SPECIFICATIONS
and
CONTRACT DOCUMENTS

FOR

HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA

SAC NO: 21-008
BID NO: 23-037 REBID
EDA INVESTMENT NO: 04-79-07837

PREPARED FOR:
GEORGETOWN COUNTY, SOUTH CAROLINA
AND
GEORGETOWN COUNTY AIRPORT COMMISSION

IN COOPERATION WITH:
SOUTH CAROLINA AERONAUTICS COMMISSION
AND
ECONOMIC DEVELOPMENT ADMINISTRATION

Engineer:
TALBERT & BRIGHT, INC.
Engineering and Planning Consultants
4810 Shelley Drive
Wilmington NC 28405
(910) 763-5350

TBI No. 2601-2101
October 2023

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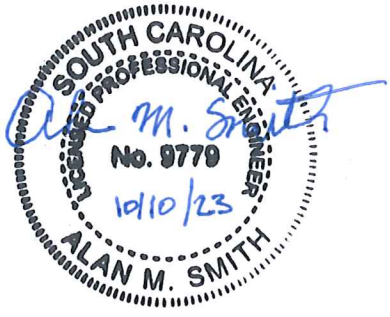

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County of Georgetown, South Carolina

715 Prince St., Suite 239 · Georgetown, SC 29440-3641
Post Office Box 421270, Georgetown, SC 29442-4200
(843)545-3076 · Fax (843)545-3500 · purch@gtcounty.org

INVITATION FOR BID (IFB)

BID NUMBER: 23-037 REBID **ISSUE DATE: Monday, November 27, 2023**

EDA Project No.: 04-79-07837

OPENING DATE: Wednesday, January 3, 2024 **OPENING TIME: 3:00 PM (ET)**

Site Inspection: VOLUNTARY – By Prior Appointment
Georgetown County Airport Terminal, 129 Airport Road, Georgetown, SC 29440

PROCUREMENT FOR: Hangar Taxilane Improvements and Hangar Sitework at Georgetown County Airport (GGE)

All bids must be submitted electronically through the Purchasing Department's Vendor Registry webpage. Please click on the following link http://www.georgetowncountysc.org/172/Purchasing for instructions on how to submit bids electronically through this system. As always, emailed/faxed bids will not be accepted. Your bid must be submitted electronically through Georgetown County's Purchasing Vendor Registry page to ensure it remains sealed until the scheduled bid opening date and time.

Any scheduled bid openings will still be opened at the designated date and time as listed in the bid document or related addendum. However, at the time of this bid issuance, these bid openings may be conducted virtually, in-person, or by a hybrid method (both virtually and in person). See the timeline on page 3 for location and method specified. As always, bid openings will be accompanied by at least one witness and bid tabulation results will be posted online for the public's viewing after the bid opening.

Purchasing Contacts: **Nancy Silver**
Phone: 843-545-3076
Fax: 843-545-3500
E-mail: nsilver@gtcounty.org

This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program.

This solicitation does not commit Georgetown County to award a contract, to pay any cost incurred in the preparation of the bid, or to procure or contract for goods or services. It is the responsibility of each bidder to see that they submit their bids on or before, the date and time specified for the bid opening. No bid will be accepted thereafter. Georgetown County reserves the right to reject any or all bids and to waive any informalities and technicalities in the bid process.

Intent to Respond

REF: Bid #23-037 REBID, Hangar Taxilane Improvements and Hangar Sitework at Georgetown County Airport (GGE)

If your company intends to respond to this solicitation, please complete and promptly return this form to assure that you can be included on the mailing list to receive all addenda regarding this project.

It is not necessary to return any other portion of the bid documents if you are not bidding.

Failure to return the Intent to Respond shall not be sufficient cause to rule a submittal as non-responsive; nor does the return of the form obligate an interested party to submit a response. Georgetown County's efforts to directly provide interested parties with addenda or additional information are provided as a courtesy only, and do not alleviate the respondent from their obligation to verify they have received and considered all addenda. All addenda are published and available on the county website at www.gtcounty.org select "Bid Opportunities" under Quick Links.

☐ Our firm **does** intend on responding to this solicitation.

☐ Our firm **does not** intend on responding to this solicitation.

Company Name: _____

Address: _____

_____

Contact Person: _____

Telephone: _____

FAX: _____

E-Mail: _____

How did you hear about this opportunity? _____

Reason if **not** responding: _____

Please return this completed form to Nancy Silver, Purchasing Officer:

- **by e-mail to nsilver@gtcounty.org**
- **or by FAX to (843)545-3500.**

[End of Intent to Respond]

Time Line: Invitation for Bid #23-037 REBID

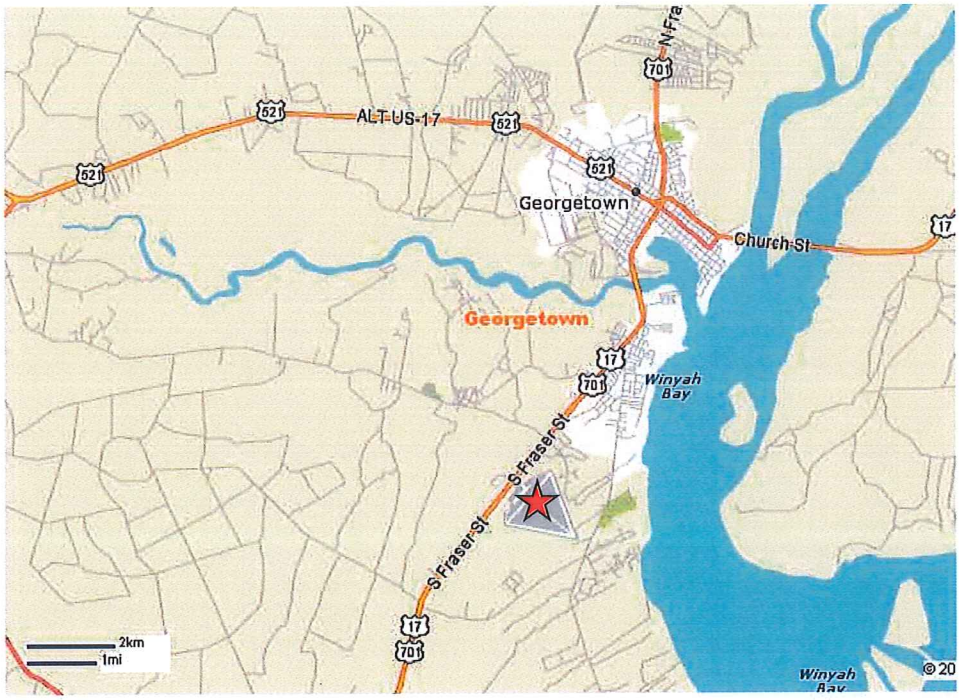
Item	Date	Time	Location*
Advertised Date of Issue:	**Monday, November 27, 2023**	n/a	n/a
Site Inspection:	By Prior Appointment	By Appointment	GC Airport
Deadline for Questions:	Wednesday, December 13, 2023	3:00PM ET	n/a
Bids Must be Received on/or Before:	Wednesday, January 3, 2024	3:00PM ET	Electronic
Public Bid Opening & Tabulation:	Wednesday, January 3, 2024	3:00PM ET	Hybrid

*At the time of this posting, bid openings may be performed virtually, in-person, or by a hybrid method, see above location for method specified. A virtual meeting link will be posted under the bid number before the bid opening time so that members of the public may attend the meeting virtually. Vendors may also now attend the meeting in person at the Georgetown County Historic Courthouse, Purchasing Conference Room, 715 Prince St., Suite 239, 29440.

Invitation for Bid #23-037 REBID
Hangar Taxilane improvements and Hangar Sitework at Georgetown County Airport (GGE)

Scope of Work:

The Hangar Taxilane Improvements and Hangar Sitework project at the Georgetown County Airport includes the design and construction of the site grading, removal of the existing abandoned runway, development of new 50' wide taxiway, drainage modifications, utilities, stormwater management facilities, marking, erosion control, lighting and signage installation, sodding, seeding, and mulching. The project will be awarded to one Contractor in the best interests of Georgetown County, dependent on availability of local, state, and federal funding.



Pre-Bid Site Inspection:

There will not be a pre-bid conference but bidders are encouraged to visit the site in person prior to bidding. Site inspections will be made available by PRIOR APPOINTMENT ONLY. Please contact Nancy Silver, Purchasing Officer at (843)545-3076 or by email at nsilver@gtcounty.org to schedule an appointment. A prior request is necessary because the Airport Director oversees more than one field and may not always be at the GGE Airport site. The Georgetown County Airport Terminal is located at 129 Airport Road, Georgetown, SC 29440.

Contractor's Site Inspection Responsibilities:

1) The bidder is expected to have become familiar with and take into consideration, site conditions which may affect the work and to check all dimensions at the site.

2) Each bidder shall acquaint themselves thoroughly as to the character and nature of the work to be done. Each bidder furthermore shall make a careful examination of the site of the work and inform themselves fully as to the difficulties to be encountered in performance of the work, the facilities for delivering, storing and placing materials and equipment and other conditions relating to construction and labor.

3) The bidder shall examine the premises and the site and compare them with any applicable drawings and specifications. He/she shall familiarize themselves with the existing conditions such as obstructive area levels and any problems related to erecting the required systems.

4) No plea of ignorance of conditions that exist or may hereafter exist on the site of the work, or difficulties that may be encountered in the execution of the work, as a result of failure to make necessary investigations and examinations, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the contract documents and to complete the work for the consideration set forth therein, or as a basis for any claim whatsoever.

5) Insofar as possible, the Contractor, in carrying out his/her work, must employ such methods or means as will not cause interruption of or interference with the work of any other Contractor, or County personnel at the site.

6) When boring data is provided by the Owner, the Bidder shall assume responsibility for any conclusions he/she may draw from such data. (S)he may employ his/her own consultants to analyze available information and shall be responsible for any conclusions drawn from that information. The cost of such employment shall be borne solely by the Bidder.

Permits

1) Permits for Stormwater Management and Erosion Control have been completed for the project.

Geotechnical Report

2) The geotechnical report for this project is included in Appendix 'F' of the specifications.

Bid Security

1) Each bid must be accompanied by a Bid Bond, for an amount equal to five percent (5%) of the total base bid as a guarantee that if the bid is accepted, the required Contract will be executed within fifteen (15) days after receipt of written notice of formal award of Contract. Bids not including such a bid bond will not be considered.

2) The successful offeror must provide a Performance Bond from a surety company qualified to do business under the laws of the State of South Carolina in the amount of 100 percent (100%) of the contract amount, within fifteen (15) days the after receipt of written notice of formal award of the Contract. Pricing for such Performance Bond should be indicated separately on the Vendor Bid Submission Form.

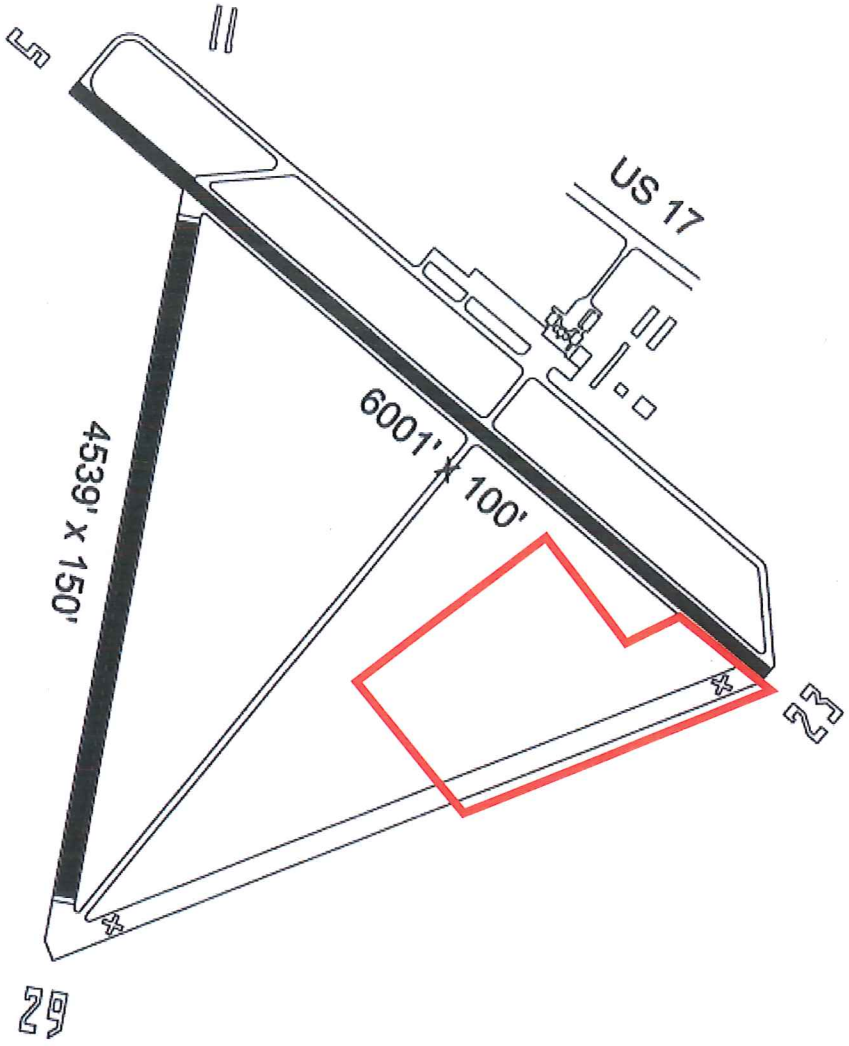
3) The successful offeror must provide a Payment and Material Bond from a surety company qualified to do business under the laws of the State of South Carolina in the amount of 100 percent (100%) of the contract amount, within fifteen (15) days after receipt of written notice of formal award of Contract.

