufactured by ABB/GE, Square D, Cutler-Hammer, or equivalent.

The breakers shall be trip free, with inverse time characteristics secure through the use of a thermal element supplemented by a magnetic trip. Automatic tripping on overload of short circuit shall be clearly indicated by operating handle assuming a mid-position between the "ON" and "OFF" position. All two and three pole breakers shall be common trip. For switchboards and distribution panels 800 amps or larger, circuit breakers of 100-amp frame size and smaller shall have non-interchangeable trips; larger frame size circuit breakers shall have interchangeable trips.

The main phase bus shall be clearly marked and the phase to which each single pole breaker is connected is to be indicated, with the markings to be on or near the terminal plates and not on any parts which are removed for wiring the panel.

Cabinets shall provide gutter space meeting code requirements, increasing as required where sub-feed, feed-through lugs, taps, or oversized lugs are provided. Panel fronts shall be of cold rolled steel in accordance with gauges required by UL except in no case shall sheet steel less than 12 gauge be used. Doors shall be fastened to trim by flush concealed hinges and equipped with a flush type combination catch and lock. Two (2) milled type keys shall be provided with each panel, and all locks shall be keyed alike. Trim shall be equipped with a neat directory frame secured to the inside of the door. Trim shall be properly cleaned and finished with one rust inhibiting priming coat and a finish coat of manufacturer's standard gray.

All main and branch circuit busing shall be copper. All main bus and back pans shall be designed so that branch circuit breakers may be changed or added without additional machining, drilling or tapping.

The panelboards shall bear the UL label and, if requested by the Engineer, a sample panel shall be submitted for examination prior to approval.

The bracing and AIC rating of the main and branch breakers, lugs, special features, etc., of the panelboards shall not be less than the available fault current at the installed location.

The panelboards shall be equipped with ground and insulated neutral bars.

b. Power Supply/Utility Coordination. The Contractor shall coordinate with the local electrical company regarding the service. Only underground service will be acceptable. The Contractor shall coordinate and provide all installation. The Owner will pay all connection fees.

108-2.17 Designation Of Circuits And Equipment. Circuit designations in the panelboards shall consist of neatly typewritten cards placed under clear plexiglass in the directory holder of each panelboard. These cards shall indicate the nature and locations of loads served by each circuit as per the Contractor-supplied plans drawings.

Each panelboard and each item number and/or circuit number in the panelboards and control panels, including switches, pilot lights, and control devices located thereon, shall be properly identified by means of laminated black and white plastic nameplates.

All feeders at panelboards, pull boxes and terminal points shall be properly color coded by means of colored insulation or vinyl tape. Remote control wiring shall be identified at the point of origin, pull boxes, junction boxes, and at the remote-control points by means of appropriate wire markers. These wire markers shall be numbered by all temperature self-sticking, vinyl cloth markers as manufactured by the W. H. Brady Co., Ideal, Thomas and Betts, or equivalent.

108-2.18 Feeders. Furnish and install all conduit and cable type feeders. Feeders shall be of the sizes required by code, or as shown on the Contractor-supplied plans, whichever is greater.

All feeders, insofar as practical, shall have conductors run continuous, without splices, between terminal points on each end of run.

Vertical risers shall have cable supports of the proper design, equal to o.z., Type “M”, where required by the NEC.

108-2.19 Conduit. All interior wiring shall be installed in electrical metallic tubing with compression fittings. Threaded rigid metal conduit shall be hot dip galvanized.

Conduit installed in unexcavated areas of the building shall be hop dip galvanized rigid conduit with threaded couplings.

Exposed runs of conduit shall be properly grouped and installed parallel with wall, ceiling and floor lines being suitably supported by clamps, hangers, etc. Exposed conduits shall not be installed on the floor.

Conduit shall be installed as a complete system without conductors and shall be continuous from outlet and from fitting to fitting, being mechanically and electrically connected to all boxes, fittings, wireways, etc., and shall be properly grounded.

Conduit shall be sized to equal or exceed the minimum requirements of the NEC. Branch circuit home runs shall not be less than one half inch (½") in size.

All conduits passing through walls, footings or beams below grade shall be grouted around conduit to assure water tightness.

108-2.20 Hangers And Supports. All required hangers, supports, clamps, sleeves, etc., required for the installation of the electrical work are included as a part of the work of the Section.

All horizontal runs of conduit shall be properly grouped and hung to true alignment using substantial and appropriate hangers, clamps, etc. Hanger and supports shall be placed at intervals in accordance with the National Electrical Code.

108-2.21 Wire And Cable. Low Voltage – 600 Volt Class:

a. Furnish and install all wire and cable of AWG sizes as required for the complete installation, in accordance with the applicable provisions of the NEC.

b. All wire and cable shall be insulated for 600 volts and shall be single conductor conforming to the requirements hereinafter set forth, equal to Anaconda, General Cable, General Electric, Phelps, Dodge, Triange or Okonote. All conductors No. 8 and larger shall be multiple stranded.

c. All conductors shall be copper.

d. All feeder and branch circuit wiring shall be Type THWN/THHN or THWN/THHN-2 except where ambient temperature conditions require the use of insulations having a higher temperature rating, and XHHW-2 if installed underground.

e**.** Wire sizes shall be as shown on the Contractor supplied plans with minimum sizes in accordance with NEC.

f. Conductors shall be continuous with splices made only in junction boxes and in pull boxes only as required to meet certain conditions.

g. Each coil of wire shall be delivered to the job in its original package bearing the UL label. Wire shall be marked with size and type every two (2) feet. The neutral and each phase wire shall be furnished with different color insulation in sizes up to and including No. 6AWG. Sizes No. 4 and larger may be provided in black if identified by a series of two (2) or more colored bands completely encircling the conductors, located at or near each terminal point in all junction boxes and at other points so designated by the inspecting authority. Colored bands shall not be less than one quarter inch (1/4") nor more than two (2) conductor diameters in width, whichever is greater. The same color shall be used for each phase wire throughout the system for all three (3) phase and feeders circuits.

h. Conductors No. 10 and 12 AWG shall be connected with pre-insulated spring connector encased in a steel shell and rated at not less than 105 deg. C. The connector shall have an insulated vinyl cap with a minimum 3/8-inch skirt to cover the bare wires.

i. Splices and taps in conductors No. 8 AWG and larger shall be made with solderless connectors, as manufactured by Burndy or Thomas and Betts.

108-2.22 Junction Boxes. The junction boxes shall be of one-piece type construction of a type and size applicable as required by the NEC. Boxes shall be Appleton, Steel City, or approved equal.

The junction boxes shall be of a type and size applicable for the intended use. Only steel or cast iron boxes will be permitted. Covers for use with these boxes shall have cadmium plated finish and shall be of the rounded edge design with openings to suit devices. Where the general arrangement and number of conduits prohibit the use of a single box, additional boxes shall be used as junction boxes, and they shall be of the same general design as the outlet boxes. Such boxes shall be Crouse-Hinds, Appleton, Pyle-National or approved equal.

Capacity shall be incorporated into the building electrical system to provide for the anticipated expansion.

108-2.23 Individual Power Supply And Lighting. An FAA obstruction light shall be placed on the south end of each hangar in accordance with Specification Item L-119. A separate breaker shall be provided for each light.

Each hangar unit shall have as a minimum one (1) ground fault interrupter duplex receptacle, 125V, 20 Amps. This outlet shall be located in proximity of the overhead door operator.

All electrical switches, receptacles, and other devices shall be mounted not less than 36" above the finished floor.

Exterior Security Lights shall be installed along each side of each building. The lights shall be LED, 120V, adjustable floodlight producing a minimum 16,000 lumens at a 4K color temperature, with a 7x7 beam spread of Type III Long optics. Light fixtures shall be oriented such that there are (0) lumens above 90 degrees. In locations that have Turtle Safe Lighting Ordinances, provide with Amber Turtle Safe Lighting. Each light shall include all mounting hardware, wire etc. necessary to have the unit installed and operational. At a minimum one (1) light shall be installed on each end of each hangar and two (2) lights shall be installed along the bi-fold door sides. Lights shall be controlled with programmable astronomical time clock and photocell.

Interior lighting shall be LED and shall be designed for a minimum of (50) fifty foot-candles average using a 4K color temperature. Lighting shall be controlled by high bay occupancy sensors and manual switches for each space.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall furnish all labor, materials, and services required for the completion of the work in new and undamaged condition, as described by the Contractor-supplied plans and the specifications contained herein.

108-3.2 Materials and Equipment. All materials and equipment required for the proper construction of the T-Hangar units shall be on the project, in new and undamaged condition, and reviewed by the Engineer before construction is permitted to start.

The Contractor shall provide appropriate hoisting equipment to handle the unloading and placing of materials in their final position without damage to the materials.

108-3.3 Cleaning And Restoration Of Site. The Contractor shall dispose of all surplus materials, dirt, and rubbish from the site. The Contractor shall restore all disturbed areas to their original condition or to the satisfaction of the Engineer. After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear, and in good condition.

108-3.4 Inspections and Acceptance of Work. The design plans submitted for the building, foundation and electrical shall note any special inspections required by the applicable codes (welding, bolt torque, etc.) Inspections shall be conducted by ICC certified personnel.

METHOD OF MEASUREMENT

108-4.1 No measurement will be made. The quantity to be paid for under this item shall be per lump sum for each T-Hangar building installed as a completed unit in place, accepted, and ready for operation.

108-4.2 T-Hangar Materials. The Contractor shall furnish and deliver to the Owner the materials for a complete 8-unit Nested T-Hangar in accordance with the design, dimensions, and details as shown on the approved plans as submitted by the Contractor and the specifications contained herein. T-hangar materials shall also include doors and all incidental hardware necessary for the complete construction of the building. Materials shall be stored in the location approved by the Airport Owner. Payment for stored materials will be in accordance with Section 90-03, Payment for Materials On Hand.

108-4.3 T-Hangar Erection. The Contractor shall complete the turnkey erection of the materials delivered to the site for a complete 8-unit nested T-Hangar in accordance with the design, dimensions, and details as shown on the approved plans as submitted by the Contractor and the specifications contained herein. The T-Hangar Erection shall include all repairs, adjustments, modifications, incidentals, and clean-up required to complete the T-Hangar as specified to the satisfaction of the Airport Owner.

108-4.4 T-Hangar Foundations. The Contractor shall furnish and install all the required 8-unit T-Hangar Building Foundations in accordance with the design, dimensions and details as shown on the approved plans as submitted by the Contractor and the specifications contained herein. The T-Hangar Foundations shall include all repairs and clean-up to the existing facilities and structures required due to the installation of the foundations to the satisfaction of the Airport Owner.

108-4.5 T-Hangar Electrical. The Contractor shall furnish and install all the required 8-unit T-Hangar Building Electrical System in accordance with the design, dimensions and details as shown on the plans as submitted by the Contractor and the specifications contained herein. T-hangar electrical system shall also include transformer relocation and all modifications, repairs, adjustments, and cleanup to existing facilities, structures, and hangar units required due to the turnkey installation of the electrical distribution system and made to the satisfaction of the Owner.