Retainage

Retainage, in the amount of ten percent (10%) of the value of construction costs incurred for the project, shall be withheld until the project has been completed to the satisfaction of Owner.

Project Location:

The Hangar Taxilane Improvements and Hangar Sitework at the Georgetown County Airport is shown outlined in red.



Additional Contractor Responsibilities:

1) The contractor is responsible for contacting the **Palmetto Utility Protection Service (P.U.P.S.)** at its **811** or toll-free number **(1-888-721-7877)** between the hours of 7:30 am (ET) and 5:30 pm (ET), Monday through Friday, 72 hours before starting the proposed work.

2) The contractor will be responsible for disposal of any and all removed, unused and surplus materials and any fees and transportation costs associated with the disposal.

3) The total project completion time shall be one hundred twenty (120) calendar days from the Notice to Proceed with specific timelines within the that total project completion time as follows: thirty (30) calendar days for **Phase I (Work Area 1);** sixteen (16) contract days for **Phase II – Runway 5-23 Closure – Work in ROFA**; one (1) contract day for **Phase II – Final Marking Application – Work in ROFA**; and two (2) calendar days for **Removal of Erosion Control Items**. A liquidated damages fee of $1,500 per calendar day applies for each day beyond the contract completion date.

Grant Requirements:

This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal lasws and regulations associated with that program.

Due to the nature of funding for this project, the County's local vendor preference will be waived for this solicitation.

The awarded Contractor and their sub-contractors shall conform to all EDA and Federal policies and procedures as if written out in full. All activities will be completed in strict compliance with Federal, State and Local rules and regulations.

The Contractor shall immediately notify the Engineer and Owner in writing of any discrepancies between the above referenced standards and other parts of the documents, and shall proceed with all portions of the work affected by such discrepancies as directed by the Engineer and Owner.

Project Funding and Grant Requirements:

It is anticipated that this project will be funded, at least in part, through a grant from the Economic Development Administration (EDA). Full compliance with Federal bid procedures utilizing flow down funds will be required.

When Federal Funds are, or may be, involved in the funding of a project the following clauses shall be included as part of the conditions and specifications, by reference, as though each item is included in its entirety.
The following clauses contained in the Federal Procurement Regulations (FPR) or the Defense Acquisition Regulations (DAR) apply to all federal fund expenditures and are a part of the County's field order terms and conditions.

Special Terms and Conditions -- Federal Grants **Special Terms and Conditions -- Federal Contracts**	
The following provisions of the Federal Acquisition Regulations (FAR) apply regardless of the amount of the order.	
Anti-Kickback Procedures	52.203-7
Buy American Act-- Free Trade Agreements--Israeli Trade Act	52.225-3
Contract Work Hours and Safety Standards Act--Overtime Compensation	52.222-4
Integrity of Unit Prices	52.215-14(a)(b)
Equal Opportunity	52.222-26
Notice to the Government of Labor Disputes	52.222-1
Preference for U.S. - Flag Air Carriers (for international air travel only)	52.247-63
Restrictions on Subcontractor Sales to the Government	52.203-6
Service Contract Act of 1965, as Amended	52.222-41

Special Terms and Conditions -- Federal Grants **Special Terms and Conditions -- Federal Contracts**	
Termination for Convenience of Government (Education and Other Nonprofit Institutions)	52.249-5 (a)-(f)
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $2,500.	
Affirmative Action for Workers with Disabilities	52.222-36
Instructions to Offerors--Competitive Acquisition	52.215-1
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $10,000.	
Affirmative Action for Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	52.222-35
Audits and Records--Negotiation	52.215-2
Employment Reports on Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	52.222.37
Instructions to Offerors--Competitive Acquisition	52.215-1
Utilization of Small Business Concerns	52.219-8
Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns	52.219.23
Walsh-Healey Public Contracts Act	52.222-20
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $25,000.	
Authorization and Consent	52.227-1
Notice and Assistance Regarding Patent and Copyright Infringement	52.227-2
Preference for Privately Owned U.S.- Flag Commercial Vessels	52.247-64
Utilization of Labor Surplus Area Concerns (Reserved)	52.220-3
Utilization of Women-Owned Small Business (Reserved)	52.219-13
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $100,000.	
Clean Air and Water (Reserved)	52.223-1,2
Price Reduction for Defective Cost or Pricing Data--Modifications--Sealed Bidding	52.214-27 **or**
Subcontractor Cost or Pricing Data--Modifications--Sealed Bidding	52.214-28
NOTE: 52.214-27 applies if cost or pricing data is initially required; if not, 52.214-28 applies to transactions over $100,000.	
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $500,000.	
Labor Surplus Area Subcontracting Program (Reserved)	52.220-4
Small Business Subcontracting Plan	52.219-9
Small Disadvantaged Business Participation Program--Incentive Subcontracting	52.219.26

Special Terms and Conditions -- Federal Grants **Special Terms and Conditions -- Federal Contracts**		
The following provisions of the Federal Acquisition Regulations (FAR) apply when noted:		
Filing of Patent Applications--Classified Subject Matter	When subcontract involves classified matters	52.227-10
Hazardous Material Identification and Material Safety Data	When subcontract involves hazardous material	52.223-3
Patent Rights--Retention by the Contractor	When the subcontract or purchase order involves experimental research and development work.	52.227-11,12
NOTE: 52.227-11 applies to small business and nonprofit organizations; 52.227-12 applies to others.		
Representation of Limited Rights Data and Restricted Computer Software	When subcontract includes technical data or software acquisition requirements (DOD only)**	52.227-15
Rights in Data--General	Same as ** above.	52.227-14
Technical Data Declaration, Revision, and Withholding of Payment--Major Systems	Same as ** above.	52.227-21
Required Sources for Jewel Bearings (Reserved)	When subcontract or purchase order requires use of jewel bearings.	52.208-1
Security Requirements	When subcontract involves access to classified information.	52.204-2
The County reserves all administrative, contractual, and legal remedies against the contractor or vendor who breaches any of the contract terms.		

These are general instructions and conditions that accompany each bid package. If more specific instructions are given in the individual bid package, those instructions should prevail.

1. **This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program.**

2. **Submission of Questions**
   Questions must be submitted in writing via electronic mail, facsimile or postal mail to the Issuing Officer no later than the "Deadline for Questions" cutoff identified in the Bid Timeline on page three (3) in order to generate an official answer. All written questions will receive an official written response from the Georgetown County Purchasing Office (GCPO) and will become addenda to the solicitation.

   GCPO reserves the right to reject or deny any requests made by the provider.

   Impromptu, unwritten questions are permitted, and verbal answers may be provided, but are only intended as general direction and will not represent the official GCPO position. The only official position of GCPO is that which is stated in writing and issued in the solicitation as addenda thereto.

   No other means of communication, whether oral or written, shall be construed as a formal or official response/statement and may not be relied upon. SEND QUESTIONS TO:

   Nancy Silver, Purchasing Officer
   Post Office Box 421270, Georgetown, SC 29442-4200
   Fax: (843) 545-3500
   Email: nsilver@gtcounty.org

3. Sealed bids to provide **Hangar Taxilane and Hangar Sitework at Georgetown County Airport (GGE)** shall be received electronically through the County's Vendor Registry webpage until the cut-off time shown in the bid timeline on page three (3) of this document. Bids will then be promptly opened at the designated time by the Buyer. Bids that are not received prior to the stated opening date and time will be considered **NON RESPONSIVE**. An official authorized to bind the offer must sign all bids submitted.

4. **Inclement Weather/Closure of County Courthouse**
   Bid openings at the time of this issuance are being conducted virtually or hybrid and may occur from an alternate secure and/or remote location as needed. A virtual meeting link will be posted under the bid number before the bid opening time so that members of the public may attend the meeting virtually.

5. This solicitation does not commit Georgetown County to award a contract, to pay any cost incurred in the preparation of the bid, or to procure or contract for goods or services. It is the responsibility of each bidder to see that the Georgetown County Purchasing Office receives bids on, or before, the date and time specified for the bid opening. No bid will be accepted thereafter. The County assumes no responsibility for delivery of bids that are mailed. Georgetown County reserves the right to reject any or all bids and to waive any informalities and technicalities in the bid process.

6. NON EXCLUSIVITY
   Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Contractor. Any resulting contract shall not restrict the County from acquiring similar, equal or like goods and/or services from other entities or sources, when Staff determines internally that this resulting action is in the best interest of Georgetown County.

7. The Project has been designed by Talbert & Bright, Inc. whose office is located at 4810 Shelley Dr., Wilmington, NC and who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

8. No Bidder may submit more than one bid. Multiple bids for different manufacturers but represented by the same firm will not be accepted. Bids offered directly from manufacturers shall indicate if a local dealer/representative will be involved.

9. Definitions:
   a) The terms "Proposer", "Offeror", "Vendor" or "Bidder" refer to those parties who are submitting sealed responses for the work set forth in this document to the OWNER, as distinct from a sub-bidder who provides a bid to the Bidder. The term "Contractor" refers to the successful Bidder.

   b) The term "Hangar Taxilane Improvements and Hangar Sitework at Georgetown County Airport (GGE)" or "Work" refers to the **complete set of services** as specified in this document, in every aspect.

   c) The terms "Owner" and "County" refer to the County of Georgetown, South Carolina.

   d) Where the words "shall" or "must" are used, it signifies an absolute minimum function or capacity that, if not satisfied, may result in disqualification.

   e) Where the words "should", "may", or "is desirable" are used, it signifies desirable, but not mandatory functions or capacities. Bidders who are able to provide these functions or capacities may be evaluated more favorably that those who cannot.

   f) The Project has been designed by Talbert & Bright, Inc. whose office is located at 4810 Shelley Drive, Wilmington, NC 28405 and who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

10. Correction or Withdrawal of Bids; Cancellation of Awards
    An offeror must submit in writing a request to either correct or withdraw a bid to the Procurement Officer. Each written request must document the fact that the offeror's mistake is clearly an error that will cause him substantial loss.

    a) Correction of awards : An offeror shall not be permitted to correct a bid mistake after bid opening that would cause such offeror to have the low bid unless the mistake in the judgment of the Procurement Officer is clearly evident from examining the bid document; for example, extension of unit prices or errors in addition.

    b) Cancellation of awards prior to performance: When it is determined after an award has been issued but before performance has begun that Georgetown County's requirements for the goods or services have changed or have not been met, the award or contract may be canceled and either re-awarded or a new solicitation issued.

11. **Faxed or E-mailed bids will not be accepted by Georgetown County.**

12. If you need any reasonable accommodation for any type of disability in order to participate in this procurement, please contact the purchasing office as soon as possible.

13. Title VI of the Civil Rights Act of 1964: Georgetown County hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Georgetown County receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with Georgetown County. Any such complaint must be in writing and filed with Georgetown County's Title VI Coordinator within one hundred and eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discriminatory Complaint Form, please see our website at http://www.gtcounty.org/about/faqs.html.

14. Any deviations from the specifications or modification of this bid and any extra or incidental work or reductions in work shall be set forth in writing and signed by both parties prior to making such change. Any increase or decrease in the bid price resulting from such change shall be included in writing.

15. Exceptions: The bidder shall list on a separate sheet of paper any variations from, or exceptions to, the conditions and specifications of this bid. This sheet shall be labeled "Exception(s) to Bid Conditions and Specifications," and shall be attached to the bid. When Proposers find instances where they must take exception with certain requirements or specifications of the bid, all exceptions shall be clearly identified. Written explanations shall include the scope of the exceptions, the ramifications of the exceptions for the County of Georgetown, and a description of the advantage to be gained or disadvantages to be incurred by the County as a result of these exceptions. If none, write "NONE".

16. Georgetown County reserves the right to reject any or all bids, and to waive as an informality any irregularities contained in any bid as may be deemed in the best interest of the County. Georgetown County further reserves the right to reject any bid submitted, at its sole option, that the vendor may not be able to meet the service requirements of the bid.

17. Publicity releases: Contractor agrees not to refer to award of any resulting contract in commercial advertising in such a manner as to state or imply that the products or services provided are endorsed or preferred by the user.

18. Material Safety Data Sheets: The County of Georgetown will not receive any materials, products, or chemicals which may be hazardous to an employee's health unless accompanied by a Material Data Sheet when received.

19. Ownership of Copyright: All right, title and interest in all copyrightable materials which vendor shall create in the performance of its obligations hereunder shall be the property of the procurer. Vendor agrees to assign and hereby does assign any and all interest it has in and to such material to procurer. Vendor agrees, upon the request of procurer to execute all papers and perform all other such acts necessary to assist procurer to obtain and register copyrights on such materials. Where applicable, works of authorship created by the vendor in the performance of its obligations hereunder, shall be considered "works for hire" as defined in the U.S. Copyright Act.

20. Ownership of Documents: Any reports, studies, photographs, negatives or other documents prepared by vendor in the performance of its obligations shall be the exclusive property of the procurer and all such material shall be remitted to the procurer by the vendor upon completion, termination or cancellation of this order. Vendor shall not use, willingly allow or cause to have such material used for any purpose other than performance of its obligations under this order without the prior written consent of the procurer.

21. Affirmative Action: The contractor will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without regard or discrimination by reason of age, race, color, religion, sex, national origin or physical handicap. The following are incorporated herein by reference: 41 C.F.R. 60-1.4, 60-250.4 and 60-741.4.

22. Federally Funded Construction Contracts Over $2,000:
    a) Davis-Bacon Requirements. These contracts need to include a provision for compliance with the Davis-Bacon Act (40 USC 276a to a—7) and the Department of Labor implementing regulations (29 CFR Part 5). Under this Act, Contractors are required to include the contract provisions in Section 5.5 (a) of 29 CFR Part 5, and to pay wages to laborers and mechanics at a rate not less than the minimum wages specified in the wage determination made by the Secretary of Labor. In addition, Contractors shall be required to pay wages not less than the minimum wages specified in the wage determination made by the Secretary of Labor. In addition, Contractors shall be required to pay wages not less often than once a week. Current Wage Determination for Georgetown County in South Carolina is available in Appendix 'C' of the specifications or on-line at: https://sam.gov/content/wage-determinations

    b) Contract Work Hours and Safety Standard Act Requirements. The contracts must include a provision for compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 USC 327-330) as supplemented by the Department of Labor regulations (29 CFR Part 5). Under Section 103 of the Act, each Contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible provided that the worker is compensated at a rate not less than one times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. Section 107 of the Act is applicable to construction work and provides that no laborer of mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health and safety as determined under construction, safety and health standards promulgated by the Secretary of Labor. These requirements do not apply to the purchases of supplies, materials, or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

    c) Copeland "Anti-Kickback" Act Requirements. All construction contracts over $2,000.00 must include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). This act provides that each Contractor shall be prohibited from inducing, by any means, persons employed in the construction, completion, or repaid of public work to give up any part of their compensation.

23. Bidders must clearly mark as "confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under section 30-4-40, Code of Laws of South Carolina 1976, as amended (Freedom of Information Act). If any part is designated as confidential, there must be attached to that part an explanation of how this information fits within one or more categories listed in section 30-4-40. The County reserves the right to determine whether this

information should be exempt from disclosure and no legal action may be brought against the County or its agents for its determination in this regard.

24. CERTIFICATION REGARDING DRUG-FREE WORKPLACE:
The contractor certifies that the vendor(s) will provide a "drug-free workplace" as that term is defined in Section 44-107-30 of the Code of Laws of South Carolina, 1976, as amended, by the complying with the requirements set forth in title 44, Chapter 107.

25. Certification of Non-Segregated Facilities
The federally-assisted construction contractor certifies that he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this Contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractor s prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that he will retain such certifications in his files.

26. Nothing herein is intended to exclude any responsible vendor, his product or service or in any way restrain or restrict competition. On the contrary, all responsible vendors are encouraged to bid and their bids are solicited.

27. Acknowledgement of Addenda
Each contractor is responsible to verify the number of total addenda issued prior to bid. **Failure to acknowledge all addenda may disqualify the bidder.** All addenda are posted by the County at the website located at www.georgetowncountysc.org, select "Bid Opportunities" from the Quick Links box, then "View Current Bid Solicitations". It is each proposer's responsibility to verify that all addenda have been received and acknowledged.

28. Form and Style of Bids

a) Bids in the form of sealed proposals for the Construction of the Project will be received until the time and the date stated in the timeline of this Invitation for Bid.

b) The Bid shall be submitted on the Bid Form provided; no other form is acceptable.

c) The successful Bidder will be required to provide verified breakdown of costs of all services and work in a manner acceptable to the Owner.

d) All blanks on the Bid Form shall be filled in, either typed or printed in ink. The person signing the bid shall initial all corrections or erasures.

e) Bid unit price on quantity specified -- extend and show total. In case of errors in extension, unit prices shall govern.

f) Bidder shall quote all Alternates in the Bidding Documents. If Bidder fails to bid on all Alternates, then his/her Bid may be considered irregular, non-responsive and may be disqualified.

g) Bids containing qualifications will be considered irregular, non-responsive and may be disqualified.

h) A Bid Form submitted by a partnership shall list the names of all partners and shall be signed in the partnership name by one of the members of the partnership who is authorized to sign for the partnership.

i) A Bid Form submitted by a corporation shall be executed in the legal name of the corporation, followed by the state of incorporation and signed by the President or Vice President or other authorized officer. The name of each person signing the Bid Form shall be typed or printed below the signature.

j) When the person signing for a corporation is other than the President or Vice President and when requested by the Owner, a resolution or other satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished for the Owner's records. The name of each person signing the Bid Form shall be typed or printed below the signature.

29. Insurance

The successful bidder shall procure, maintain, and provide proof of, insurance coverage for injuries to persons and/or property damage as may arise from or in conjunction with, the work performed on behalf of the County by the bidder, his agents, representatives, employees or subcontractors. Proof of coverage as contained herein shall be submitted fifteen (15) days prior to the commencement of work and such coverage shall be maintained by the bidder for the duration of the contract period; for occurrence policies.

a. General Liability

Coverage shall be as broad as: Comprehensive General Liability endorsed to include Broad Form, Commercial General Liability form including Products/Completed Operations.

1. Minimum Limits

General Liability:
$1,000,000 General Aggregate Limit
$1,000,000 Products & Completed Operations
$1,000,000 Personal and Advertising Injury
$1,000,000 Each Occurrence Limit
$50,000 Fire Damage Limit
$5,000 Medical Expense Limit

b. Automobile Liability

Coverage sufficient to cover all vehicles owned, used, or hired by the bidder, his agents, representatives, employees or subcontractors.

1. Minimum Limits

Automobile Liability:

$1,000,000 Combined Single Limit
$1,000,000 Each Occurrence Limit
$5,000 Medical Expense Limit

c. Workers' Compensation

Limits as required by the Workers' Compensation Act of SC. Employers Liability, $1,000,000.

d. Owners' & Contractors' Protective Liability

Policy will be in name of County. Minimum limits required are $1,000,000.

e. Professional Liability (a/k/a Errors and Omissions)

Minimum limits are $1,000,000 per occurrence.

f. Coverage Provisions

1. All deductibles or self-insured retention shall appear on the certificate(s).
2. The County of Georgetown, its officers/ officials, employees, agents and volunteers shall be added as "additional insured" as their interests may appear. This provision does not apply to Professional Liability or Workers' Compensation/Employers' Liability.
3. The offeror's insurance shall be primary over any applicable insurance or self-insurance maintained by the County.
4. Shall provide 30 days written notice to the County before any cancellation, suspension, or void of coverage in whole or part, where such provision is reasonable.
5. All coverage for subcontractors of the bidder shall be subject to all of the requirements stated herein.
6. All deductibles or self-insured retention shall appear on the certificate(s) and shall be subject to approval by the County. At the option of the County, either; the insurer shall reduce or eliminate such deductible or self-insured retention; or the bidder shall be required to procure a bond guaranteeing payment of losses and related claims expenses.
7. Failure to comply with any reporting provisions of the policy(s) shall not affect coverage provided the County, its officers/officials, agents, employees and volunteers.
8. The insurer shall agree to waive all rights of subrogation against the County, its' officers/officials, agents, employees or volunteers for any act, omission or condition of premises which the parties may be held liable by reason of negligence.
9. The bidder shall furnish the County certificates of insurance including endorsements affecting coverage. The certificates are to be signed by a person authorized by the insurance company(s) to bind coverage on its' behalf, if executed by a broker, notarized copy of authorization to bind, or certify coverage must be attached.

10. All insurance shall be placed with insurers maintaining an A.M. Best rating of no less than an A:VII. If A.M. Best rating is less than A:VII, approval must be received from County's Risk Officer.

30. Workman's Compensation Coverage

Georgetown County, SC will require each contractor and service provider to maintain on file with the purchasing officer, a current Certificate of Insurance showing limits as required by the Workers' Compensation Act of SC: Employers Liability, $1,000,000.

The law also recognizes "statutory employees." These are employees who work for a subcontractor who may be working for a business or another contractor. Employers should inquire whether or not a subcontractor working for them has workers' compensation insurance, regardless of the number of employees employed by the subcontractor. If the subcontractor does not, the subcontractor's injured employees would be covered under the employer's workers' compensation insurance. If the subcontractor does not carry workers' compensation insurance, then the owner or the principal contractor would be liable just as if the subcontractor's employee was one of their employees.

For answers to additional questions, visit the SC Worker's Compensation Commission website, at: https://www.wcc.sc.gov/

31. Hold Harmless Clause

The Contractor shall, during the term of the contract including any warranty period, indemnify, defend, and hold harmless the County, its officials, employees, agents, and representatives thereof from all suits, actions, or claims of any kind, including attorney's fees, brought on account of any personal injuries, damages, or violations of rights, sustained by any person or property in consequence of any neglect in safeguarding contract work or on account of any act or omission by the contractor or his employees, or from any claims or amounts arising from violation of any law, bylaw, ordinance, regulation or decree. The vendor agrees that this clause shall include claims involving infringement of patent or copyright.

32. Condition of Items

All items shall be new, in first class condition, including containers suitable for shipment and storage, unless otherwise indicated herein. Verbal agreements to the contrary will not be recognized.

33. Workmanship and Inspection

All work under this contract shall be performed in a skillful and workmanlike manner. The County may, in writing, require the Contractor to remove any employee from work that the County deems incompetent or careless.

Further, the County may, from time to time, make inspections of the work performed under this contract. Any inspection by the County does not relieve the Contractor from any responsibility regarding defects or other failures to meet the contract requirements.

34. Invoicing and Payment

The Contractor shall submit invoices or progress payments on a frequency to be determined, as agreed upon by the County, for each payment requested. Such invoice or progress payment shall also include a detailed breakdown of all charges. All such invoices or progress payments will be paid within thirty (30) days unless any items thereon are questioned, in which event payment will be withheld pending verification of the amount claimed and the validity of the claim. The firm shall provide complete cooperation during any such investigation. All invoices shall be forwarded to the following address:

County of Georgetown
Accounts Payable, Finance Dept.
P.O. Box 421270
Georgetown, SC 29442-4200

An IRS W-9 form must be on file with the Purchasing Office before any payment will be issued.

35. South Carolina Sales Tax

The County of Georgetown, SC is not exempt and pays the appropriate SC sales tax on all applicable purchases.

36. Assignment of Contract

This contract may not be assigned in whole or part without the written consent of the Purchasing Officer.

37. Termination

Subject to the provisions below, the contract may be terminated by the County upon sixty (60) days advance written notice to the other party; but if any work or service hereunder is in progress, but not completed as of the date of termination, then this contract may be extended upon written approval of the County until said work or services are completed and accepted.

a. Termination for Convenience

In the event that this contract is terminated or canceled upon request and for the convenience of the County, without the required sixty (60) days advance written notice, then the County shall negotiate reasonable termination costs, if applicable.

b. Termination for Cause

Termination by the County for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The sixty (60) days advance notice requirement is waived in the event of Termination for Cause.

c. Non-Appropriation:
It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the County will only be required to pay for services completed to the satisfaction of the County.

38. Default

In case of default by the contractor, for any reason whatsoever, the County may procure the goods or services from another source and hold the contractor responsible for any resulting excess cost and may seek other remedies under law

39. Severability

In the event that any provision shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire Agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding and in full force and effect.

40. Applicable Laws

This Agreement sha11 be governed by and construed in accordance with the laws of the State of South Carolina, U.S.A.

41. Claims and Disputes:
All claims, disputes and other matters in question between parties arising out of, or relating to, this Agreement, or the breach thereof, shall be decided in the Circuit Court of the Fifteenth Judicial circuit in Georgetown County, South Carolina. By executing this Agreement, all parties specifically consent

to venue and jurisdiction in Georgetown County, South Carolina and waive any right to contest jurisdiction and venue in said Court.

42. Rights of County

The County reserves the right to reject all or any part of any bid, waive informalities and award the contract to the lowest responsive and responsible bidder to best serve the interest of the County.

43. Award of Bid

In determining the lowest responsive and responsible bidder, in addition to price, there shall be considered the following:

(a) The ability, capacity and skill of the bidder to perform the contract.
(b) Whether the bidder can perform the contract within the time specified, without delay of interference.
(c) The character, integrity, reputation, judgment, experience and efficiency of the bidder.
(d) The quality of performance on previous contracts.
(e) The previous and existing compliance by the bidder with laws and ordinances relating to the contract.
(f) Mobilization & ability to complete the project within the project & grant schedule.

44. Notice of Award

A ***Notice of Intent to Award*** will be mailed to all respondents.

45. Protest

Bidders may refer to Sections 2-67, 2-73, and 2-74 of Ordinance #20-32, also known as the Georgetown County, South Carolina Purchasing Policy to determine their remedies concerning this competitive process. The failure to be awarded a bid shall not be valid grounds for protest.