BASIS OF PAYMENT

108-5.1 The accepted quantity for a 8-unit T-Hangar shall be paid for at each contract unit price per lump sum, for materials, erection, foundations, and electrical system, complete and in place. This price shall be full compensation for furnishing all materials, labor, equipment, tools, erection, and incidentals necessary to complete each item listed below.

Payment will be made under:

Item M-108-5.1 T-Hangar Materials, (No. of Units) – Per Lump Sum

Item M-108-5.1 T-Hangar Erection, (No. of Units) – Per Lump Sum

Item M-108-5.1 T-Hangar Foundation, (No. of Units) – Per Lump Sum

Item M-108-5.1 T-Hangar Electrical, (No. of Units) – Per Lump Sum

TESTING AND MATERIAL REQUIREMENT

American Association of State Highway and Transportation Officials (AASHTO)
- AASHTO No. 57

American Iron and Steel Institute (AISI)
- AISI No. C-1018
- AISI No. C-1022
- AISI Specification for the Design of Light Gage Cold-formed Steel Structural Members

American Institute of Steel Construction (AISC)
- Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings

American National Standards Institute (ANSI)
- ANSI No. 61

ASTM International (ASTM)
- ASTM A-325-71A
- ASTM A-307-68
- ASTM A-525-71
- ASTM A36-70A

American Welding Society (AWS)
- Standard Welding Procedure Specifications

Building Officials Code Administrators International, Inc. (BOCA)
- Basic Building Code

Code of Federal Regulations
- 36 CFR Part 1191, Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities

Federal Specifications
- FF-H-106A SERIES 160
- No. T2127
- TT-P-6360

Mil Spec
- MIL-P-8585A
- MIL-C-18969

National Bureau of the U. S. Department of Commerce
- NBS-PS 15-69

National Electrical Installation Standards
- National Electrical Code (NEC)

Steel Structures Painting Council (SSPC)
- SSPC-SP-2-63

END OF ITEM M-108

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Item P-603 Emulsified Asphalt Tack Coat

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Engineer before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F (10°C) or above; the temperature has not been below 35°F (2°C) for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the Engineer.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour (13 km per hour) or seven (700) feet per minute (213 m per minute).

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot (3.7-m) spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the Engineer.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the Engineer prior to application.

Emulsified Asphalt

Surface Type	Residual Rate, gal/SY	Emulsion Application Bar Rate, gal/SY
New asphalt	0.02-0.05	0.03-0.07
Existing asphalt	0.04-0.07	0.06-0.11
Milled Surface	0.04-0.08	.0.06-0.12
Concrete	0.03-0.05	0.05-0.08

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the Engineer. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills. The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the Engineer certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 ~~The emulsified asphalt material for tack coat shall be measured by the gallon. Volume shall be corrected to the volume at 60°F (16°C) in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.~~ THERE SHALL BE NO SEPARATE MEASUREMENT FOR THIS ITEM AND ITS USE WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.

BASIS OF PAYMENT

603-5.1 ~~Payment shall be made at the contract unit price per gallon of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~ THE COST OF FURNISHING AND APPLYING TACK COAT SHALL BE INCLUDED IN OTHER PAY ITEMS IN THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE MADE FOR THE WORK DESCRIBED HEREIN.

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 D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END OF ITEM P-603

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ITEM P-619 PAINT REMOVAL

DESCRIPTION

619-1.1 This item shall consist of furnishing all labor, materials, and equipment required for the removal of all paint from areas designated on the plans or as ordered by the Engineer. Paint removal may be required from bituminous concrete and portland cement concrete pavements. In accordance with AC 150/5340-1, markings may be removed in a larger blocked pattern or area to eliminate the continued visual appearance of the removed markings.

619-1.2 This removal operation will be accomplished with high pressure water. The use of chemicals will not be permitted.

619-1.3 Water for the Contractor's use is available on the airfield. The Contractor shall provide an approved meter and meter any water used. The cost for the water will be charged to the Contractor by the Owner and will be based upon the rates charged to the Owner.

EQUIPMENT

619-2.1 Equipment, tools, and machines used in the performance of the removal operation shall be safe and in satisfactory working condition at all times. The Contractor shall provide a certification that the Contractor's equipment has been demonstrated or that said equipment has been used in the performance of a similar contract.

PERFORMANCE

619-3.1 The high-pressure water system, if used, shall have the capability of removing the paint and restoring both portland cement concrete and asphaltic concrete surfaces to a natural surface. The treatment of the surface shall not be damaging to the asphaltic concrete or portland cement concrete surface, joint sealing material, or light fixtures. If it is deemed by the Engineer that damage to the existing pavement is caused by an operational error, such as permitting pressure water to dwell in one location for an extensive time, the Contractor shall repair said damage without compensation.

619-3.2 Section not used.

619-3.3 Paint removal for obsolete markings shall be defined as the removal of at least 95-100 percent of the existing marking. Compliance will be determined by the Engineer using direct testing within the designated work area.

619-3.4 The removal level is defined such that the pavement is clearly exposed to the degree specified. The degree shall be verified by the grid method. A grid of transparent material inscribed with a grid of 100 one-inch squares shall be used as a tool for quantitative measure of the removal level. For a removal level of 85-90 percent, no more than 15 squares should contain paint deposits. For 95-100 percent removal, 5 squares or less should contain paint deposits.

619-3.5 The method used shall not materially damage the structural integrity of the pavement. Any damage caused by the Contractor's operations shall be corrected at the Contractor's expense and in a manner approved by the Engineer.

Excessive damage shall be defined as the removal of more than ⅛-inch of portland cement concrete pavement or asphaltic pavement with exposed aggregate which can be loosened by light brushing or

abrasion. Grooved surfaces shall maintain their functionality, i.e., water shall be able to run off the surface without puddling.

The Contractor shall take precautions to protect the public from any damage due to his operations. Accumulation of sand, water, dust, or other residue resulting from the removal operation shall be removed as the work progresses. Prior to any painting operations, the surface shall be free of any dirt, removal residue, other contaminants that would prevent the bond of the new coating to the pavement. Quality control measures shall include a simple "pull test" with adhesive material; evidence of excessive debris on the adhesive indicates that additional cleaning shall be required.

619-3.6 Prior to the start of work, pavement markings shall be removed from a designated test section, not less than 50 square yards in size. The method and equipment used for the test section shall be the same as that intended for the remainder of the work. The test section shall be inspected and approved by the Engineer prior to beginning any further paint removal. If more than one degree of paint removal is required for the project, a test section for each type shall be designated, conducted, and approved.

619-3.7 The Contractor shall use rebar, metal strips, or other approved methods to protect existing joint seal material during paint removal operations.

619-3.8 Scarring resulting from the paint removal shall be sealed with a surface treatment in accordance with Item P-608 if ordered by the Engineer.

METHOD OF MEASUREMENT

619-4.1 The removal of paint shall be paid for by the number of square feet of existing paint removed from existing pavements for each level in accordance with the specifications and accepted by the Engineer.

BASIS OF PAYMENT

619-5.1 Payment shall be at the contract unit price per square foot for each level of paint removal. This price shall be full compensation for all materials, equipment, labor and incidentals necessary to complete the item.

Payment will be made under:

Item P-619-5.1 Paint Removal (95-100% Level) – per square foot

END OF ITEM P-619

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 Engineer. 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 Engineer prior to the initial application of markings. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer 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 Engineer.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Max.**	**Type**	**Application Rate Min.**
Waterborne Type II	Yellow (Initial)	33538 or 33655	345 SF/gal	--	--
Waterborne Type II	Yellow (Final)	33538 or 33655	115 SF/gal	III	10 lb/gal
Waterborne Type II	Black (Final)	37038	115 SF/gal	--	--

1 See paragraph 620-2.2a.

2 See paragraph 620-2.2b.

a. Paint. Paint shall be waterborne 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. ALL WATERBORNE PAINT IWLL INCLUDE A BIOCIDE THAT WILL RESIST ALGAE GROWTH.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type III.

Glass beads for red and pink paint shall meet the requirements for Type IV, 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 Engineer. 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 Engineer 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 Engineer 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 Engineer. 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 manufacturer's application and surface preparation requirements must be submitted to the Engineer 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 Engineer.

The edges of the markings shall not vary from a straight line more than 1/2 inch (12 mm) in 50 feet (15 m), and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch (910 mm) or less	±1/2 inch (12 mm)
greater than 36 inch to 6 feet (910 mm to 1.85 m)	±1 inch (25 mm)
greater than 6 feet to 60 feet (1.85 m to 18.3 m)	±2 inch (50 mm)
greater than 60 feet (18.3 m)	±3 inch (76 mm)

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 HAND-THROWN. 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. Preformed thermoplastic pavement markings not used.

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 Engineer. 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. Not used.

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 Engineer. 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 Section not used.

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 lump sum.

620-4.1d Temporary markings not required.

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 Engineer in accordance with these specifications.

620-5.1a Section not used.

620-5.1b Payment for markings shall be made at the contract price for the number of square feet of painting.

620-5.1c Payment for reflective media shall be made at the contract price by lump sum.

620-5.1d Temporary markings are not required.

Payment will be made under:

Item P-620-5.1b Marking (Type)(Color) – per square foot

Item P-620-5.1c Reflective Media – per lump sum price

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

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Part 11 – Drainage

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.

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:

AASHTO R73	Standard Practice for Evaluation of Precast Concrete Drainage Productions
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
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 C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM C1479	Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
ASTM C1577	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD
ASTM C1786	Standard Specification for Segmental Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD
ASTM C1840	Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe

701-2.3 Concrete for Pipe Cradles. 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 (300 mm) 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 (200 mm) or 1/2 inch (12 mm) 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 Engineer 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 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 (19 mm). 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 (150 mm) 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 rubber gaskets.

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.

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 (150 mm) on each side of the pipe and shall be brought up one foot (30 cm) 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 (150 mm) and shall be brought up evenly on each side of the pipe to one foot (30 cm) 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 D698. 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 Engineer no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

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.

For pipe sizes larger than 48 inches, a walk-through visual inspection shall be performed.

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.

Flexible pipes shall be inspected for rips, tears, joint separations, soil migration, cracks, localized buckling, settlement, alignment, and deflection. Determine whether the allowable deflection has been exceeded by use of a laser profiler for internal pipe diameters of 48 inches or less, or direct measurement for internal pipe diameters greater than 48 inches. Laser profile equipment shall utilize low barrel distortion video equipment. Deflection of installed pipe shall not exceed the limits provided in the table below, as a percentage of the average inside diameter of the pipe.