46. Debarment

By submitting a bid, the offeror certifies to the best of its knowledge and belief, that it and its principals, sub-contractors and assigns are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency A copy of the County's debarment procedure in accordance with Section 2-68 of Ordinance #20-32, also known as the Georgetown County, South Carolina Purchasing Policy is available upon request.

47. Firm Pricing for County Acceptance

Bid price must be firm for County acceptance for 120 days from bid opening date. "Discount from list," bids are not acceptable unless specifically requested.

48. Use of Brand Names (If Appropriate)

Unless otherwise stated in an Invitation for Bid, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality of the article desired, and any article which the County in its sole discretion determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. Any catalog, brand name or manufacturer's reference used in bid invitation is descriptive - NOT restrictive - it is to indicate type and quality desired. Bids on brands of like nature and quality will be considered. If bidding on other than reference or specifications, bid must show manufacturer, brand or trade name, catalog number, etc. of article offered. If other than brand(s) specified is offered, illustrations and complete description must be submitted with

bid. Samples may be required. If bidder makes no other bid and takes no exception to specifications or reference data, he will be required to furnish brand names, numbers, etc., as specified. Bidders must certify that item(s) bid upon meet and/or exceed specifications.

49. Substitutions and Product Options
Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner prior to effecting such requested changes.

50. Permits

The successful Offeror must be responsible for obtaining all necessary city, county, and state permits/licenses and must comply with all local codes and ordinances. Copies of such permits/licenses shall be made available to the County upon request. Building contractors working within Georgetown County must also secure a Contractor's License from the Building Department. Work within the Georgetown City Limits may require a City Business License. For additional information, please review the "Forms and Fees" section of the Building and Planning web page at the link below: http://www.gtcounty.org/176/Building-Department.

51. Environmental Management:
Vendor/Supplier/Contractor will be responsible for complying with all federal, state and local environmental regulations relating to transportation, handling, storage, spillage and any other aspect of providing the services specified herein, as applicable.

52. Bid Tabulation Results
Vendors wishing to view the bid tabulation results may visit the Georgetown County, SC web-site at: http://www.georgetowncountysc.org. Select "Bid Opportunities" from the Quick Links box, then click on the "Expired" tab and double click the link under the individual bid listing.

53. The Bidder hereby certifies that he or she has carefully examined all of the Documents for the project, has carefully and thoroughly reviewed this Request for Bid/Quotation, has inspected the location of the project (if applicable), and understands the nature and scope of the work to be done; and that this Bid is based upon the terms, specifications, requirements, and conditions of the Request for Bid/ Documents. The Bidder further agrees that the performance time specified is a reasonable time, having carefully considered the nature and scope of the project as aforesaid.

54. Any attempt by the vendor to influence the opinion of County Staff or County Council by discussion, promotion, advertising, misrepresentation of the submittal or purchasing process or any procedure to promote their offer will constitute a violation of the vendor submittal conditions and will cause the vendor's submittal to be declared null and void.

55. Apparent omission of a detailed description concerning any point, shall be regarded as meaning the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used.

56. Response Clarification
Georgetown County reserves the right to request additional written or oral information from Bidders in order to obtain clarification of their Responses.

57. Retainage, in the amount of ten percent (10%) of the value of construction costs incurred for the project, shall be withheld until the project has been completed to the satisfaction of Owner.

58. Due to FAA grant requirements there will be NO Local Preference considered in the award of this bid.

59. Vendor Checklist

The items indicated below must be returned as a part of the Bid Submission package:

- Bid Bond
- Proposal Requirements & Conditions Agreement (A-1 to A-3)
- Prohibition of Segregated Facilities (A-4)
- Trade Restriction Certification (A-5 to A-6)
- Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions (A-7 to A-8)
- Certification of Offeror/Bidder Regarding Debarment and Certification of Lower Tier Contractors Regarding Debarment (A-9)
- Lobbying and Influencing Federal Employees (A-10)
- Certificate of Compliance with FAA Buy American Preference – Construction Projects Compliance (A-11, A-12, and A-13)
- Form of Non-Collusion Affidavit (A-14)
- Certification Regarding Lobbying Lower Tier Covered Transactions (A-15)
- Disadvantaged Business Enterprises (DBE) Committal Sheet (A-16)
- DBE Subcontractor Data (A-17)
- DBE Contract Schedule (A-18)
- Identified Unavailable DBEs (A-19)
- List of Prime and Subcontractors – Mandatory Bid Submission Form (A-20)
- Evidence of Competency and Financial Responsibility (A-21)
- Bid Form – Schedule I – Hangar Taxilane Improvements and Hangar Sitework (BF-1, BF-2, BF-3, BF-4, BF-5, BF-6, BF-7, and BF-8)
- Mandatory Bid Submittal Form
- Mandatory Exceptions Page

The successful proposer will be required to provide a Certificate of Insurance naming Georgetown County, SC as an additional insured and a signed IRS Form W-9. This must be on file with the Purchasing Department prior to any services being performed and must be on file within fifteen (15) days of written notification of award.

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MANDATORY BID SUBMITTAL FORM
IFB #23-037 REBID
Hangar Taxilane Improvements and Hangar Sitework at Georgetown County Airport (GGE)

The undersigned, on behalf of the vendor, certifies that: (1) this bid is made without previous understanding, agreement or connection with any person, firm or corporation making a bid on the same project; (2) is in all respects fair and without collusion or fraud;(3) the person whose signature appears below is legally empowered to bind the firm in whose name the bid is entered (4) they have read the complete Request for Bid and understand and accept all provisions: (5) if accepted by the County, this bid is guaranteed as written and amended and will be implemented as stated; and (6) mistakes in writing of the submitted bid will be their responsibility.

The undersigned having familiarized themselves with local conditions affecting the cost of the work and with all requirements of the proposed Construction Contract Documents, and duly issued Addenda to said documents, as acknowledged herein, propose to furnish and perform all labor, materials, necessary tools, expendable equipment, and all utility and transportation services necessary to perform and complete in a workmanlike manner all work required by said documents and Addenda.

1. Name of Company submitting bid _____
2. **Total BASE Bid, from Project Manual form BF-3**: $ _____
3. Bid cost must remain valid one hundred twenty (120) days from bid opening date.
4. Mobilization (number of days for mobilization after NTP): _____
5. Contact Address: _____

   _____
6. Contact Person: _____
7. Telephone Number: _____ Fax Number: _____
8. E-Mail address: _____
9. Remittance Address: _____

   _____
10. Accounting Contact: _____
11. Telephone Number: _____ Fax Number: _____
12. E-Mail address: _____

13. Suspension and Debarment
Federal guidelines require grant recipients to obtain sufficient assurance that vendors are not suspended or debarred from participating in federal programs when contracts exceed $25,000. By signing below you verify that no party to this agreement is excluded from receiving Federal contracts, certain subcontracts, and certain Federal financial and nonfinancial assistance and benefits, pursuant to the provisions of 31 U.S.C. 6101, note, E.O. 12549, E.O. 12689, 48 CFR 9.404, and each agency's codification of the Common Rule for Non-procurement suspension and debarment. [See https://www.epls.gov/ for additional information.]

14. For additional work authorized after signing the Contract, the amount of overhead and the amount of profit to be added to base costs of labor and materials shall not exceed *(15%)* total for overhead and profit on work performed by the Contractor's own forces and *(10%)* total on work by Subcontractors.

15. If the bid is accepted, the required Contract must be executed within fifteen (15) days after receipt of written notice of formal award of Contract and Certificate of Insurance (COI) and Payment and Performance Bonds must be received.

16. Will you honor the submitted prices and terms for purchase by other departments within Georgetown County and/or by other government entities who participate in cooperative purchasing with Georgetown County, South Carolina?

☐ **Yes** ☐ **No**

17. Acceptance of Invitation for Bid Content: The contents of the successful IFB/RFP are included as if fully reproduced herein. Therefore, the selected contractor must be prepared to be bound by his/her proposal as submitted.

18. RENEWAL OF CONTRACT
The continuation of the terms, conditions, and provisions of any resulting contract beyond the fiscal year is subject to approval and ratification by the Georgetown County Council and appropriation by them of the necessary money to fund said contract for each succeeding year.

19. CERTIFICATION REGARDING DRUG-FREE WORKPLACE:
The undersigned certifies that the vendor listed below will provide a "drug-free workplace" as that term is defined in Section 44-107-30 of the Code of Laws of South Carolina, 1976, as amended, by the complying with the requirements set forth in title 44, Chapter 107.

☐ **Yes** ☐ **No**

20. Any attempt by the vendor to influence the opinion of County Staff or County Council by discussion, promotion, advertising, misrepresentation of the submittal or purchasing process or any procedure to promote their offer will constitute a violation of the vendor submittal conditions and will cause the vendor's submittal to be declared null and void.

21. The lowest or any proposal will not necessarily be accepted and the County reserves the right to award any portion thereof. I/We, the undersigned, hereby confirm that all the above noted documents for Bid/Request for Proposal No. 23-037 REBID were received.

22. MINORITY PARTICIPATION [INFORMATION ONLY]

(a) Is the bidder a South Carolina Certified Minority Business?
☐**Yes** ☐**No**

(b) Is the bidder a Minority Business certified by another governmental entity?
☐**Yes** ☐**No**
If so, please list the certifying governmental entity: _____

(c) Will any of the work under this contract be performed by a SC certified Minority Business as a subcontractor?
☐**Yes** ☐**No**
If so, what percentage of the total value of the contract will be performed by a SC certified Minority Business as a subcontractor? _____%

(d) Will any of the work under this contract be performed by a minority business certified by another governmental entity as a subcontractor?
☐**Yes** ☐**No**
If so, what percentage of the total value of the contract will be performed by a minority business certified by another governmental entity as a subcontractor?
_____%

(e) If a certified Minority Business is participating in this contract, please indicate all categories for which the Business is certified:
☐ Traditional minority
☐ Traditional minority, but female
☐ Women (Caucasian females)
☐ Hispanic minorities
☐ DOT referral (Traditional minority)
☐ DOT referral (Caucasian female)
☐ Temporary certification
☐ SBA 8 (a) certification referral
☐ Other minorities (Native American, Asian, etc.)
(If more than one minority contractor will be utilized in the performance of this contract, please provide the information above for each minority business.)

23. ILLEGAL IMMIGRATION: Non-Construction (NOV. 2008): (An overview is available at www.procurement.sc.gov) By signing your offer, you certify that you will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agree to provide to the State upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable to you and your subcontractors or sub-subcontractors; or (b) that you and your subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." You agree to include in any contracts with your subcontractors language requiring your subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractors language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. [07-7B097-1]

24.

INFORMATION ONLY:

☐ Our company accepts VISA government procurement cards.
If yes, list any upcharge for P-Card Payment? _____

☐ Our company does not accept VISA government procurement cards.

25. Printed Name of person binding bid _____

26. Signature (X)_____

27. Date_____

NOTE: **THE ENTIRE IFB PACKET NEED NOT BE RETURNED. Please be sure to provide all mandatory bid submittal forms as requested. Thank you.**

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EXCEPTIONS PAGE

MANDATORY BID SUBMISSION FORM

List any areas where you cannot or will not comply with the specifications or terms contained within the bid documentation. If none, write "NONE".

GENERAL CONDITIONS

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:

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.~~ See Supplemental General Conditions, Section 10-04.

10-05 **Airport Improvement Program (AIP).** A grant-in-aid program administered by the Federal Aviation Administration (FAA).

10-06 **Air Operations Area (AOA).** The term air operations area (AOA) shall mean any area of the Airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10-07 **Apron.** Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.

10-08 **ASTM International (ASTM).** Formerly known as the American Society for Testing and Materials (ASTM).

10-09 **Award.** The Owner's notice to the successful bidder of the acceptance of the submitted bid.

10-10 Bidder. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-11 Building Area. An area on the Airport to be used, considered, or intended to be used for Airport buildings or other Airport facilities or rights-of-way together with all Airport buildings and facilities located thereon.

10-12 Calendar Day. Every day shown on the calendar.

10-13 Certificate of Analysis (COA). The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.

10-14 Certificate of Compliance (COC). The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.

10-15 Change Order. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.

10-16 Contract. A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract Form, Proposal, Performance Bond, payment Bond, General Provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.

10-17 Contract Item (Pay Item). A specific unit of work for which a price is provided in the contract.

10-18 Contract Time. ~~The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.~~ See Supplemental General Conditions, Section 10-18.

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.

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.~~ See Supplemental General Conditions, Section 10-25.

10-26 Equipment. All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-27 Extra Work. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's ENGINEER or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.

10-28 FAA. The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.

10-29 Federal Specifications. The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.

10-30 Force Account. A. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. B. Owner Force Account - Work performed for the project by the Owner's employees.

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.~~ See Supplemental General Conditions. Section 10-31.

10-32 Lighting. A system of fixtures providing or controlling the light sources used on or near the Airport or within the Airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the Airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the Airport surface.

10-33 Major and Minor Contract Items. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.

10-34 Materials. Any substance specified for use in the construction of the contract work.

10-35 Modification of Standards (MOS). Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.

10-36 Notice to Proceed (NTP). A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-37 Owner. The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean Airport Sponsor only. The Owner for this project is Georgetown County, 129 Screven Street, Suite 239, Georgetown, South Carolina 29440.

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.'

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.~~ Deleted

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.~~ See Supplemental General Conditions, Section 10-49.

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.~~ See Supplemental General Conditions, Section 10-50.

10-51 Runway. The area on the Airport prepared for the landing and takeoff of aircraft.

10-52 Runway Safety Area (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.

10-53 Safety Plan Compliance Document (SPCD). Details how the Contractor will comply with the CSPP.

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.~~ See Supplemental General Conditions, Section 10-55.

10-56 Structures. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the Airport that may be encountered in the work and not otherwise classified herein.

10-57 Subgrade. The soil that forms the pavement foundation.

10-58 Superintendent. ~~The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction~~. See Supplemental General Conditions, Section 10-58.

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.

10-65 Working Day. A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.

10-66 Owner Defined terms. None

END OF SECTION 10

SECTION 20

PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 Advertisement (Notice to Bidders). The official Notice to Bidders stating work to be undertaken and the time and place for the submission of proposals is contained in the Invitation to Bid / Instructions to Bidders.

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~~. See Supplemental General Conditions, Section 20-02.

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

Mobilization is limited to 10 percent of the total project cost.

There will not be a pre-bid conference, but bidders are encouraged to visit the site in person prior to bidding. Site inspections will be made available by PRIOR APPOINTMENT ONLY. Please contact Nancy Silver, Purchasing Officer at (843)545-3076 or by email at nsilver@gtcounty.org to schedule an appointment. A prior request is necessary because the Airport Director oversees more than one field and may not always be at the GGE Airport site. The Georgetown County Airport Terminal is located at 129 Airport Road, Georgetown, SC 29440.

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. Boring logs and other records of subsurface investigations and tests are included in Appendix " F ".

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 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~~. See Supplemental General Conditions, Section 20-11.

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 or by fax 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 by fax request) or received after the time specified for opening bids shall be returned to the bidder unopened.

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

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

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

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

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

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

END OF SECTION 20

Section 30

AWARD AND EXECUTION OF CONTRACT

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

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

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

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

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

30-02 **Award of Contract**. The award of a contract, if it is to be awarded, shall be made within **120** 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.*

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.~~ See Supplemental General Conditions, Section 40-02.

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.*~~ See Supplemental General Conditions, Section 40-03.

40-04 **Extra Work**. ~~Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.~~

~~When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, Paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, Paragraph 10-59, *Supplemental Agreement*.~~

~~If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.~~

~~Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner~~. See Supplemental General Conditions, Section 40-04.

40-05 **Maintenance of Traffic**. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

A. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the Airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, Paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals

(including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the Airport as specified in Section 70, Paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

B. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the Airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

C. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

40-06 **Removal of Existing Structures**. ~~All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly but shall be included in the various contract items.~~

~~Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.~~

~~Except as provided in Section 40, Paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading~~

~~sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.~~ See Supplemental General Conditions, Section 40-06.

40-07 **Rights in and Use of Materials Found in the Work**. ~~Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:~~

~~**A.** Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,~~

~~**B.** Remove such material from the site, upon written approval of the RPR. or,~~

~~**C.** Use such material for the Contractor's own temporary construction on site;~~
~~or,~~

~~**D.** Use such material as intended by the terms of the contract.~~

~~Should the Contractor wish to exercise option A., B., or C., the Contractor shall request the RPR's approval in advance of such use.~~

~~Should the RPR approve the Contractor's request to exercise option A., B., or C., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.~~

~~Should the RPR approve the Contractor's exercise of option A., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used~~.

~~It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option A., B., or C.~~

~~The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.~~ See Supplemental General Conditions, Section 40-07.

40-08 **Final Cleanup**. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

Section 50

CONTROL OF WORK

50-01 **Authority of the Resident Project Representative (RPR).** ~~The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.~~ See Supplemental General Conditions, Section 50-01.

50-02 **Conformity with Plans and Specifications.** ~~All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.~~

~~If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.~~

~~If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.~~

~~The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.~~

~~The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.~~

~~The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.~~ See Supplemental General Conditions, Section 50-02.

50-03 **Coordination of Contract, Plans, and Specifications**. ~~The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.~~

~~From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.~~

~~The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.~~ See Supplemental General Conditions, Section 50-03.

50-04 **List of Special Provisions.** For Special Provisions applicable for this project, see 'Project Special Provisions' section of these specifications.

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 RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative~~. See Supplemental General Conditions, Section 50-05.

50-06 **Cooperation Between Contractors**. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 **Construction Layout and Stakes**. ~~The ENGINEER/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by ENGINEER/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.~~

~~Prior to the start of construction, the Contractor will check all control points~~

for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s):

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. See Supplemental General Conditions, Section 50-07.

50-08 Authority and Duties of Quality Assurance (QA) Inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision. See Supplemental General Conditions, Section 50-08.

50-09 Inspection of the Work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract and shall in no way interfere with the rights of the parties to this contract. See Supplemental General Conditions, Section 50-09.

50-10 Removal of Unacceptable and Unauthorized Work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in Paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, Paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

~~Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor~~. See Supplemental General Conditions, Section 50-10.

50-11 **Load Restrictions**. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 **Maintenance During Construction**. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 **Failure to Maintain the Work**. ~~Should the Contractor at any time fail to maintain the work as provided in Paragraph 50-12, *Maintenance During Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.~~

~~Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such~~

unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor. See Supplemental General Conditions, Section 50-13.

50-14 **Partial Acceptance**. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract. See Supplemental General Conditions, Section 50-14.

50-15 **Final Acceptance.** Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection. See Supplemental General Conditions, Section 50-15.

50-16 **Claims for Adjustment and Disputes.** If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the

~~Owner for consideration in accordance with local laws or ordinances.~~

~~Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.~~ See Supplemental General Conditions, Section 50-16.

END OF SECTION 50

SECTION 60

CONTROL OF MATERIALS

60-01 Source of Supply and Quality Requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish Airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement. See Supplemental General Conditions, Section 60-01.

60-02 Samples, Tests, and Cited Specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection

~~at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.~~

~~A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.~~

~~The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).~~ See Supplemental General Conditions, Section 60-02.

60-03 **Certification of Compliance/Analysis (COC/COA)**. ~~The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by Manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the Manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the Manufacturer's COC and includes all applicable test results.~~

~~Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.~~

~~The form and distribution of certificates of compliance shall be as approved by the RPR.~~

~~When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the Manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:~~

~~**A.** Conformance to the specified performance, testing, quality or dimensional requirements; and,~~

~~**B.** Suitability of the material or assembly for the use intended in the contract work.~~

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

~~The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance~~. See Supplemental General Conditions, Section 60-03.

60-04 **Plant Inspection**. ~~The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.~~

~~Should the RPR conduct plant inspections, the following conditions shall exist:~~

~~**A.** The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.~~

~~**B.** The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.~~

~~**C.** If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.~~

~~It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.~~ See Supplemental General Conditions, Section 60-04.

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 RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission~~

~~of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.~~

~~All storage sites on private or Airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.~~ See Supplemental General Conditions, Section 60-06.

60-07 **Unacceptable Materials**. ~~Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.~~

~~Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.~~ See Supplemental General Conditions, Section 60-07.

60-08 **Owner Furnished Materials**. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

SECTION 70

LEGAL REGULATIONS AND RESPONSIBILITY TO THE 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 listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.~~

~~Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.~~ See Supplemental General Conditions, Section 70-04.

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 Federal Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 **Sanitary, Health, and Safety Provisions**. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 **Public Convenience and Safety**. ~~The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.~~

~~The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, Paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, Paragraph 80-04, *Limitation of Operations*.~~

~~The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to Airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.~~ See Supplemental General Conditions, Section 70-07.

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 150/5370-2G, Operational Safety on Airports During Construction. The CSPP is located in Appendix " G " of the Specifications.

70-09 **Use of Explosives**. ~~[The use of explosives is not permitted on this project.] [When the use of explosives is necessary for the execution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.~~

~~All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the RPR and, in general, not closer than 1,000 feet from the work or from any building, road, or other place of human occupancy.~~

~~The Contractor shall notify each property owner and public utility company having structures or facilities in proximity to the site of the work of their intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.~~

~~The use of electrical blasting caps shall not be permitted on or within 1,000 feet of the Airport property.]~~ See Supplemental General Conditions, Section 70-09.

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. See Supplemental General Conditions, Section 70-10.

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. See Supplemental General Conditions, Section 70-11.

70-12 **Third Party Beneficiary Clause**. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 **Opening Sections of the Work to Traffic**. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, Paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2G 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. See Supplemental General Conditions, Section 70-13.

70-14 Contractor's Responsibility for Work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, Paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable

growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury. See Supplemental General Conditions, Section 70-14.

70-15 Contractor's Responsibility for Utility Service and Facilities of Others. As provided in Paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the Owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and Paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of

~~operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.~~

~~The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.~~

~~Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.~~

~~Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.~~

~~The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.~~ See Supplemental General Conditions, Section 70-15.

70-15.1 **FAA Facilities and Cable Runs**. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

A. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

B. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the Airport Manager a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

C. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

D. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

E. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

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.~~ See Supplemental General Conditions, Section 70-17.

70-18 **No Waiver of Legal Rights**. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 **Environmental Protection**. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 **Archaeological and Historical Findings**. ~~Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.~~

~~Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.~~

~~Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, Paragraph 40-04, *Extra Work,* and Section 90, Paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, Paragraph 80-07, *Determination and Extension of Contract Time*~~. See Supplemental General Conditions, Section 70-20.

70-21 **Insurance Requirements.** See Invitation to Bid / Instructions to Bidders, Instructions for Providers, Item 29 for Insurance Requirements.

END OF SECTION 70

SECTION 80

EXECUTION AND PROGRESS

80-01 **Subletting of Contract**. ~~The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).~~

~~The Contractor shall perform, with his organization, an amount of work equal to at least [____] percent of the total contract cost.~~

~~Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.~~

~~**The Contractor shall provide copies of all subcontracts to the RPR [14] days prior to being utilized on the project. As a minimum, the information shall include the following:**~~

- ~~Subcontractor's legal company name.~~
- ~~Subcontractor's legal company address, including County name.~~
- ~~Principal contact person's name, telephone and fax number.~~
- ~~Complete narrative description, and dollar value of the work to be performed by the subcontractor.~~
- ~~Copies of required insurance certificates in accordance with the specifications~~
- ~~Minority/ non-minority status.~~

See Supplemental General Conditions, Section 80-01

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 [____] days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.~~ See Supplemental General Conditions, Section 80-02

80-03 **Execution and Progress**. ~~Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.~~

~~If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.~~

~~The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.~~

~~The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or another 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~~. See Supplemental General Conditions, Section 80-03.

80-04 **Limitation of Operations**. ~~The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the Airport.~~

~~When the work requires the Contractor to conduct their operations within an AOA of the Airport, the work shall be coordinated with Airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and~~

~~until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, Paragraph 70-08, *Construction Safety and Phasing Plan (CSPP).*~~

~~When the contract work requires the Contractor to work within an AOA of the Airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) 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 follows:~~

~~The Contractor shall be required to conform to safety standards contained in AC 150/5370-2G, Operational Safety on Airports During Construction and the approved CSPP~~. See Supplemental General Conditions, Section 80-04.

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 150/5370-2G, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the Airport during construction activities. **The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.**

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of Workers, Methods, and Equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing Airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of

~~the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this Paragraph.~~ See Supplemental General Conditions, Section 80-05.

80-06 **Temporary Suspension of the Work**. ~~The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.~~

~~In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.~~

~~If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the Airport.~~ See Supplemental General Conditions, Section 80-06.

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 specified in Section 80-07.1.

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-workdays. 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.

If the Contractor finds it impossible for reasons beyond their own control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this paragraph, the Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of their own request. Requests for extension of time, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion by a change order that adjusts the contract time or completion date. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

80-08 **Failure to Complete on Time**. For each calendar 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.

TABLE 1 - CONTRACT TIME AND LIQUIDATED DAMAGES (SCHEDULE I)

Schedule I – Hangar Taxilane Improvements and Hangar Sitework			
Work Phase	**Contract Time**	**Allowable Hours of Operations**	**Liquidated Damages**
Schedule I – Hangar Taxilane Improvements and Hangar Sitework (Phase I and II)[1]	120 Calendar Days	24 Hours per Day	$1,500 per Calendar Day
Phase I (Work Area 1)[2]	30 Calendar Days	24 Hours per Day	$1,500 per Calendar Day
Phase II - Runway 5-23 Closure – Work in ROFA [3]	16 Contract Days	9:00 pm to 6:00 am	$1,500 per Calendar Day
Phase II - Runway 5-23 Closure – Work in ROFA [3]	Failure to Reopen by 6:00 am	---	$500 Per Hour or Portion Thereof
Phase II - Final Marking Application – Work in ROFA[4]	1 Contract Day	9:00 pm to 6:00 am	$1,500 per Hour or Portion Thereof
Removal of Erosion Control Items [5]	2 Calendar Days	24 Hours per Day	$1,500 per Calendar Day

Notes:

1. **Schedule I - Hangar Taxilane Improvements and Hangar Sitework**. The Contractor shall complete all work for Phase I and II of the Hangar Taxilane Improvements and Hangar Sitework within 120 calendar days of the Project Notice to Proceed. Failure to complete the project within the specified time will result in the assessment of liquidated damages in the amount of $1500.00 per calendar day.