Maximum Allowable Pipe Deflection

Type of Pipe	Maximum Allowable Deflection (%)
Corrugated Metal Pipe	5
Concrete Lined CMP	3
Thermoplastic Pipe	5
Fiberglass	5

If deflection readings in excess of the allowable deflection are obtained, remove the pipe with excessive deflection and replace with new pipe. Isolated areas may exceed allowable by 2.5% with concurrence of Engineer. Repair or replace any pipe with cracks exhibiting displacement across the crack, bulges, creases, tears, spalls, or delaminations. The report for flexible pipe shall include as a minimum, the deflection results and final post installation inspection report. The inspection report shall include: a copy of all video taken, pipe location identification, equipment used for inspection, inspector name, deviation from design line and grade, and inspector's notes.

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. The class, type, 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.

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, size, and type of pipe.

701-5.2 Not used.

701-5.3 Not used.

701-5.4 Not used.

Payment will be made under:

Item 701-5.1 18" Smooth Wall HDPE pipe – 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 OF ITEM D-701

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 Engineer.

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 (90 cm) nor more than 48 inches (120 cm). 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 Engineer. 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 Engineer 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 Engineer. 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 Engineer. No concrete or reinforcing steel shall be placed until the Engineer 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. 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 (9 mm) 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 (6 mm) nor more than 1/2 inch (12 mm) 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 (10°C) 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 (16°C) 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 Engineer 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 Engineer 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 Engineer, 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 Engineer. 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 Engineer. 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 (300 mm).

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 Engineer.

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 (200 mm) 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 Engineer.

b. Backfill shall not be placed against any structure until approved by the Engineer. 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 Engineer. 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.

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-751-5.3 4' x 4' NMDOT Drop Inlet Junction Box - 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	AASHTO M36: Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains

END OF ITEM D-751

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Part 13 – Lighting Installation

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 Engineer.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the Engineer 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 Engineer 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 Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The Engineer 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 state department of transportation structural concrete with minimum 25% Type F fly ash, and a minimum allowable compressive strength of 4,000 psi (28 MPa).

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 Engineer 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 (75-150 mm) 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 Engineer 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 (50 mm) 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 (75 mm) per 100 feet (30 m). 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 (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches (0.5 m) 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 (6 mm) 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 Engineer 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 (90 kg) 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 (1.5 m).

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 (75 mm) 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 (6.3 mm) sieve. Flowable backfill may alternatively be used.

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 Engineer. 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 (60 cm).

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 Engineer, 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 Engineer.

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 Engineer 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 Engineer and compacted ~~per Item P-152.~~ TO 95% OF MAXIMUM DRY DENSITY (MDD) AND WITHIN 2% OF OPTIMUM MOISTURE.

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 Engineer, 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 (0.5 m) 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 (0.5 m) 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 (1 m) beyond the edges of the pavement or 3 feet (1 m) 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 (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) 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 (75 mm) 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 (150 mm) 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 (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer 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 (1.5-m) 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 (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) 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 Engineer 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 Engineer.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) 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 (100 mm) 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 (6.3 mm) 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 (0.5 m) 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 (60 cm) 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 (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) 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 (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches (150 mm) 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 (150 mm) 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 (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer 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 (60 cm) square and 4 - 6 inches (100 - 150 mm) thick extending approximately one inch (25 mm) 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 (61 m) 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 Engineer, 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 Engineer. 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 Engineer. The letters shall be 4 inches (100 mm) high and 3 inches (75 mm) wide with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) 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 (200 mm) 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~~ TO 95% OF MAXIMUM DRY DENSITY (MDD) AND WITHIN 2% OF OPTIMUM MOISTURE, except that material used for back fill shall be select material not larger than 4 inches (100 mm) 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 Engineer.

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"~~TO 95% OF MAXIMUM DRY DENSITY (MDD) AND WITHIN 2% OF OPTIMUM MOISTURE except that the material used for backfill shall be select material not larger than 4 inches (100 mm) 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 (76 m) 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 Engineer.

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 and mulching 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. Section not used.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall not be measured for payment. ~~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 Underground conduit and duct bank shall be considered incidental to the M-108 T-Hangar Electrical lump sum pay item wherein no separate measurement or payment will be made. ~~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, 2 way, 2" 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

END OF ITEM L-110

State Roadway Specifications

Item R-423 NM Hot Mix Asphalt (HMA)

DESCRIPTION

423-1.1 This item shall consist of one or more courses of bituminous mixture prepared in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross sections shown on the plans.

MATERIALS

423-2.1 The HMA pavement material shall conform to the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction, Current Edition, Section 423.2 for Type SP-IV.

EQUIPMENT AND CONSTRUCTION METHODS

423-3.1 The equipment and construction methods for this item shall conform to the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction, Current Edition, Section 423.3, and as described on the plans.

A job mix formula shall be submitted by the Contractor to the Engineer prior to the starting of work. A new job mix formula will be required if new sources of supply are added or used and if unsatisfactory results occur.

Recycled Asphalt Pavements (RAP) shall not be used.

METHOD OF MEASUREMENT

423-4.1 HMA pavement shall not be measured but shall be considered incidental to Item D-701 and Item D-751.

BASIS OF PAYMENT

423-5.1 No separate payment shall be made for HMA pavement. The cost for furnishing all materials and for all preparation, placement, and for all labor, equipment, tools, and incidentals necessary to complete the item shall be considered incidental to Item D-701 and Item D-751.

END OF ITEM R-423 NM

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Item R-450 NM Portland Cement Concrete (PCCP)

DESCRIPTION

450-1.1 This item shall consist of a jointed pavement composed of Portland Cement Concrete Pavement (PCCP), with or without reinforcement as specified, on a prepared subbase course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross sections shown on the plans.

MATERIALS

450-2.1 The material for this item shall conform to the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction, Current Edition, Section 509.2 for paving concrete and the construction plans, with the exception of Alkali-Silica Reactivity (ASR) requirements, which shall be tested in accordance with the Special Provision "ASR Testing Requirements" of this Specification.

EQUIPMENT AND CONSTRUCTION METHODS

450-3.1 The equipment and construction methods for this item shall conform to the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction, Current Edition, Section 450.3, and as described on the plans.

METHOD OF MEASUREMENT

450-4.1 Portland Cement Concrete Pavement ~~will be measured in square yards of concrete pavement complete in place with the required joints, steel, sealer, and scoring as shown on the plans~~ shall not be measured but shall be considered incidental to Item D-701 and Item D-751.

BASIS OF PAYMENT

450-5.1 No separate payment will be made for portland cement concrete pavement. The cost for furnishing all materials and for all preparation, placement, and for all labor, equipment, tools, and incidentals necessary to complete the item shall be considered incidental to Item D-701 and Item D-751.

END OF ITEM R-450 NM

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Appendix A – Sample Submittal Form

Project Title: Construct T-Hangars

Delta Project #: 23063

County of Los Alamos Bid No. IFB25-15

Submittal #:

Submittal Description:

Bid / Pay Item #:

Specification Section:

Drawing Sheet #:

Date:

CONTRACTOR CERTIFICATIONS:

1. This shop drawing has been reviewed by *[Name of Contractor]* and approved with respect to the means, methods, techniques, sequences, procedures of construction, safety precautions and programs incidental thereto. *[Name of Contractor]* also warrants that this shop drawing complies with the contract documents and comprises no variations thereto, unless noted below.
2. *[Name of Contractor]* certifies that this shop drawing complies with Buy American requirements as established under 49 USC Section 50101. Steel products must be 100% U.S. domestic product Manufactured Products. Preference shall be given to products that are 100% manufactured and assembled in the U.S. Manufactured products not meeting the 100% U.S. domestic preference may only be used on the project if the FAA has officially granted a permissible waiver to Buy American Preferences.

PROPOSED VARIATIONS OR SUBSTITUTIONS:

_____

_____

_____

_____

Signature: _____ Date: _____

Printed Name: _____

Company Name: _____

Appendix B – Construction Safety and Phasing Plan

CONSTRUCTION SAFETY & PHASING PLAN

Construct T-Hangars

Los Alamos County Airport

Los Alamos, New Mexico

NMDOT Project No. LAM-24-02

Delta Project No. 23063

August 2024

CONTENTS

INTRODUCTION

Aviation safety is a primary consideration at airports, especially during construction. In accordance with FAA Advisory Circular (AC) 150/5370-2G, "Operational Safety on Airports During Construction," a Construction Safety and Phasing Plan (CSPP) must be developed on each on-airfield construction project funded by the Airport Improvement Program (AIP), Passenger Facility Charge (PFC) program or for any project located on an airport certificated under Part 139.

The CSPP sets forth benchmarks and requirements for the project and is the airport operator's guideline for developing the highest levels of safety, security, and efficiency at the airport during project construction. The CSPP is to be used by all personnel involved in the project, including construction personnel, inspection personnel, and airport staff. This document has been developed for this construction project in order to minimize interruptions to airport operations, control construction costs, and maximize the performance and safety of construction activity.

The Contractor shall be required to submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how the Contractor will comply with the requirements set forth in this CSPP. The SPCD must be submitted to and approved by the airport operator prior to issuance of the Notice to Proceed. The SPCD includes a certification statement by the Contractor that indicates it understands the operational safety requirements of the CSPP and asserts it will not deviate from the approved CSPP and SPCD unless written approval is granted by the airport operator.

In the event the Contractor's activities are found in non-compliance with the provisions of the CSPP or the SPCD, the Contractor shall immediately cease those operations in violation. In addition, the Contractor will conduct a safety meeting, with the airport operator's representative present, and review those provisions in the CSPP/SPCD which were violated. The Contractor will not be allowed to resume construction operations until conclusion of the safety meeting and implementation of corrective actions.

PROJECT SCOPE

This CSPP has been prepared for upcoming airfield projects at the Los Alamos County Airport in Los Alamos, New Mexico. The project includes the demolition of 9 tie-down spots in the airport's main apron and construction of a new 8-unit T-hangar building.

The Los Alamos County Airport is an Airport Reference Code (ARC) B-I (Small) facility with general aviation traffic. The airport has one runway, 9-27, which is 6,000' long and 120' wide.

There is only one phase for this project that includes the entire scope of the project:

- Marking removal on hangar site and adjacent taxilanes
- Installation of utilities and infrastructure
- Construction of T-hangar foundation
- Erection of T-hangar building
- Installation of T-hangar electrical and lighting
- Initial and final marking of adjacent taxilane pavements

The proposed phasing plan is illustrated in **Attachment A**.

1. COORDINATION

Coordination of safety issues will occur throughout all stages of the project. Key conferences and meetings include:

1.1. Design Coordination

Design coordination will be completed with the affected agencies and organizations to discuss operational safety. Participants will include tenants, funding agencies, FAA ATCT, FAA District Office, State Aviation personnel, the Engineer, and airport operator staff. Input will be solicited on key safety issues to be considered, methods to ensure safety during construction, required protocols, advance notices, and other requirements that need to be incorporated in the contract bid documents.