2. **Phase I (Work Area 1).** Construction shall include demolition and removal of existing pavement, earthwork, locate and encase existing utilities, installation of lighting conduit and encased duct, installation of taxiway light bases, construction of aggregate base course and bituminous surface for the taxiway, apron, and

driveway, overlay of existing apron pavement, and basic grading for shoulders adjacent to the pavement and within limits of the lighted barricades within the Phase I (Work Area 1) limits. The Contractor shall have 30 calendar days from the construction start in Work Area 1 to complete this work. The Contractor may schedule Work Area 1 construction during the 120-day contract time for Phase I at his discretion. The closure schedule for Work Area I shall be coordinated with the ENGINEER and Owner one week in advance of the closure. During this time frame the Contractor may also work in all areas of Phase I.

3. The Contractor shall have 30 calendar days from the Notice to Proceed to complete this work. During this time frame the Contractor may also work in all areas of Phase I.

4. **Runway 5-23 Closure – Work in ROFA.** Work in the ROFA of Runway 5-23 will require closure of Runway 5-23. The Contractor will be allowed 16 contract days between the hours of 9:00 pm and 6:00 am to complete work within the ROFA area. The closures do not have to be completed on consecutive days, with the closures schedule dependent on work activities to be completed. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for a scheduled closure. Failure to reopen Runway 5-23 after 16 contract days will result in the assessment of liquidated damages of $1,500.00 per contract day or portion thereof. Failure to reopen Runway 5-23 by 6:00 am each morning will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for these activities is included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.

5. **Final Marking Application – Work in the ROFA.** Final Marking Application for work within the ROFA may begin after a 30 day curing period after final paving operations are completed. The Contractor will be allowed 1 contract day between the hours of 9:00 pm and 6:00 am to complete the final marking application within the ROFA area. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for the scheduled closure. Failure to reopen Runway 5-23 by 6:00 am will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for this activity is not included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.

6. **Removal of Erosion Control Items.** The removal of erosion control items shall be scheduled after the site is stabilized with permanent grass. The Contractor shall periodically inspect the site until it is stabilized and notify the Engineer for a review. The work shall be scheduled after the Engineer has coordinated project closure with Georgetown County and has notified the Contractor to proceed. The contract time shown is not included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework

   Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may

have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 **Default and Termination of Contract**. ~~The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:~~

~~**A.** Fails to begin the work under the contract within the time specified in the Notice to Proceed, or~~

~~**B.** Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or~~

~~**C.** Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or~~

~~**D.** Discontinues the execution of the work, or~~

~~**E.** Fails to resume work which has been discontinued within a reasonable time after notice to do so, or~~

~~**F.** Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or~~

~~**G.** Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or~~

~~**H.** Makes an assignment for the benefit of creditors, or~~

~~**I.** For any other cause whatsoever, fails to carry on the work in an acceptable manner.~~

~~Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.~~

~~If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out~~

of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess. See Supplemental General Conditions, Section 80-09.

80-10 Termination for National Emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed. See Supplemental General Conditions, Section 80-10.

80-11 Work Area, Storage Area, and Sequence of Operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the Airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The

~~Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD~~. See Supplemental General Conditions, Section 80-11.

END OF SECTION 80

SECTION 90

MEASUREMENT AND PAYMENT

90-01 Measurement of Quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard may be weighed, and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

In computing volumes of excavation, the average end area method will be used unless otherwise specified.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the

~~actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.~~

~~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 materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F or will be corrected to the volume at 60°F 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 will be measured by the ton or hundredweight.~~

~~Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.~~

~~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.~~

~~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.~~

~~When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.~~

~~Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and~~

paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound . The use of spring balances will not be permitted.

In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.

In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

Rental 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.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be

~~made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.~~ See Supplemental General Conditions, Section 90-01.

90-02 **Scope of Payment**. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, Paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 **Compensation for Altered Quantities**. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, Paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 **Payment for Omitted Items**. ~~As specified in Section 40, Paragraph 40-03, *Omitted Items,* the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.~~

~~Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.~~

~~Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.~~

~~In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.~~ See Supplemental General Conditions, Section 90-04.

90-05 **Payment for Extra Work**. Extra work, performed in accordance with Section 40, Paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 **Partial Payments**. ~~Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with Paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.~~

~~[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.~~

~~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.~~

~~When at least 95% of the project work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.~~

~~[No retainage will be held by the Owner from progress payments due the prime.~~

~~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. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. 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.~~

~~When at least 95% of the project work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done.]~~

~~[From the total of the amount determined to be payable on a partial payment, [insert amount of retainage, not to exceed 10%] percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:~~

~~(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.~~

~~(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per Paragraph 90-08.~~

~~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. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. 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.~~

~~When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of~~

~~the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.~~

~~It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.~~

~~No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in Paragraph 90-09, *Acceptance and Final Payment*.~~

~~The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.~~ See Supplemental General Conditions, Section 90-06.

90-07 Payment for Materials on Hand. ~~Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the Airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:~~

~~**A.** The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.~~

~~**B.** The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.~~

~~**C.** The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.~~
~~**D.** The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.~~

~~**E.** The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.~~

~~It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.~~

~~In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.~~

~~No partial payment will be made for stored or stockpiled living or perishable plant materials.~~

~~The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.~~ See Supplemental General Conditions, Section 90-07.

90-08 **Payment of Withheld Funds**. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in Paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

A. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

B. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

C. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

D. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 **Acceptance and Final Payment**. ~~When the contract work has been accepted in accordance with the requirements of Section 50, Paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of~~

~~the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, Paragraph 50-16, *Claims for Adjustment and Disputes.*~~

~~After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in Paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.~~

~~If the Contractor has filed a claim for additional compensation under the provisions of Section 50, Paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.~~
See Supplemental General Conditions, Section 90-09.

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 RPR approves the Contractor's final submittal. The Contractor shall:~~

~~**A.** Provide two (2) copies of all Manufacturers warranties specified for materials, equipment, and installations.~~

~~**B.** Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.~~

~~**C.** Complete final cleanup in accordance with Section 40, Paragraph 40-08, *Final Cleanup*.~~

~~**D.** Complete all punch list items identified during the Final Inspection.~~

~~**E.** Provide complete release of all claims for labor and material arising out of the Contract.~~

~~F. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.~~

~~G. When applicable per state requirements, return copies of sales tax completion forms.~~

~~H. Manufacturer's certifications for all items incorporated in the work.~~

~~I. All required record drawings, as-built drawings, or as-constructed drawings.~~

~~J. Project Operation and Maintenance (O&M) Manual(s).~~

~~K. Security for Construction Warranty.~~

~~L. Equipment commissioning documentation submitted, if required.~~

See Supplemental General Conditions, Section 90-11.

END OF SECTION 90

SUPPLEMENTAL GENERAL CONDITIONS

SUPPLEMENTAL GENERAL CONDITIONS

SECTION 10 - DEFINITION OF TERMS.

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; and Airport buildings and facilities located in any of these areas, and includes a heliport. For this project, Airport shall refer to the Georgetown County Airport, 129 Airport Road, Georgetown, South Carolina 29440.

10-18 **Contract Time**. The number of calendar days, stated in the proposal, allowed for completion of the contract, including authorized time extensions.

10-25 **Engineer**. The individual, partnership, firm, or corporation duly authorized by the OWNER to be responsible for engineering, construction administration, and for observation of the contract work and acting directly or through an authorized representative. For this project, ENGINEER shall refer to Talbert & Bright, Inc., 4810 Shelley Drive, Wilmington, North Carolina 28405.

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 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 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.

10-49 **Quality Assurance (QA) Laboratory.** The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the ENGINEER. May also be referred to as ENGINEER's, Owner's, or QA Laboratory.

10-50 **Resident Project Representative (RPR).** An authorized representative of the ENGINEER assigned to make on site construction observations, and/or observation of tests of work performed or being performed, or of the materials furnished or being furnished by the Contractor.

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. For this project, Sponsor shall refer to Georgetown County, 129 Screven Street Road, Georgetown, South Carolina 29440

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/or the RPR, and who shall supervise and direct the construction.

SECTION 20 - PROPOSAL REQUIREMENTS AND CONDITIONS.

20-02 **Qualification of Bidders.** Each bidder shall furnish the OWNER satisfactory evidence of his or her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the OWNER satisfactory evidence of his or her financial responsibility. Such 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 his or her 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 he or she is prequalified with the South Carolina Department of Transportation (SCDOT) and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of South Carolina Department of Transportation (SCDOT) prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

Bidders must also hold a South Carolina General Contractor License with the South Carolina Licensing Board of General Contractors. The License shall be current at the time of bid.

Each bidder shall submit "Evidence of Competency" and "Financial Responsibility" to the Owner at the time of the Bid opening.

20-11 Delivery of Proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the following:

Project Name, Contractor Name and Address, Contractor License Number, and Location of Airport.

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 before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

SECTION 40 - SCOPE OF WORK.

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 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 or the Owner's ENGINEER 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, the 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.

40-06 **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 be measured and paid for under a specified item or may not be measured or paid for directly, but shall be included in the various contract items as specified.

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.

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 RPR/ 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 RPR/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 SCAC, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR/ 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.

50-05 **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 hard copy 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 RPR 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.

50-07 **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 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 2019 or older.

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 Resident Project Representative (RPR)**. RPR 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. RPR's are not authorized to revoke, alter, or waive any provision of the contract. RPR's are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

RPR's 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 RPR/ 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 RPR/ 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 observation by the RPR/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 of work made under provision of this paragraph shall be done without lines and grades having been established by the Contractor. 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.

50-13 Failure to Maintain the Work. Should the Contractor at any time fail to maintain the work as provided in Paragraph 50-12, *Maintenance During Construction*, the RPR/ 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.

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 engineering 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 150/5345-53D, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, Tests, and Cited Specifications. All materials used in the work shall be inspected, tested, and approved by the RPR/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/ RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the ENGINEER showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor may employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

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 RPR/ENGINEER conduct plant inspections, the following conditions shall exist:

A. The RPR/ENGINEER shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

B. The RPR/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.

60-06 **Storage of Materials**. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR/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 RPR/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.

SECTION 70 - LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC.

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.

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.

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.

70-07 Public Convenience and Safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, Paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, Paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR/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.

70-09 **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 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 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.

70-13 Opening Sections of the Work to Traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, Paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the 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 150/5370-2G 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.

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. The Contact Person is:

Georgetown County Airport
Jim Taylor, Airport Director
129 Airport Road
Georgetown, South Carolina 29440
Phone: 843-545-3638 Email: jtaylor@gtcounty.org

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 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.

70-17 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, 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.

70-20 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.

If archeological materials are encountered during the construction, the procedures codified at 36 CFR 800.13(b) will apply and the EDA and South Carlina Department of Archives and History shall be contacted immediately. Construction operations are to cease immediately withiun a 100' radius of the discovery and the Contractor shall take steps to protect the discovery. Archeological materials consist of any items 50 years or older which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal remains.

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*.

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 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the 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 Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within **10** days of the NTP date. The Contractor shall notify the ENGINEER at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 **Execution and Progress**. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the 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 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

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) that cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2G, Operational Safety on Airports During Construction and the approved CSPP.

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.

80-09 **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.

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 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 may be weighed, and such weights will be converted to cubic yards 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.

In computing volumes of excavation, the average end area method will be used unless otherwise specified.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the 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.

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 materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60°F or will be corrected to the volume at 60°F 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 will be measured by the ton or hundredweight.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

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.

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.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales 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. 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 weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

Rental 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.

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.

90-04 **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 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.

90-06 **Partial Payments**. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon

estimates, prepared by the RPR/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.

Retainage withheld shall be 10 percent.

From the total of the amount determined to be payable on a partial payment, ten (10) percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the ENGINEER that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per Paragraph 90-08.

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. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. 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.

When at least 95% of the work has been completed to the satisfaction of the RPR/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. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

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.

90-09 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.

90-11 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 SUPPLEMENTAL GENERAL CONDITIONS

PROJECT SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

PSP-1 PROJECT DESCRIPTION, PHASING, AND CONSTRUCTION SEQUENCE

The Hangar Taxilane Improvements and Hangar Sitework project at the Georgetown County Airport has been developed to include construction of paving for new apron for the existing hangar, new taxiway from Runway 23 and hangar sitework for two future 200' x 150' hangars adjacent to the proposed taxiway. Work elements include erosion control installation, bituminous pavement removal, removal of existing pipe and drainage structures, grading, storm drainage installation, aggregate base course placement, bituminous paving (P-401 and SCDOT Type 'A' Base), marking, lighting and signage installation, sodding, seeding and mulching.

Detailed project phasing plans have been developed for the project and are included in the project plans. The Contractor will be expected to follow the project phasing for each phase of the project as specified. A detailed Sequence of Construction has also been developed for the project and is shown on the project plans. The Sequence of Construction has been developed to help the Contractor understand the operational needs of the Airport and help ensure minimal closure times to Runway 5-23 and surrounding active air operations areas.

PSP-2 PRE-BID SITE INSPECTION

There will not be a pre-bid conference, but bidders are encouraged to visit the site in person prior to bidding. Site inspections will be made available by PRIOR APPOINTMENT ONLY. Please contact Nancy Silver, Purchasing Officer at (843)545-3076 or by email at nsilver@gtcounty.org to schedule an appointment. A prior request is necessary because the Airport Director oversees more than one field and may not always be at the GGE Airport site. The Georgetown County Airport Terminal is located at 129 Airport Road, Georgetown, SC 29440.

PSP-3 GENERAL REQUIREMENTS - SCHEDULE OF WORK

It is the intent of the Owner and these specifications that the Georgetown County Airport will remain open to air traffic, during the work accomplished under this project. Runway 11-29 will remain open to air traffic at all times and Runway 5-23 will be temporary closed on a nightly basis for work within Runway Object Free Area for Runway 5-23. ***The Contractor will be required to submit for approval a detailed Schedule of Work to the ENGINEER seven days prior to the Preconstruction Conference***. After the ENGINEER approves the progress schedule, the Contractor will be required to follow the approved schedule of work unless deviations therefrom are approved by the ENGINEER.

The Contractor's attention is directed to the following requirements in developing his Schedule of Work:

1. The purpose of the Schedule of Work is to assure a safe area of operation for the Contractor and Airport traffic, to coordinate the efforts of various Contractors, to assure maintenance of traffic on the runways and taxiways adjacent to the

construction area, and to assure performance of the construction in an acceptable manner and time frame.

2. The Contractor shall develop a detailed schedule for all work areas to ensure that construction can be completed within the time allotted. Many of the work items will have to be constructed simultaneously.

3. There may be more than one Contractor working at the Georgetown County Airport performing construction simultaneously. The Contractor will be required to coordinate all work with the ENGINEER to minimize conflicts with other Contractors.

4. The Contractor shall make his own estimate of the difficulties involved in arranging the work to comply with the above requirements and shall not claim any added compensation by reason of delay or increased cost due to these requirements.

5. The schedule shall include, but is not limited to, approximate dates and exact time intervals for performing each work task, sub-schedules for shop drawing submittals, review times, procurement schedules, and delivery dates.

6. If Contractor utilizes cranes, bucket trucks, or other equipment exceeding 25' in height, Contractor is responsible for filing a "Notice of Proposed Construction" (Form 7460) with FAA review and approval prior to erecting the equipment. **In order to avoid delaying the start of the work, Contractor shall submit 7460 within 14 days of notice of contract award.** Contractor should allow at least 45 days for FAA review. The notice may be filed on-line; detailed instructions can be found on the FAA website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

   FAA may require tall equipment to be lighted and flagged. Any tall equipment used for the project shall be lowered when not in use. Equipment over 25' cannot be utilized until such time as FAA has completed their review and determined that the proposed equipment does not pose a hazard to air navigation.

7. Except where otherwise specified, work shall be allowed during daylight hours only in all work areas.

8. Due to the tight project schedule for the project, the Contractor may be required to perform certain items prior to the actual beginning of construction. These items include mobilization of equipment and materials; setting up staging areas; and preliminary survey work. The surveyor will be required to work under radio control with the Airport. The surveyor may be required to abandon or vacate his position if instructed by Airport. No additional compensation will be considered if Contractor cannot work or must stop work due to movement of aircraft or weather conditions which may prohibit or prevent completion of preliminary survey work.

PSP-4 APRON, TAXIWAY, and RUNWAY CLOSURES

Runway 5-23 and sections of Taxiway 'A' will be closed intermittently during this project.

See the Project Safety Plan and Phasing Plans for detailed information and for closure schedules. The runway and taxiway closures will impact Airport and tenant operations. For this reason, the schedule for each closure shall be closely coordinated with the Airport at least 72 hours prior to the closure.

PSP-5 CONTRACT TIME AND LIQUIDATED DAMAGES

Total Contract time allowed for completion of each schedule of work and for each phase work, and associated liquidated damages are shown in the Table 1 - Contract Time and Liquid Damages. The project Phasing Plans included in the plans detail requirements for each Phase as indicated in the table below. The liquidated damages shown are minimum amounts that will be assessed. All actual cost associated with the Contractor's failure to complete specified work items within the time allotted, will be passed on to the Contractor. Note that Contract Time shown is based on CALENDAR DAYS.

TABLE 1 - CONTRACT TIME AND LIQUIDATED DAMAGES (SCHEDULE I)

Schedule I – Hangar Taxilane Improvements and Hangar Sitework			
Work Phase	**Contract Time**	**Allowable Hours of Operations**	**Liquidated Damages**
Schedule I – Hangar Taxilane Improvements and Hangar Sitework (Phase I and II)[1]	120 Calendar Days	24 Hours per Day	$1,500 per Calendar Day
Phase I (Work Area 1)[2]	30 Calendar Days	24 Hours per Day	$1,500 per Calendar Day
Phase II - Runway 5-23 Closure – Work in ROFA [3]	16 Contract Days	9:00 pm to 6:00 am	$1,500 per Calendar Day
Phase II - Runway 5-23 Closure – Work in ROFA [3]	Failure to Reopen by 6:00 am	---	$500 Per Hour or Portion Thereof
Phase II - Final Marking Application – Work in ROFA[4]	1 Contract Day	9:00 pm to 6:00 am	$1,500 per Hour or Portion Thereof
Removal of Erosion Control Items [5]	2 Calendar Days	24 Hours per Day	$1,500 per Calendar Day

Notes:

1. **Schedule I - Hangar Taxilane Improvements and Hangar Sitework**. The Contractor shall complete all work for Phase I and II of the Hangar Taxilane Improvements and Hangar Sitework within 120 calendar days of the Project Notice to Proceed. Failure to complete the project within the specified time will result in the assessment of liquidated damages in the amount of $1500.00 per calendar day.

1. **Phase I (Work Area 1).** Construction shall include demolition and removal of existing pavement, earthwork, locate and encase existing utilities, installation of lighting conduit and encased duct, installation of taxiway light bases, construction of aggregate base course and bituminous surface for the taxiway, apron, and driveway, overlay of existing apron pavement, and basic grading for shoulders adjacent to the pavement and within limits of the lighted barricades within the Phase I (Work Area 1) limits. The Contractor shall have 30 calendar days from the construction start in Work Area 1 to complete this work. The Contractor may schedule Work Area 1 construction during the 120-day contract time for Phase I at his discretion. The closure schedule for Work Area I shall be coordinated with the ENGINEER and Owner one week in advance of the closure. During this time frame the Contractor may also work in all areas of Phase I.

2. The Contractor shall have 30 calendar days from the Notice to Proceed to complete this work. During this time frame the Contractor may also work in all areas of Phase I.

3. **Runway 5-23 Closure – Work in ROFA**. Work in the ROFA of Runway 5-23 will require closure of Runway 5-23. The Contractor will be allowed 16 contract days between the hours of 9:00 pm and 6:00 am to complete work within the ROFA area. The closures do not have to be completed on consecutive days, with the closures schedule dependent on work activities to be completed. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for a scheduled closure. Failure to reopen Runway 5-23 after 16 contract days will result in the assessment of liquidated damages of $1,500.00 per contract day or portion thereof. Failure to reopen Runway 5-23 by 6:00 am each morning will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for these activities is included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.

4. **Final Marking Application – Work in the ROFA**. Final Marking Application for work within the ROFA may begin after a 30 day curing period after final paving operations are completed. The Contractor will be allowed 1 contract day between the hours of 9:00 pm and 6:00 am to complete the final marking application within the ROFA area. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for the scheduled closure. Failure to reopen Runway 5-23 by 6:00 am will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for this activity is not

included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.

5. **Removal of Erosion Control Items**. The removal of erosion control items shall be scheduled after the site is stabilized with permanent grass. The Contractor shall periodically inspect the site until it is stabilized and notify the Engineer for a review. The work shall be scheduled after the Engineer has coordinated project closure with Georgetown County and has notified the Contractor to proceed. The contract time shown is not included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework

PSP-6 ADJUSTMENT OF CONTRACT TIME

Contract time for this project may be adjusted only by change order, when requested by the Contractor in writing and approved by the ENGINEER and Owner, for reasons outside of the Contractor's control, as follows:

a. Strikes, lockouts, or other labor actions which delay delivery of critical materials or performance of critical segments of work.

b. Natural disasters affecting the project site.

c. Excessive rainfall during an entire calendar month, defined as total number of days with more than 0.1" of rainfall in excess of the normal number of such days for that calendar month. Normal values for Georgetown County shall be taken as published by the Temperature and Precipitation in the USDA Soil Survey for Georgetown County, South Carolina as shown below.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	6	7	4	6	8	9	8	7	5	4	6

d. Extreme low temperatures, defined as the average daily temperatures falling below the normal average daily temperature for that date and below the minimum allowable temperature specified for a critical component of the work, for 15 days or more in a calendar month. Average daily temperature and normal average daily temperature values shall be as reported by the National Weather Services, the Southeast Regional Climate Center, or other reliable source provided by the Contractor and acceptable to the ENGINEER.

e. Suspension of the work as ordered by the ENGINEER or Owner.

f. Delays in critical work by others.

g. Significant additions to the scope of work.

Time extension will not be granted for rain, wind, snow, or other natural phenomena of normal intensity for the locality where work is performed.

Daily weather logs shall be kept on the job site by the Contractor reflecting the effect of the weather on progress of the work and initialed by the ENGINEER's representative. Time extensions for weather delays do not entitle the Contractor to "extended overhead" recovery.

The Contractor shall bear the burden of proof that a delay has been caused by factors outside his control, shall clearly demonstrate how the delay impacts the critical path of the work as shown on his work schedule as last revised, and shall demonstrate that he has made reasonable and prudent efforts to overcome the impact of the delay on the critical path.

Refer also to Section 80 of the General Conditions.

PSP-7 NOTAMS

a. The Airport Management will issue the necessary NOTAMS to reflect hazardous conditions. It is important that NOTAMS be kept current and reflect the actual conditions with respect to construction situations. Active NOTAMS shall be reviewed periodically and revised to reflect the current conditions.

b. Inspection - Frequent inspections may be made by the Airport Management during critical phases of the work to ensure that the Contractor is following the recommended safety procedures.

PSP-8 NIGHTTIME CONSTRUCTION OPERATIONS

Nighttime construction operations are required for this project. The Contractor shall be responsible for providing adequate lighting for all work which he performs at night. All power for such lighting shall come from portable generators or batteries provided by the Contractor. Adequate lighting will be as determined by the ENGINEER and should provide adequate light to allow safe and continuous operation for all ongoing construction activities. Light provided should allow all equipment operators to see the work and to allow the ENGINEER to provide adequate inspection. The Contractor shall provide a minimum 72 hours' notice prior to any nighttime construction operations.

PSP-9 AIRPORT SAFETY PLAN AND PHASING PLAN

An Airport Safety Plan and Phasing Plan has been prepared and included in the Contract Documents. This project involves construction on Airport property at the Georgetown County Airport. The Airport is open on a 24-hour, seven days per week basis, and is used by a variety of aircraft types, including jets and helicopters. The runway is served by instrument approach and departure procedures which allow aircraft operations during low visibility and low cloud ceiling conditions. The purpose of the Airport Safety Plan and Phasing Plan is to establish requirements intended to assure the safety of the public, aircraft operations, and construction operations on the Airport. The Contractor shall be responsible for implementation and compliance with the requirements of the Safety Plans. No separate measurement or payment will be made for labor, equipment or materials

required to implement the Safety and Phasing Plan. All costs shall be included in the lump sum bid price for "Temporary Construction Items".

The Contractor shall read the Construction Safety & Phasing Plan (CSPP) (see Appendix G) and prepare a Safety Plan Compliance Document (SPCD). The SPCD shall state that the Contractor understands the operational safety requirements of the CSPP and will not deviate from the approved CSPP unless written approval is granted by the Airport. The document shall include contact information for Contractor's personnel responsible for monitoring compliance with the CSPP during construction of the project. Contractor shall submit the SPCD to the ENGINEER for submittal to FAA in compliance with FAA Advisory Circular 150/5370-2G.

The Contractor shall provide initial and continuing instructions to all supervisors, employees, subcontractors, and suppliers to enable them to conduct their work in a manner that will provide the maximum safety with the least hindrance to air and ground traffic, the general public, Airport employees, and to the workmen employed on the site. All safety provisions specified by the plans and documents or received from the ENGINEER, and those required by laws, codes, and ordinances, shall be thoroughly disseminated, and enforced by Contractor.

Contractor is responsible for providing such barricades, warning signs and other measures as required to identify construction areas to aircraft traffic and the public and to protect the aircraft traffic and public from hazards.

The Contractor shall conduct his operations in such a manner as to assure that such operations do not impede access to any area of the Airport at any time for fire fighting vehicles and other emergency vehicles. The Contractor shall cooperate fully and immediately with any directives issued by Airport or emergency service/fire personnel relative to emergency access.

PSP-10 LOCATION OF SAFETY AND OBJECT FREE AREAS

The Contractor shall locate and mark in the field the location of all runway safety and taxiway object free areas in the vicinity of the project work areas as shown on the plans. These areas shall be identified with red top stakes, survey flagging, or other approved methods, so that the areas are clearly indicated to the Contractor's personnel. The intent is to minimize the potential for accidental/unauthorized entry into the "safety areas" by the Contractor's personnel.