1.2. Prebid Meeting

A prebid meeting with potential bidders and construction contractors will take place. The meeting will be held approximately 10 days prior to the bid opening date. During the meeting, safety will be discussed, with an emphasis on the unique aspects of construction on an active airfield. FAA Advisory Circular 150/5370-2G will be reviewed, as will the requirements for the Contractor-prepared SPCD. It will be made clear in both the contract documents as well as the pre-bid meeting that the SPCD is the responsibility of the Contractor.

1.3. Preconstruction Meeting

A preconstruction meeting will be held once a construction contract has been awarded, but prior to the start of construction. Invitees will include include users, tenants, prime contractor, subcontractors, funding agencies, FAA District Office, State Aviation personnel, the Engineer, Resident Project Representative, and the airport operator staff. The FAA Airports District Office should ensure that all appropriate FAA offices and Federal agencies that may have an interest in the project are notified.

The airport operator, or authorized agent will prepare an agenda prior to the preconstruction meeting. This will include, but not be limited to:

a. project scope and phasing requirements;
b. relationship between airport operator, airport operator's authorized agent, and the Contractor;
c. relationship between the airport operator and the FAA;
d. identification of Contractor's superintendent and discussion of authority and responsibilities;
e. designation of airport operator representative responsible for notifying the Flight Service Station of any circumstances requiring a Notice to Air Mission (NOTAM);
f. scheduling of work and phasing requirements;
g. notice to proceed date;
h. safety during construction, including responsibility for marking and lighting of closed and hazardous areas, all in accordance with FAA AC 150/5370-2G *Operational Safety on Airports During Construction*;
i. security requirements;
j. communications and documentation protocols, including contact information for all key personnel.

Emphasis will be placed on compliance with the established CSPP and approved SPCD.

1.4. Contractor Progress Meetings

Regular progress meetings will be held throughout the construction phase, with operational safety as a standing agenda item. Current compliance issues and upcoming critical work will be reviewed. Meeting participants will include the Engineer, the Resident Project Representative, the Contractor, and the airport operator. Daily meetings between the Resident Project Representative and key Contractor personnel will also occur to address daily work schedules and associated operational concerns. When necessary, appropriate FAA/State personnel, airport staff, or affected tenants will attend progress meetings.

1.5. Scope or Schedule Changes

Coordination between the Engineer, Contractor, FAA, and the airport operator will occur in the event of any scope or schedule changes. It will be determined if revisions to either the CSPP or the SPCD are required as a result of any scope or schedule changes. Revisions to these documents will be routed through the appropriate approval channels prior to beginning construction in areas of impact.

1.6. FAA ATO Coordination

FAA ATO Coordination must be kept informed of pending changes in airfield access and airfield naming conventions throughout the project, and their concurrence must be received prior to making any of these changes.

2. PHASING (CONSTRUCTION SEQUENCING)

This discussion reviews the construction phasing and work areas defined for the project. The phasing generally provides the desired sequencing for the project. The defined work areas address work limitations. These limitations are primarily associated with operational safety, focusing on maintaining adequate separation between the Contractor's activities and aircraft operations and limiting the time that Contractor activities impact airport operations. Refer to the phasing plans in Attachment A for work areas. General elements of this sequencing and phasing are described in the following subsections.

2.1. Construction Staging Areas

Refer to the phasing plans in Attachment A for staging area locations and general safety and security notes concerning use of the staging areas. Construction staging areas and Contractor employee parking areas are to remain outside of all object free areas and all safety areas for all active airfield surfaces.

2.2. Construction Access and Haul Routes

Refer to phasing plans in Attachment A for access and haul route locations and general safety and security notes concerning use of access and haul routes.

Applicable control along haul routes for both safety and security must be maintained at all times.

2.3. Firefighting Access Routes

Emergency firefighting access in and around the site will be maintained by the Contractor, as required, for the duration of this project. Construction contractors must prominently mark open trenches and excavations within the construction site, with approval from the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.4. Required Hazard Marking and Lighting

Refer to the phasing plans in Attachment A for required hazard marking and lighting. Reference **Sections 15**, **16**, and **17** of this CSPP for additional information.

3. AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY

Runways and taxiways shall remain in use to the maximum extent possible without compromising safety. See Table 3-1 for a summary of effects on airport operations created by this project. Meetings with the Engineer, Contractor, FAA ATCT (if applicable), and the airport operator will occur before construction begins on each phase. Items discussed during these meetings are described below:

3.1. Identification of Affected Areas

The affected areas for each construction phase are identified in the phasing plans in Attachment A.

3.1.1. **Closing or partial closing of runways, taxiways, and aprons.** See Attachment A.

3.1.2. **Closing of firefighting access routes.** Access into, through, and/or around the project work area by emergency vehicles may be affected during construction. Refer to the phasing plans (Attachment A) for requirements.

3.1.3. **Approach/departure surfaces affected by heights of objects.** Contractor equipment used in the project and/or staging area may impact approach/departure surfaces. Equipment locations shall not violate runway Part 77 surfaces except under special waiver conditions. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, must be submitted by the airport operator to the FAA ADO, and approved prior to construction. Refer to the phasing plans (Attachment A) for requirements.

3.1.4. **Construction areas.** Construction areas, including actual construction, storage/stockpiles, employee parking, staging areas, and haul routes are located near active airfield surfaces. Refer to the phasing plans (Attachment A) for requirements.

3.2. Mitigation of Effects

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. All coordination pertaining to airport operations during construction shall be with the airport operator's designated representative. Specific contacts will be discussed in detail at the preconstruction meeting.

3.2.1. **Temporary and permanent changes to runway and/or taxi operations.** Affected runway and taxiways will be barricaded as indicated on the phasing plans (Attachment A).

3.2.2. **Detours for ARFF and other airport vehicles.** The project work site shall remain open to all firefighting and rescue vehicles in emergency situations. The Contractor is required to maintain access into the project work area for firefighting and rescue vehicles.

3.2.3. **Maintenance of essential utilities.** Special attention will be given by the Contractor to preventing unscheduled interruption of utility services and facilities. Where required by construction, the Contractor will follow prescribed procedures to locate all utilities (aboveground and underground) prior to working around them. All utility outages will be coordinated in advance in accordance with the procedures included in the plans and specifications. When a utility is damaged, it shall immediately be repaired by the Contractor in accordance with the procedures in the plans and specifications.

4. NAVIGATION AIDS (NAVAIDS) PROTECTION

Before beginning any construction activity, parking of equipment, or storing construction materials near a NAVAID, coordination with the appropriate FAA ATO to evaluate the effects of construction activity on the facility must take place. Necessary clearance distances will be coordinated at daily and weekly progress meetings (refer to **Section 1, "Coordination"**). NAVAIDS impacted by this project shall be identified through the NOTAM process described in **Section 9, "Notification of Construction Activities."** Underground utilities serving the NAVAIDS shall be protected as described in **Section 11, "Underground Utilities."**

5. CONTRACTOR ACCESS

5.1. Location of Stockpiled Construction Materials

Stockpiled materials and equipment storage are not permitted within the safety area, obstacle free zone, or object free area of any active runway or taxiway. Stockpiled materials shall be stored at a location approved by the airport operator and constrained in a manner to prevent movement resulting either from prop wash, jet blast, or wind. Stockpile heights shall not exceed 15 feet and shall not penetrate protected airspace (refer to the plans for information on protected airspace). Stockpiled materials and equipment adjacent to these areas shall be prominently marked and lighted during hours of restricted visibility or darkness. Further reference is directed to **Section 6, "Wildlife Management," Section 7, "Foreign Object Debris Management,"** and **Section 17, "Protection of Runway and Taxiway Safety Areas."**

5.2. Vehicle and Pedestrian Operations

Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals into the AOA.

5.2.1. **Construction site parking.** Vehicle parking areas for Contractor employees shall be as shown on the plans or as designated by the airport operator. The parking for the Contractor's employees shall be located at the back portion of the Airport parking lot.

5.2.2. **Construction equipment parking.** Equipment not in use shall be parked in the construction staging area shown on the plans. Parking area for construction equipment is adjacent to the Contractor employee parking area.

5.2.3. **Access and haul roads.** Access routes used by contractors shall be clearly marked to prevent inadvertent entry to open aircraft operational areas. If the access routes share or cross any routes designated for use by ARFF, right of way shall be maintained at all times unless alternate routes have been established. The Contractor shall only use the access and haul roads designated by the airport operator. The airport operator will provide access to the Contractor only after the Contractor has received training from the airport operator. These haul routes are shown in the construction plans. Contractor shall not cross between an aircraft or fuel truck and the fuel farm and shall maintain 20' of clearance while passing around them.

5.2.4. **Marking and lighting of vehicles.** Equipment and vehicles shall be marked with 3-foot by 3-foot orange and white checker flags (day only) or yellow flashing dome type lights (day or night). Additionally, all Contractor vehicles operating in the AOA shall be clearly labeled with the Contractor's name visible from 200 feet.

5.2.5. **Description of proper vehicle operations.** Vehicle operations shall be in accordance with Advisory Circular 150/5210-20 "Ground Vehicle Operations on Airports."

5.2.5.1. **Normal conditions.** Project haul routes and phasing have been established to prevent the crossing of any open airfield pavements. At no time will the Contractor enter an active runway or taxiway safety area.

5.2.5.2. **Lost communications or emergency conditions.** In the event that radio communications are lost, the driver shall pull onto the shoulder out of the way of any possible aircraft. The vehicle should then visually verify no aircraft are approaching the area and then proceed to a safe location on the airport. There is no air traffic control tower at this airport.

5.2.6. **Required escorts.** All untrained drivers shall be escorted at all times when on the AOA side of the security fence. Escorted vehicles shall be marked and lighted in accordance with this Section 5.

5.2.7. **Training requirements.** The airport operator will provide access to the Contractor only after the Contractor has received safety and security training from the Owner.

5.2.8. **Situational awareness.** Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

5.2.9. **Two-way radio communication procedures.**

5.2.9.1. The Contractor shall have an adequate number of two-way radios on-site at all times and shall be responsible for providing the radios.

5.2.10. **Maintenance of the secured area of the airport**

5.2.10.1. Care shall be taken to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates shall be equipped so that they can be securely closed and locked to prevent access by animals and unauthorized persons. Procedures shall be established to ensure that only authorized persons and vehicles have access to the AOA and that vehicles are allowed through the gate one at a time, i.e. no "piggybacking" behind another person or vehicle. The Contractor is responsible for ensuring that all employees of the Contractor and Subcontractors use only the authorized access point to the AOA and verifying that the access point is secure immediately after use. Gates that fail shall be reported immediately to the airport operator and shall be guarded by the Contractor until the airport operator mobilizes to secure the opening.

5.2.10.2. The Contractor shall maintain separation between the airside and non-secure side of the airport at all times. The perimeter fence shall be maintained on a continuous basis with any temporary opening being continuously guarded by the Contractor's designated employee. The airport is subject to FAA security requirements and rigid adherence is mandatory. Any fines for unauthorized personnel entering through the Contractor's entrance points will be deducted from monies due the Contractor. Reference is directed to Section 5. Temporary openings and construction gates shall be secured and locked at the completion of work each day.

5.2.10.3. The Contractor shall delineate limits of construction prior to beginning work each day. The Contractor's personnel shall not be beyond the limits of construction without authorization from the Owner. Violators are subject to removal from the jobsite and loss of AOA working privileges.

5.2.10.4. The Contractor shall submit a Security Plan at the Preconstruction Conference outlining the methods that the Contractor intends to apply in order to maintain airport security and of monitoring gate openings within and along the security fence.

5.2.10.5. The Airport reserves the right to require all personnel working inside the AOA to obtain a valid AOA badge or be under the direct supervision (within approximately 100 feet) of a person with an AOA badge. Personnel and/or suppliers requiring only occasional access to the site shall be exempt from security training requirements but shall be escorted by a badged employee at all times.

6. WILDLIFE MANAGEMENT

6.1. **Trash**

Food scraps shall be collected from construction personnel activity. Trash shall be disposed of weekly, or more frequently if necessary, to discourage wildlife encroachment.

6.2. **Standing Water**

Areas of standing water shall be kept to a minimum so as not to attract wildlife.

6.3. **Tall Grass and Seeds**

Only the grasses specified on the plans and in the specifications may be used for either temporary or permanent seeding. Incompatible plants could be an unwanted bird attractant.

6.4. **Poorly Maintained Fencing and Gates**

Reference is directed to **Section 5 "Contractor Access"** in regard to the importance of maintaining security on the airport so as to discourage access by wildlife.

6.5. **Disruption of Existing Wildlife Habitat / Wildlife Sightings**

Contractor personnel shall immediately notify the airport operator of significant wildlife sightings.

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Materials capable of creating FOD shall be continuously removed during the project and must not be left or placed near active aircraft movement areas. The following measures will be utilized to control and monitor FOD:

- Worksite housekeeping
- Ground vehicle tire inspections
- Runway and taxiway sweeps

Inspection requirements are outlined in **Section 10 "Inspection Requirements".**

8. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

The Contractor shall be prepared to immediately contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Provisions for HAZMAT management shall be addressed in the Contractor's Storm Water Pollution Prevention Plan (SWPPP). The HAZMAT management procedures shall include, but not be limited to the following:

- Fuel deliveries
- Spill recovery procedures
- Material Safety Data Sheets (MSDS) availability

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES

This section outlines procedures for maintaining communication in the event that airport users and the FAA must be notified immediately of any conditions adversely affecting the operational safety of the airport.

9.1. Contact List

The Contractor shall provide a list of responsible representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours. The Contractor must have someone available to take emergency calls from

the airport operator throughout the entire construction time period. The Contractor's list shall also include the airport point of contact, ATCT (if applicable), and the Engineer to ensure that Contractor personnel have the contacts that they need in the event of a safety related event.

Airport points of contact are as follows:

- Emergency Telephone Number (Police/Fire/Rescue): 911
- Information, Compliance, and Assistance:
    - Airport Manager: (505) 663-3423 (office)

9.2. NOTAMs

The airport operator shall be responsible for the issuance of all NOTAMs. Only the airport operator may initiate or cancel NOTAMs on airport conditions and is the only entity that can open or close a runway. The airport operator shall coordinate the issuance, maintenance, and cancellation of NOTAMs regarding airport conditions resulting from construction activities with tenants and the Air Traffic Control Tower and provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) for issuance of NOTAMs.

9.3. Emergency notification procedures

In the event of an emergency, the Contractor shall call 911. Additional notification procedures will be reviewed at the preconstruction meeting, and periodically at construction progress meetings, and distributed to all appropriate parties.

9.4. Coordination with ARFF

Coordination with ARFF personnel regarding maintenance of access routes, impacts to fire protection water sources, impacts to fire alarm systems, and use of hazardous materials during construction will be addressed at the preconstruction meeting as well as construction progress meetings.

9.5. Notification to the FAA

9.5.1. **Part 77.** Any proposed construction or alteration of objects that affect navigable airspace, as defined in FAR Part 77, shall be coordinated with the FAA by submitting FAA Form 7460-1, "Notice of Proposed Construction or Alteration" to the appropriate FAA Airports Regional or District Office. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, and other equipment) on the airport.

10. INSPECTION REQUIREMENTS

10.1. Daily Inspections

Inspections shall be conducted by the Contractor at least daily to ensure compliance with the CSPP. A sample checklist is provided in Attachment B. In addition, daily inspections will be conducted by the airport operator or their Representative to ensure compliance with the CSPP and the SPCD.

10.2. Final Inspections

A Final Inspection will be conducted by the airport operator, Engineer, FAA, and State upon substantial completion of the project.

11. UNDERGROUND UTILITIES

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. The Contractor shall locate, or arrange for the location of underground utilities, cables, wires, pipelines, and other underground facilities located in excavation areas shall be located. This shall include coordination with public utilities, "One Call" or "Miss Utility" services. FAA ATO/Technical Operations shall be contacted for location and marking of FAA NAVAID cables. Full coordination between the airport operator's representatives and construction personnel will take place to ensure that these items are protected at all times during construction. If the Contractor damages any active utility during construction, immediate action shall be taken by the Contractor to repair

the utility. Refer to **Section 9 "Notification of Construction Activities"** for contact information.

12. PENALTIES

12.1. Failure on the part of the Contractor to adhere to the requirements of this CSPP, and the plans and specifications, may have consequences that jeopardize the health and safety of persons on or near the construction site. Penalties for such actions are established by the airport operator and may include fines, suspension of construction, and/or removal from the job site. The airport operator reserves the right to deduct fines from money due to the Contractor.

12.2. Unauthorized personnel entering through the Contractor's access point is a violation of this CSPP and may result in a fine. The airport operator reserves the right to deduct fines from money due to the Contractor.

12.3. Contractor personnel found to be beyond the limits of construction without authorization from the Owner are subject to removal from the jobsite and loss of security badge and/or secured area working privileges.

13. SPECIAL CONDITIONS

Special conditions that require safety mitigation action include the following:

- Low-visibility operations
- Snow removal
- Aircraft in distress
- Aircraft accident
- Security breach
- Vehicle/pedestrian deviation (VPD)

During these events the Contractor will be required to suspend operations, clear active construction zones, or other measures as directed by the airport operator. Notification procedures in **Section 9** shall be followed. See also **Sections 5, "Contractor Access,"** and **14, "Runway and Taxiway Visual Aids."**

14. RUNWAY AND TAXIWAY VISUAL AIDS

14.1. General

Those areas where aircraft will be operating shall be clearly marked to separate them from construction areas. Airport markings, lighting, signs, and visual NAVAIDs shall be clearly visible to pilots and not misleading, confusing, or deceptive. This shall be verified throughout the construction of the project. All facilities shall be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents. The facilities shall be constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

14.2. Markings

Temporary markings are not required.

14.3. Lighting and Signage.

Temporary lighting is not required.

15. MARKING AND SIGNS FOR ACCESS ROUTES

Pavement markings and signs for construction personnel shall conform to AC 150/5340-18 on the runway and taxiway. Elsewhere, access route marking and signs shall conform to the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft shall comply with the frangibility requirements on AC 150/5220-23, "Frangible Connections." The height of temporary signage shall be restricted so as not to penetrate any avigational surfaces (avigational surfaces are described in the phasing plans in Attachment A). Temporary markings and signage are indicated in the phasing plans.

16. HAZARD MARKING, LIGHTING, AND SIGNAGE

16.1. Purpose

The purpose for delineating work areas is to prevent pilots and other airport personnel who do not belong in the construction area from entering. Work areas will be delineated with closed markers, aviation barricades, and bucket barricades. The first item of work in any work area will be the installation of the necessary closed markers and barricades to isolate the areas of proposed construction. All runway and taxiway closures will be fully coordinated with the airport operator to ensure that the proper NOTAMs are issued.

16.2. Barricades

Barricades are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. The types of barricades allowed are detailed on the phasing plans (Attachment A).

16.3. Lights

Lights shall be red, either steady burning or flashing, and meet the luminance requirements of the State Highway Department. Lights shall be mounted on barricades and spaced at no more than ten (10) feet apart. Lights shall be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations.

16.4. Signs

The barricades shall be supplemented with signs (for example "No Entry," "No Vehicles") as necessary. Signs shall conform to the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

16.5. Air Operations Area – General

Barricades are not permitted in any active safety area. Within a runway or taxiway object free area, and on aprons, the following shall be used to separate all construction/maintenance areas from the movement area:

- Orange traffic cones
- Flashing or steady burning red lights
- Collapsible barricades with diagonal, alternating orange & white stripes
- Signs

All barricades adjacent to an open runway or taxiway / taxilane safety area or apron shall be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades shall be of low mass; easily collapsible upon contact with aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, or other surface wind currents. Barricades affixed to the surface shall be frangible at grade level or as low as possible, but not to exceed 3 inches above the ground. The types of barricades allowed are detailed on the phasing plans (Attachment A).

16.6. Air Operations Area – Runway / Taxiway Intersections

Highly reflective barricades with lights shall be used to close taxiways leading to closed runways. The types of barricades allowed are detailed on the phasing plans (Attachment A).

16.7. Air Operations Area – Other

For areas outside runway and taxiway object free areas and safety areas and aprons, barricades intended for construction vehicles and personnel may consist of different shapes and may be constructed from various materials, including railroad ties, sawhorses, jersey barriers, or barrels. The Contractor shall coordinate these barricades, and their locations with the airport operator's representative.

16.8. Maintenance

The construction specifications include a provision requiring the Contractor to have personnel on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades.

Refer to the phasing plans in Attachment A for graphical depictions of hazard marking, lighting, and signage.

17. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS

17.1. **Runway Safety Area.** No construction acitivties will be conducted within the existing RSA.

17.2. **Runway Object Free Area (ROFA)**

No construction is to be performed within existing ROFA limits.

17.3. **Taxiway Safety Area (TSA)**

17.3.1. No construction is permitted within the taxiway safety area while the taxiway is open for aircraft operations.

17.4. **Taxiway Object Free Area (TOFA)**

No work is permitted inside the TOFA without the taxiway being closed. For this project, the following distances (in accordance with FAA Advisory Circular 150/5300-13) must be protected along the taxiway:

Taxiway	Aircraft Approach Category A, B, C, or D	Airplane Design Group I, II, III, or IV	TOFA Width in Feet Divided by 2
All taxiways	C	III	93

TABLE 17.4-1 TOFA SAFETY DISTANCES

17.5. **Obstacle Free Zone (OFZ)**

Typically, no personnel, equipment, or material shall be permitted inside the OFZ while the runway is open for aircraft operations.

17.6. **Runway Approach/ Departure Areas and Clearways**

All personnel, equipment, and material shall remain outside the protected approaches and surfaces as shown on the phasing plans in Attachment A. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Prior to placing such objects, a 7460-1 form and justification must be provided to the appropriate FAA Airports

Regional or District Office and approved. Particular attention is called to the placement of cranes, excavators, and other tall equipment.

18. OTHER LIMITATIONS ON CONSTRUCTION

18.1. **Prohibitions.**

The following are prohibited:

18.1.1. No use of tall equipment (cranes, concrete pumps, etc.) unless a 7460-1 determination letter is issued for such equipment.

18.1.2. No uses of open flame welding or torches unless fire safety precautions are provided, and the airport operator has approved their use.

18.1.3. No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property.

18.1.4. No use of flare pots within the AOA.

18.1.5. No smoking within the AOA and worksite.

18.2. **Restrictions.**

The following are restricted:

18.2.1. Activities during special condition events as outlined in **Section 13 "Special Conditions"**.

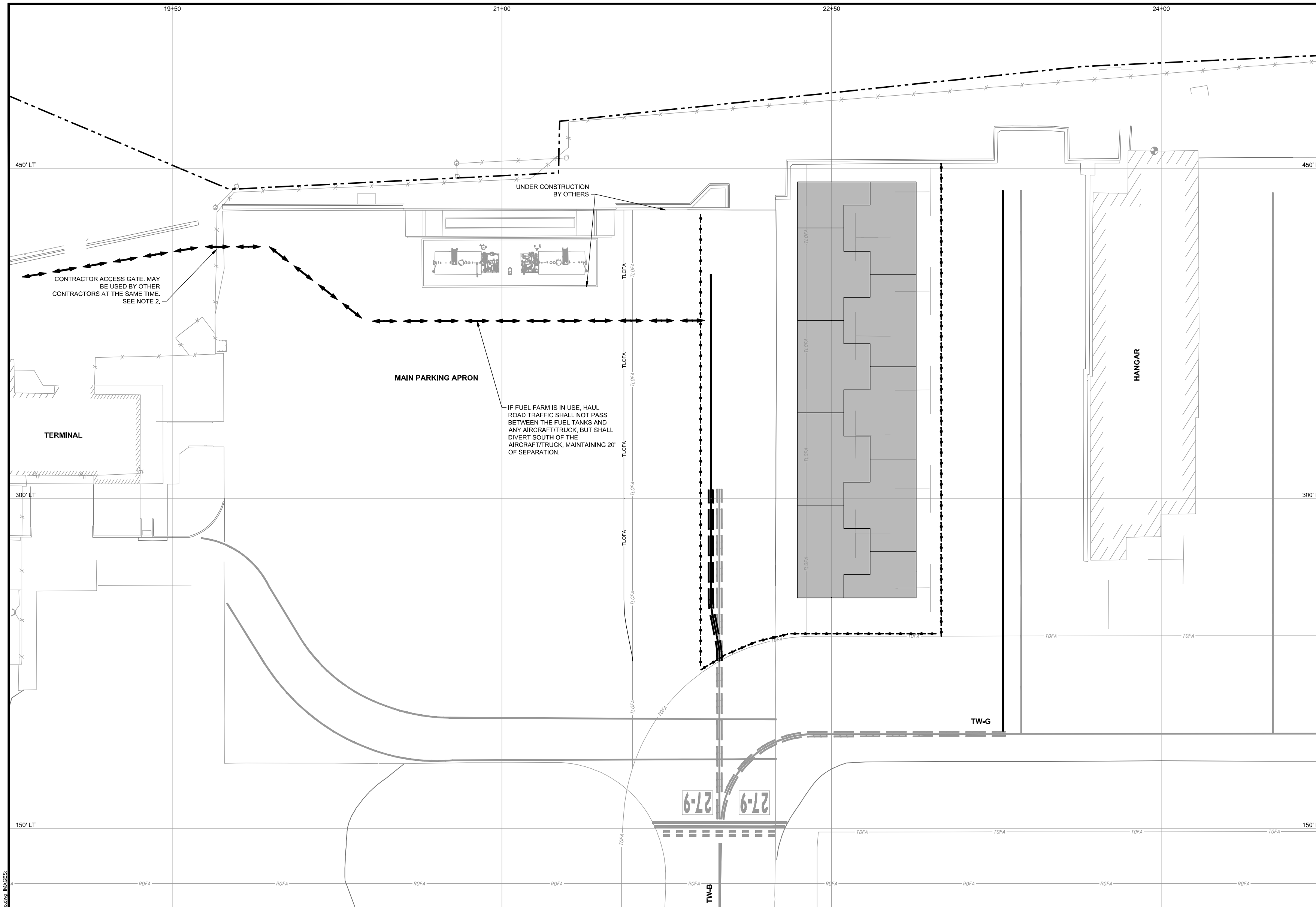
18.2.2. Areas that cannot be worked on simultaneously as outlined in the phasing plans. Also refer to **Section 2, "Phasing."**

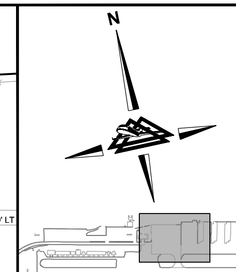
18.2.3. Day or night construction restrictions as outlined in the phasing plans. Also refer to **Section 2, "Phasing."**

18.2.4. Work area restrictions as outlined in the phasing plans. Also refer to **Section 2, "Phasing."**

ATTACHMENT A – PHASING PLANS

(Bid Set - see Work Area Milestone Plan Sheets)





SHEET INDEX

LEGEND

- AVIATION BARRICADES
- HAUL ROUTE (TWO-WAY TRAFFIC)
- EXISTING FENCE
- EXISTING AIRPORT PROPERTY LINE
- EXISTING RUNWAY OBJECT FREE AREA
- EXISTING RUNWAY PROTECTION ZONE
- EXISTING TAXILANE OBJECT FREE AREA
- PROPOSED TAXILANE OBJECT FREE AREA
- EXISTING TAXIWAY OBJECT FREE AREA
- EXISTING MARKING
- PROPOSED MARKING
- PROPOSED CONSTRUCTION

NOTES

1. ALL STATIONS AND OFFSETS GIVEN WITH RESPECT TO BASELINE "RW" (RUNWAY 9-27 CENTERLINE) UNLESS OTHERWISE NOTED.
2. REFER TO "GENERAL LAYOUT & PROJECT NOTES" FOR CONTRACTOR HAUL ROUTE, STAGING AREA, AND EMPLOYEE PARKING.

20 0 20 40
SCALE: 1"=20' FEET

NO.	REVISIONS	BY	APP.	DATE

7804 Pan American East Freeway NE, Suite 4
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CONSTRUCT T-HANGARS

PHASING LAYOUT

LOS ALAMOS COUNTY AIRPORT

NMDOT-AD PROJECT NO. LAM-24-02
JOB NO. 23063
DRAWN BY: MJH
DESIGNED BY: CAR/ABH
SCALE: 1" = 20'
DATE: AUGUST 2024
SHEET 3 OF 14

DRAWING: 23063phs.dwg LAYOUT: L1
XREFS: 23063plan-ex.dwg; 23063geom-pro.dwg IMAGES:

PHASING NOTES:

GENERAL

1. THE CONTRACTOR SHALL HAVE 100 CALENDAR DAYS TO COMPLETE THE PROJECT.
2. LIQUIDATED DAMAGES IN THE AMOUNT OF TWO THOUSAND DOLLARS ($2,000.00) PER CALENDAR DAY WILL BE ASSESSED AGAINST THE CONTRACTOR FOR EACH CALENDAR DAY, OR PORTION THEREOF, THAT THE TOTAL CONTRACT TIME IS EXCEEDED.
3. THE INTENT OF THIS PHASING PLAN IS TO MINIMIZE THE IMPACT OF CONSTRUCTION ON THE OPERATION OF THE AIRPORT. ALL REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS WILL BE STRICTLY ENFORCED.
4. THE CONTRACTOR SHALL SCHEDULE THE WORK TO MINIMIZE CONSTRUCTION IMPACTS ON AIRPORT OPERATIONS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A SEVEN (7) DAY ADVANCE NOTICE OF INTENT TO START WORK. THE OWNER WILL ISSUE THE APPROPRIATE NOTICE-TO-AIRMEN (NOTAMS).
5. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES TO THE PHASING PLAN WITHOUT APPROVAL OF THE ENGINEER AND OWNER.
6. PRIOR TO SUBMITTAL OF THE NOTICE OF INTENT TO START WORK, SUBMITTAL AND ACCEPTANCE OF ALL SHOP DRAWINGS FOR ALL ITEMS INCLUDED IN THE WORK SHALL BE COMPLETED.
7. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE TO THE ENGINEER A MINIMUM OF SEVEN (7) DAYS PRIOR TO THE PRE-CONSTRUCTION CONFERENCE. THE SCHEDULE SHALL CLEARLY DELINEATE THE PROPOSED WORK AREAS AND THE NUMBER OF DAYS ANTICIPATED FOR THE COMPLETION OF EACH WORK AREA. REFERENCE IS DIRECTED TO THE SPECIAL PROVISIONS OF THE SPECIFICATIONS.
8. THE CONTRACTOR SHALL MARK AND LIGHT AREAS UNDER CONSTRUCTION IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. AIRCRAFT AND PUBLIC SAFETY SHALL NOT BE COMPROMISED, AND PROPER SEPARATION SHALL BE MAINTAINED AT ALL TIMES.
9. BARRICADES SHALL BE INSTALLED AS THE FIRST TASK AND REMOVED AS THE LAST TASK. AVIATION BARRICADES SHALL NOT BE REMOVED UNTIL THE PAVEMENT AND SAFETY AREAS ARE ESTABLISHED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND ARE SUITABLE FOR USE BY AIRCRAFT.
10. THE CONTRACTOR SHALL BE REQUIRED TO RELOCATE THE AVIATION BARRICADES DURING THE PROJECT. MULTIPLE RELOCATION OF THE BARRICADES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
11. AIRCRAFT SHALL HAVE THE RIGHT-OF-WAY AT ALL TIMES. CONTRACTOR VEHICLES SHALL GIVE WAY TO AIRCRAFT AT ALL TIMES.
12. ANY REOPENING OF TEMPORARILY CLOSED AIRFIELD PAVEMENTS SHALL BE COORDINATED IN ADVANCE WITH THE OWNER. PRIOR TO REOPENING PAVEMENT TO AIRCRAFT OPERATIONS, THE CONTRACTOR SHALL CLEAN ALL DEBRIS (FOD) FROM THE PAVEMENT SURFACES, RESTORE MARKINGS, AND ESTABLISH THE SAFETY AREAS IN ACCORDANCE WITH THE SPECIFICATIONS. THE OWNER AND ENGINEER SHALL BE NOTIFIED SUFFICIENTLY IN ADVANCE OF THE OPENING TIME TO ALLOW FOR INSPECTION AND ANY REMEDIAL CLEANING.
13. REFER TO THE PHASING DETAILS SHEET FOR DETAILS OF AVIATION BARRICADES AND FAR PART 77 SURFACES.
14. REFER TO THE SPECIFICATIONS AND THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) FOR THE CONTRACTOR'S RESPONSIBILITIES FOR OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.
15. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH FAA ADVISORY CIRCULAR (AC) 150/5370-2 "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" AND THE PROJECT CONSTRUCTION SAFETY AND PHASING PLAN (CSPP).
16. THE CONSTRUCTION SHALL SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) IN ACCORDANCE WITH THE SPECIAL PROVISIONS OF THE SPECIFICATIONS AND THE CURRENT VERSION OF FAA ADVISORY CIRCULAR (AC) 150/5370-2 "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
17. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND OWNER WITH A SEVEN (7) DAY WRITTEN ADVANCE NOTICE OF INTENT TO BEGIN EACH WORK AREA. THE OWNER WILL ISSUE THE APPROPRIATE NOTICE-TO-AIRMEN (NOTAMS).
18. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT WEEKLY SAFETY/PROGRESS MEETINGS WITH THE ENGINEER AND OWNER.
19. ALL CONTRACTOR VEHICLES SHALL BE MARKED WITH YELLOW FLASHING STROBE LIGHTS OR 3' X 3' ORANGE AND WHITE CHECKER FLAGS WHEN OPERATING ON THE AIRFIELD.

WORK AREA NOTES:

GENERAL

20. PRIOR TO STARTING WORK, THE CONTRACTOR SHALL COORDINATE WITH THE OWNER AND CONFIRM THAT THE PROPER NOTAMS HAVE BEEN ISSUED AND ARE ON FILE. ALL NOTAMS SHALL BE ISSUED BY THE OWNER.
21. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND OWNER WITH A 7 DAY WRITTEN ADVANCE OF INTENT TO BEGIN WORK
22. ALL MATERIALS SHALL BE APPROVED AND ON-SITE PRIOR TO THE START OF WORK
23. THE CONTRACTOR'S PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE WORK AREA LIMITS AND DESIGNATED HAUL ROUTES AT ALL TIMES

PHASE 1: HANGAR CONSTRUCTION AND APRON MARKING

LIMITATIONS:	NONE
MILESTONE TIME:	100 CALENDAR DAYS
MILESTONE LIQUIDATED DAMAGES:	$2,000.00 PER CALENDAR DAY
ADVANCE NOTICE:	7 CALENDAR DAYS (WRITTEN) 48 HOURS
AOA CLOSURES:	NONE
AOA CLOSURE PERIODS:	NONE

NOTICE / OTHER WORK REQUIREMENTS BEFORE STARTING PHASE 1

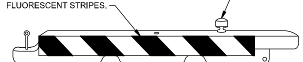
- INSTALL ALL LOW-PROFILE BARRICADES PER THE PHASING PLAN FOR PHASE 1.

REQUIRED WORK TO BE COMPLETED IN PHASE 1

- MARKING REMOVAL ON HANGAR SITE AND ADJACENT TAXILANES
- INSTALLATION OF UTILITIES AND INFRASTRUCTURE
- CONSTRUCTION OF T-HANGAR FOUNDATION
- ERECTION OF T-HANGAR BUILDING
- INSTALLATION OF T-HANGAR ELECTRICAL AND LIGHTING
- MARKING OF ADJACENT TAXILANE PAVEMENTS

NOTES

- AIRFIELD PAVEMENTS SHALL NOT BE PERMITTED TO REOPEN UNTIL THE SAFETY AREA REQUIREMENTS ARE MET AND THE PAVEMENT HAS BEEN CLEARED OF FOD.



WATER FILLED AVIATION BARRICADE DETAIL

NTS
(LOW PROFILE)

NOTES:

1. BARRICADES SHALL BE SPACED A MAXIMUM OF 4' APART, EXCEPT AT VEHICLE ACCESS/ARFF ACCESS POINTS WHERE A 15' GAP IS ALLOWED.
2. BARRICADES SHALL BE COMMERCIALLY MADE IN LENGTHS OF 6' OR 8'.
3. BARRICADES SHALL BE FILLED WITH WATER TO ADEQUATELY WITHSTAND HIGH WINDS AND/OR JET BLAST.
4. THE CONTRACTOR SHALL MAKE FREQUENT INSPECTION OF THE BARRICADES AND MAKE PROMPT REPAIRS AS NECESSARY.
5. LIGHTS SHALL BE INSPECTED AND OPERATING EVERY NIGHT PRIOR TO LEAVING THE SITE.
6. RELOCATIONS AND MULTIPLE SETUPS AND REMOVALS OF THE AVIATION BARRICADES SHALL BE INCIDENTAL TO THE UNIT COST WHEREIN NO SEPARATE PAYMENT WILL BE MADE.

NO.	REVISIONS	BY	APP.	DATE

7804 Pan American East Freeway NE, Suite 4
Albuquerque, New Mexico 87109
phone: (505) 797-4921 • fax: (505) 797-1725
www.deltaairport.com

DELTA AIRPORT CONSULTANTS, INC.

100% REVIEW COPY
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

CONSTRUCT T-HANGARS

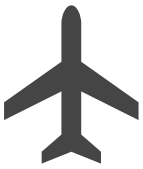
PHASING NOTES & DETAILS

LOS ALAMOS COUNTY AIRPORT

NMDOT-AD PROJECT NO.	LAM-24-02
JOB NO.	23063
DRAWN BY:	MJH
DESIGNED BY:	CAR/ABH
SCALE:	NONE
DATE:	AUGUST 2024
SHEET	4 OF 14

DRAWING: 23063phn.dwg LAYOUT: L1
XREFS: IMAGES:

ATTACHMENT B – SAMPLE CHECKLISTS



(Insert the PDFs of the checklists from FAA AC 150/5370-2G)–

APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

Table C-1. CSPP Checklist

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
General Considerations					
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	2.5				
Operational safety is a standing agenda item for construction progress meetings.	2.5				
Scheduling of the construction phases is properly addressed.	2.6				
Any formal agreements are established.	2.5.3				
Areas and Operations Affected by Construction Activity					
Drawings showing affected areas are included.	2.7.1				
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	2.7.1.1				
Access routes used by ARFF vehicles affected by the project are addressed.	2.7.1.2				
Access routes used by airport and airline support vehicles affected by the project are addressed.	2.7.1.3				
Underground utilities, including water supplies for firefighting and drainage.	2.7.1.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Approach/departure surfaces affected by heights of temporary objects are addressed.	2.7.1.5				
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	2.7.1				
Temporary changes to taxi operations are addressed.	2.7.2.1				
Detours for ARFF and other airport vehicles are identified.	2.7.2.2				
Maintenance of essential utilities and underground infrastructure is addressed.	2.7.2.3				
Temporary changes to air traffic control procedures are addressed.	2.7.2.4				
NAVAIDs					
Critical areas for NAVAIDs are depicted on drawings.	2.8				
Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed.	2.8				
Protection of NAVAID facilities is addressed.	2.8				
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	2.8				
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	2.8, 2.13.1, 2.13.5.3.1, 2.18.1				
Contractor Access					
The CSPP addresses areas to which contractor will have access and how	2.9				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
the areas will be accessed.					
The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.	2.9				
The location of stockpiled construction materials is depicted on drawings.	2.9.1				
The requirement for stockpiles in the ROFA to be approved by FAA is included.	2.9.1				
Requirements for proper stockpiling of materials are included.	2.9.1				
Construction site parking is addressed.	2.9.2.1				
Construction equipment parking is addressed.	2.9.2.2				
Access and haul roads are addressed.	2.9.2.3				
A requirement for marking and lighting of vehicles to comply with AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport,* is included.	2.9.2.4				
Proper vehicle operations, including requirements for escorts, are described.	2.9.2.5, 2.9.2.6				
Training requirements for vehicle drivers are addressed.	2.9.2.7				
Two-way radio communications procedures are described.	2.9.2.9				
Maintenance of the secured area of the airport is addressed.	2.9.2.10				
Wildlife Management					
The airport operator’s wildlife management procedures are addressed.	2.10				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Foreign Object Debris Management					
The airport operator's FOD management procedures are addressed.	2.11				
Hazardous Materials Management					
The airport operator's hazardous materials management procedures are addressed.	2.12				
Notification of Construction Activities					
Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.	2.13				
Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified.	2.13.1				
A list of local ATO/Technical Operations personnel is included.	2.13.1				
A list of ATCT managers on duty is included.	2.13.1				
A list of authorized representatives to the OCC is included.	2.13.2				
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	2.8, 2.13.2, 2.18.3.3.9				
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	2.13.2				
Emergency notification procedures for medical, fire fighting, and police	2.13.3				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
response are addressed.					
Coordination with ARFF personnel for non-emergency issues is addressed.	2.13.4				
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	2.13.5				
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	2.13.5.3.2				
Inspection Requirements					
Daily and interim inspections by both the airport operator and contractor are specified.	2.14.1, 2.14.2				
Final inspections at certificated airports are specified when required.	2.14.3				
Underground Utilities					
Procedures for protecting existing underground facilities in excavation areas are described.	2.15				
Penalties					
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	2.16				
Special Conditions					
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	2.17				
Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs					
The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.	2.18.1				
Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
The requirement for markings to be in compliance with AC 150/5340-1, *Standards for Airport Markings*, is specified.	2.18.2				
Detailed specifications for materials and methods for temporary markings are provided.	2.18.2				
The requirement for lighting to conform to AC 150/5340-30, *Design and Installation Details for Airport Visual Aids;* AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.3				
The use of a lighted X is specified where appropriate.	2.18.2.1.2, 2.18.3.2				
The requirement for signs to conform to AC 150/5345-44, *Specification for Runway and Taxiway Signs;* AC 50/5340-18, *Standards for Airport Sign Systems;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.4				
Marking and Signs For Access Routes					
The CSPP specifies that pavement markings and signs intended for construction personnel should conform to AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications.	2.18.4.2				
Hazard Marking and Lighting					
Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.	2.20.1				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	2.20.1				
The CSPP considers less obvious construction-related hazards.	2.20.1				
Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.	2.20.2.1				
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	2.20.2.1				
Red lights meeting the luminance requirements of the State Highway Department are specified.	2.20.2.2				
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high.	2.20.2.3				
Barricades are specified to indicate construction locations in which no part of an aircraft may enter.	2.20.2.3				
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	2.20.2.5				
Markings for temporary closures are specified.	2.20.2.5				
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	2.20.2.7				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Work Zone Lighting for Nighttime Construction					
If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.	2.21				
Protection of Runway and Taxiway Safety Areas					
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	2.22.1.1, 2.22.3.1				
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM.	2.22.1.2, 2.22.3.2				
Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.	2.22.3.3				
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.	2.22.1.4				
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	2.22.1.4				
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	2.22.1.4				
Grading and soil erosion control to maintain RSA/TSA standards are	2.22.3.5				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
addressed.					
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	2.22.2				
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	2.22.3				
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	2.22.4				
Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included.	2.22.4.3.6				
Provisions for protection of runway approach/departure areas and clearways are included.	2.22.6				
Other Limitations on Construction					
The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.	2.23.1.2				
The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.	2.23.1.3				

APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

Table D-1. Potentially Hazardous Conditions

Item	Action Required (Describe)	No Action Required (Check)
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		
Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.		
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and		

Item	Action Required (Describe)	No Action Required (Check)
approach zones.		
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		

Item	Action Required (Describe)	No Action Required (Check)
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		
Lack of radio communications with construction vehicles in airport movement areas.		
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.		
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		

Appendix C – Boring Logs from the Geotechnical Report

BORING LOCATION MAP

Los Alamos Airport T-Hangar
Los Alamos, New Mexico
Job No. 1-31205

Figure 1

N
W E
S

GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING

GEO-TEST

Los Alamos T-hangar 1-31205

Boring Locations

1)	35.881883°	-106.274076°
2)	35.881427°	-106.274073°
3)	35.881688°	-106.273926°
4)	35.881578°	-106.274231°

GEO-TEST, INC.
3204 RICHARDS LANE
SANTA FE,
NEW MEXICO
87507
(505) 471-1101
FAX (505) 471-2245

8528 CALLE ALAMEDA NE
ALBUQUERQUE,
NEW MEXICO
87113
(505) 857-0933
FAX (505) 857-0803

2805-A LAS VEGAS CT.
LAS CRUCES,
NEW MEXICO
88007
(575) 526-6260
FAX (575) 523-1660

Los Alamos Airport T-Hangar
Los Alamos, New Mexico
Job No. 1-31205

Core 1 = 4.5 inches
Boring Location 1

GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING

Los Alamos Airport T-Hangar
Los Alamos, New Mexico
Job No. 1-31205

Core 2 = 4.75 inches
Boring Location 2

GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING

Los Alamos Airport T-Hangar
Los Alamos, New Mexico
Job No. 1-31205

Core 3 = 5.5 inches
Boring Location 3

GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING

Los Alamos Airport T-Hangar
Los Alamos, New Mexico
Job No. 1-31205

Core 4 = 4.75 inches
Boring Location 4

GEO-TEST
GEOTECHNICAL ENGINEERING
AND MATERIAL TESTING

GEO-TEST

Project: Los Alamos Airport T-Hangar
Date: 02/29/2024 Project No: 1-31205
Elevation: Type: 2.25" ID HSA

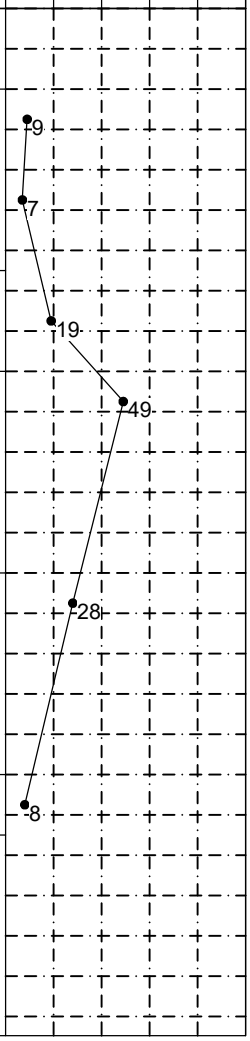
LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 1

During Drilling: none After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION
			AC		4		AC	4.5 inches ASPHALT over 16 inches BASE COURSE
			SS	6-5-4 9	18		FILL	SILTY SAND with GRAVEL (Processed Tuff Fill), non-plastic, loose, very moist, brown/purple
5			SS	3-4-3 7	17			
			SS	9-9-10 19	17		ML	SANDY SILT, non-plastic, firm, moist, brown
10			SS	18-29-20 49	1		TUFF	TUFF, non-plastic, very firm, slightly moist, purpleish gray
15			SS	9-14-14 28	24		SC	CLAYEY SAND, high plasticity, firm, very moist, orangeish brown
20			SS	11-5-3 8	5		TUFF	TUFF, non-plastic, soft, dry, purpleish gray
								Stopped Auger @ 19 feet Stopped Sampler @ 20.5 feet
25								



LOG OF TEST BORING 1-31205.GPJ GEO TEST.GDT 4/9/24

LEGEND

SS - Split Spoon
AC - Auger Cuttings
UD/SL - Undisturbed Sleeve
AMSL - Above Mean Sea Level
CS - Continuous Sampler
UD - Undisturbed
ST - Shelby Tube

Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurments were made.

GEO-TEST

Project: Los Alamos Airport T-Hangar
Date: 02/29/2024 Project No: 1-31205
Elevation: Type: 2.25" ID HSA

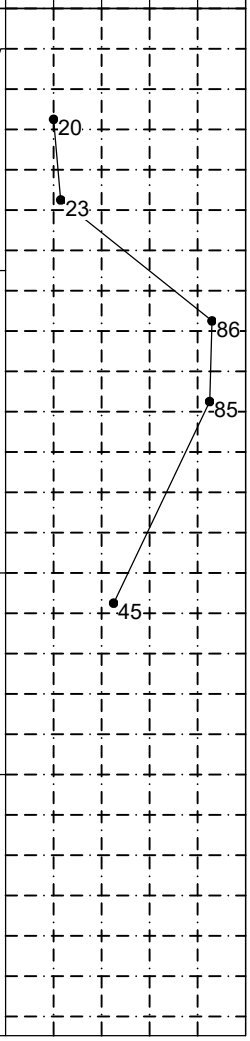
LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 2

During Drilling: none After 24 Hours:

DEPTH (Ft)	SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION
						AC	4.75 inches ASPHALT over 7.5 inches BASE COURSE
		SS	13-10-10 20	14		CL	SANDY CLAY, medium plasticity, firm, moist, brown
5		SS	6-11-12 23	16			
		SS	23-42-44 86	10		TUFF	TUFF, non-plastic, hard, slightly moist, purpleish gray
10		SS	33-38-47 85	9			
		SS	20-22-23 45	8		TUFF	TUFF, non-plastic, very firm to hard, dry, gray
15		AC					
		SS	50/1" 50/1"	8			Stopped Auger @ 19 feet Sampler REFUSAL @ 19 feet
20							
25							



LOG OF TEST BORING 1-31205.GPJ GEO TEST.GDT 4/9/24

LEGEND

SS - Split Spoon
AC - Auger Cuttings
UD/SL - Undisturbed Sleeve
AMSL - Above Mean Sea Level
CS - Continuous Sampler
UD - Undisturbed
ST - Shelby Tube

Stratification lines represent approximate boundaries between soil types. Transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurments were made.

GEO-TEST

Project: Los Alamos Airport T-Hangar
Date: 02/29/2024 Project No: 1-31205
Elevation: Type: 2.25" ID HSA

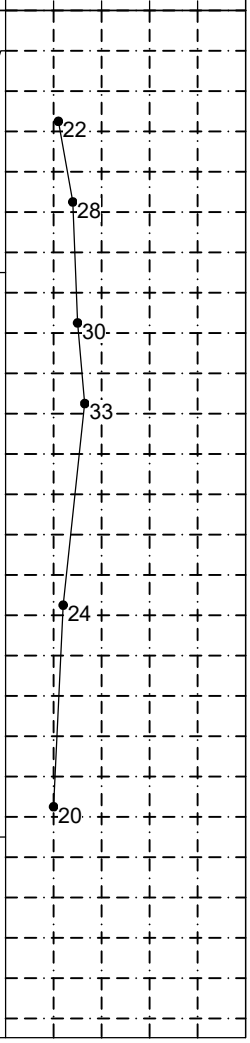
LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 3

During Drilling: none After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION
							AC	.5 inches ASPHALT over 8 inches BASE COURSE
			SS	15-11-11 22	21		FILL	SANDY SILT with GRAVEL (Processed Tuff Fill), non-plastic, medium dense, very moist, brown/purple
5			SS	11-14-14 28	19			
			SS	18-15-15 30	10		TUFF	TUFF, non-plastic, very firm to firm, slightly moist, gray to purpleish gray
10			SS	13-17-16 33	11			
15			SS	12-10-14 24	12			
20			SS	15-9-11 20	20			Stopped Auger @ 19 feet Stopped Sampler @ 20.5 feet
25								



LOG OF TEST BORING 1-31205.GPJ GEO TEST.GDT 4/9/24

LEGEND

SS - Split Spoon
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GEO-TEST

Project: Los Alamos Airport T-Hangar
Date: 02/29/2024 Project No: 1-31205
Elevation: Type: 2.25" ID HSA

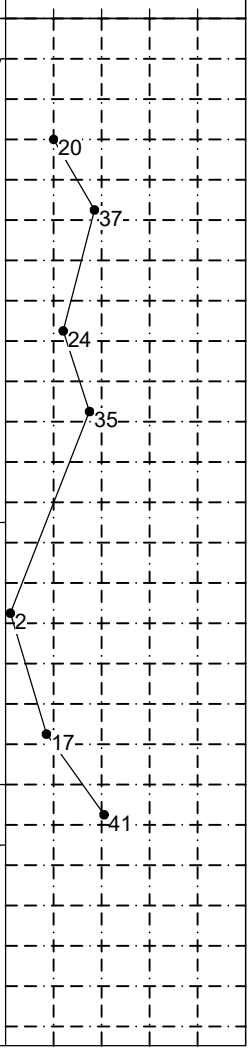
LOG OF TEST BORINGS

GROUNDWATER DEPTH

NO: 4

During Drilling: none After 24 Hours:

DEPTH (Ft)	LOG	SAMPLE INTERVAL	TYPE	N. BLOWS/FT	MOISTURE %	DRY DENSITY (pcf)	USC	DESCRIPTION
			AC		27		AC	4.75 inches ASPHALT over 7.5 inches BASE COURSE
			UD	10-10 20	23		FILL	SILTY SAND (Processed Tuff Fill), non-plastic, firm to very firm, very moist, purple/brown to gray
5			SS	18-20-17 37	13			
			SS	12-12-12 24	20			
10			SS	10-15-20 35	14			
			SS	3-1-1 2	13		TRASH	TRASH - glass, porcelain, brick, wire, metal with SILTY SAND FILL, non-plastic, very loose to medium dense, very moist, brown
			SS	4-4-13 17				
20			SS	21-20-21 41	7		TUFF	TUFF, non-plastic, very firm, slightly moist, gray
								Stopped Auger @ 19 feet Stopped Sampler @ 20.5 feet
25								



LOG OF TEST BORING 1-31205.GPJ GEO TEST.GDT 4/9/24

LEGEND

SS - Split Spoon
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