PSP-11 AIRPORT ENTRY AND DEPARTURE PROCEDURES

The Contractor shall coordinate ingress-egress requirements with the Airport Management and Resident Project Representative. All open gates to secured airport areas shall be monitored by Contractor's personnel to control access to secured area and shall be closed and locked at the end of each day's operation. Contractor personnel shall not allow any unauthorized personnel to enter through construction gates. The Contractor shall be responsible for securing and/or locking all gates when not in use and at the end of each day's operations. ***The Contractor will be required to supply a padlock to***

interlock with existing padlocks at all gates. The Contractor shall be required to provide copies of all keys to the Resident Project Representative and Airport.

All construction vehicles must be cleared for access by the Airport Management and Resident Project Representative. Personal cars shall be parked outside of secured airfield areas. All vehicles operating in active air operation areas shall be lighted or flagged in accordance with FAA Advisory Circular 150/5370-2G. Copies of the Advisory Circular will be made available upon request.

PSP-12 EMERGENCY VEHICLE ACCESS

The Contractor shall conduct his operations in such a manner as to assure that such operations do not impede access to any area of the airfield at any time for emergency vehicles. The Contractor shall cooperate fully and immediately with any directive issued by Airport Management relative to emergency access.

PSP-13 CONSTRUCTION GENERAL REQUIREMENTS

The Contractor shall use equipment and construction methods appropriate for each work area. All debris shall be removed from the project area and disposed of off Airport property at a properly permitted site. It will be the responsibility of the Contractor to obtain all necessary permits and coordinate all activities with the appropriate agencies for disposal of debris and for traffic control on public roadways. The Contractor will be responsible for cleaning up and removing all debris at the completion of the project. All disturbed areas shall be smooth graded, seeded, and mulched. No ruts, depressions, holes, etc., will be allowed to be left on site.

PSP-14 SUPERINTENDANT / FOREMAN EXPERIENCE

The Superintendent / Foreman on the project responsible for each major work element (paving, lighting, and marking) shall be able to demonstrate experience with similar work on at least three other Airport projects.

PSP-15 CONSTRUCTION LAYOUT AND CONTROL

The ENGINEER shall furnish control points for horizontal control and benchmarks for vertical control as shown on the plans. It shall be the Contractor's responsibility to lay out the work from these points and to provide all other measurements to ensure positive horizontal and vertical control of the work. All survey work shall be performed under the supervision of a Registered Land Surveyor or a Registered Professional Engineer, in the State of South Carolina and shall be sealed.

The Contractor will be required to reference and maintain all control points and establish temporary benchmarks as required. Contractor will be required to reinstall control points as required during the project.

During the initial Mobilization, the Contractor shall verify by survey all control points provided for project as shown on plans, including tying the project control network to the

PACS and SACS as required by Section 50-07 of the General Conditions. This work shall be performed by a Registered Land Surveyor and shall be considered part of "preliminary survey work". The Contractor shall immediately notify the ENGINEER of any discrepancies in the control network between the information shown on the Plan sheets and his survey. The Contractor shall provide survey notes or data files from verification survey to ENGINEER for review prior to beginning work. The Contractor shall verify in writing his acceptance of the existing survey prior to utilizing.

See Specification Section 50-07 CONSTRUCTION LAYOUT AND STAKES for specific requirements for verification of survey and layout.

As described here and contained in the individual specifications, the following topographic/drainage surveys shall be performed by the Contractor as required for documentation of grade control, quantities, and for as constructed drawings.

1. Top of Existing Ground/ Pavement
2. Top of Stripped Ground.
3. Areas of Undercut.
4. Top Ground in Pavement Removal Areas.
5. Top of Subgrade.
6. Top of Aggregate Base Course or Type 'A' Base Course.
7. Top of First Lift of Bituminous Surface Course.
8. Top of Proposed Final Ground (Required for Project Record Documents).
9. Top of Proposed Bituminous Surface Course (Required for Project Record Documents).

The Contractor shall provide the ENGINEER one (1) set of the survey notes or data files (AutoCAD 2019 format), point files, and plotted topographic maps for all surveys. The maps shall be plotted at a scale acceptable to the ENGINEER and shall be based on elevation shots taken at intervals not exceeding 50 foot stations. All sections for all surfaces shall be taken at same interval and location based established and referenced centerline stationing. Survey notes shall be in a format that is easily read and contain station, offsets, and elevations based on the established project baseline. All costs for performing these surveys shall be included in the price bid for the item which it pertains.

The Contractor will be allowed to complete initial layout and topographic surveys prior to the Notice to Proceed for beginning construction. The Contractor will be required to schedule the survey work in advance with the ENGINEER, who shall coordinate with the Airport Management. The Contractor shall provide a minimum 48-hour advance notice. All survey work shall be completed in accordance with the requirements of the Project Safety Plan, local airfield rules and regulations, and directives from Airfield Management.

PSP-16 AS-CONSTRUCTED DRAWING

The Contractor shall provide a sealed final as constructed topographic survey for the project (see requirements below). The as constructed drawing shall be provided in hard copy and electronic drawing format. The electronic drawing shall be in AutoCAD format.

The survey must be provided to the ENGINEER for review and will be used to calculate and measure applicable quantities for payment as required in the Technical Specifications. The as constructed drawing shall be provided within seven (7) days of project completion and prior to the final inspection.

As-Constructed Survey Requirements:

1. The Contractor shall provide an "As-Constructed" survey drawing prepared and certified by a Licensed South Carolina Public Land Surveyor.

2. The drawing shall provide final contours shown over the entire site at the same contour interval as shown on the plans. The electronic version shall provide the capability to depict the final contours and/or the spot elevations used to develop the as constructed drawing.

3. The drawing shall include grades and contours for all ditches and basins. Cross sections shall include ditch bottom elevations, top of bank elevations, and elevations 10 foot each side of top of bank. The ditch and basin survey shall also show contours, top and bottom of bank, bottom width, and the side slopes of the ditch and basins.

4. Provide elevations and dimensions of all structures, including pipe and orifice sizes, inverts diameters, weir elevations and dimensions, riser elevations and dimensions, top of structure elevations and dimensions, and locations and inverts for all pipes.

5. Provide drainage pipes size, material, length, slope, and invert elevations.

6. Provide location for all new conduits, new taxiway lights, runway lights and guidance signs, new duct locations, and home run locations if required.

7. Survey shall include cross sections of the final surface course and grades taken at a minimum of 50 foot longitudinal spacings and at all longitudinal grade breaks. Minimum cross section grade points shall include the grade at centerline, at joint lines, at grade breaks, and at edges of pavement (on/off pavement). Shots in grassed areas shall not exceed 25' transverse spacing.

8. The Contractor shall also provide an <u>additional</u> sealed digital drawing in AutoCAD format that shows the location of pavement lots and sublots that were utilized for the final lift of bituminous pavement for the project. The Contractor shall maintain accurate records showing the limits of each day's paving. The drawing shall clearly delineate the limits of the lots and sublots and identify the date the material was placed for each day's paving.

   The Surveyor shall review the finish grades of the final surface course compared to the plan grades and shall identify and clearly delineate all areas that are not within the specified grade tolerance of ½ inch vertically within each sublot as required in Section P-401-6.2 of the specifications. Any areas not meeting the grade tolerance in each sublot shall be compared to the area of the sublot and the

Surveyor shall determine if the calculated area exceeds 25% of the sublot and delineate those sublot areas not meeting the requirements of the specification. A sealed copy of the survey showing the requested data shall be provided to the ENGINEER.

The Contractor shall provide a summary report detailing results from the survey review. For those areas not meeting the specification requirements, the Contractor shall identify sublots where a pay deduction is required and shall show the calculation for the amount of the deduct based on the surface course tonnage placed within the identified sublots.

All information shall be provided to the ENGINEER for review, and the ENGINEER will use this information to confirm adjustments to the payment for the item "Asphalt Surface Course" in accordance with the requirements of Section P-401-6.2 of the specifications.

9. Provide an AutoCAD digital drawing and PDF file of the as-built drawing on SC State Plan Coordinate System NAD 83 Datum. The AutoCAD drawing file shall be in AutoCAD 2019 format. The Drawings shall be signed and sealed by a Registered Surveyor in the State of South Carolina.

All survey work must be tied to the Primary Airport Control Station (PACS) and the project baseline. Ties and monuments shall be shown on record drawings.

PSP-17 PROTECTION OF EXISTING FACILITIES

All existing facilities, structures, and utilities to remain will be carefully protected by the Contractor (See also PSP-18 and PSP-19). Any facilities damaged by the Contractor will be repaired immediately and restored to original condition at Contractor's cost. All runway lights, taxiway lights, signs, paved/concrete surfaces, and the existing hangar to shall be protected during grading, paving, and seeding and mulching operations by suitable means. All airfield lighting systems on open taxiways and Runway 5-23 shall be operational at all times.

PSP-18 EXISTING AIRFIELD LIGHTING FIXTURES

The Contractor shall exercise care to avoid damage to existing airfield lighting fixtures and lighted signs. The Contractor will be responsible for the prompt repair or replacement of any such fixtures damaged by his operations, including all costs thereof. Removed lighting fixtures and transformers shall be carefully removed and shall remain property of the Airport. The Contractor shall deliver salvaged lights and transformers to location on the Airport specified by Airport Management. All other removed equipment and debris shall be disposed of off Airport property at a properly permitted location by the contractor.

PSP-19 PROTECTION OF CABLES, CONTROLS, NAVAIDS, AND UTILITITES

1. The Contractor is hereby informed that there are installed on the Airport navigational aids (NAVAIDs), airfield lighting, other electric power cables serving other facilities,

and other utilities. Such NAVAIDs, airfield lighting and other electric cables and other utilities to remain in service, and other utilities must be fully protected during the entire construction time unless shown otherwise on the plans. **It shall be the Contractor's responsibility to locate and protect all underground facilities along and in the work area at the Contractor's expense.**

Work under this Contract can be accomplished in the vicinity of these facilities and cables only at approved periods of time, which approval is subject to withdrawal at any time because of changes in the weather, emergency conditions on the existing airfield areas, anticipation of emergency conditions, and for any other reason as determined by the ENGINEER acting under the orders and instructions of the Airport Management. Any instructions to the Contractor to clear any given area, at any time, by the ENGINEER or the Airport Management, shall be immediately executed. Construction work will commence in the cleared area only when additional instructions are issued by the proper authorities.

2. The Contractor is responsible for arrangements to locate and mark in the field all power and control cables leading to and from any NAVAIDS, weather systems, electric power and communications cable, and other facilities and utilities before any work in the general vicinity is started. Thereafter, through the entire time of this construction, Contractor shall protect them from any possible damage, including crossing with unauthorized equipment, etc. Known facilities, utilities, and buried cables, and the approximate location thereof in the construction area, are shown on the plans.

3. These special provisions intend to make perfectly clear the need for protection of Airport NAVAIDS, weather equipment, utilities, and other facilities and cables by the Contractor at all times.

4. The Contractor shall immediately repair, with identical material by skilled workmen, any underground cables serving NAVAIDS, weather equipment, utilities and other Airport facilities which are damaged by his workmen, equipment, or work. Prior approval of the Airport must be obtained for the materials, workmen, time of day or night, method of repairs, for any temporary or permanent repairs the Contractor proposes to make to any NAVAIDS, Weather Bureau facilities, or other cables and controls serving such NAVAIDS and facilities damaged by the Contractor. Prior approval of the ENGINEER or of the representative designated by the Airport Management must be obtained for the materials, workmen, time of day or night, method of repairs, for any temporary or permanent repairs the Contractor proposes to make to any other Airport facilities and cables damaged by this Contractor.

PSP-20 STOCKPILE/ MATERIAL HANDLING REQUIREMENTS

Location of stockpile areas shall be as shown on the plans and coordinated with and approved by the Owner. Stockpiles shall be neat in appearance and should be piled to a maximum height of eight feet. The Contractor will be required to manipulate and push up stockpiled materials as required, to promptly remove stockpiled waste materials from site

for proper disposal to minimize stockpile ground areas, and to maintain piles in a neat and orderly fashion. When stockpiles are installed outside the limits of disturbance shown on the Plans, temporary silt fence shall be installed at the base of the stockpile on the downstream side of all stockpiles. There shall be no separate payment for multiple handling of materials by Contractor. See Plans for proposed location of stockpile areas and details for temporary silt fence installation.

PSP-21 DISPOSAL OF SOIL, DEBRIS, AND ASPHALT MILLINGS

The Contractor shall promptly dispose of concrete debris, excess or unsuitable soil, silt excavation, debris from pipe and structure removal, pavement removal, and other debris off Airport property in a properly permitted location in accordance with applicable laws and regulations. All costs for offsite disposal shall be included in the bid costs for the related items bid upon.

Asphalt millings in excess of those required to construct the Hangar Access Drive shall be disposed of off Airport property at the Georgetown County site located at 1324 Aviation Blvd. The Contractor shall dump the millings at designated area at the County site and County staff shall be responsible for stockpile maintenance.

PSP-22 MATERIAL MANIPULATION

The specifications for P-152, Excavation and Embankment and P-209 Crushed Aggregate Base Course require that these materials be compacted within specific limits of optimum moisture content. The Contractor shall be responsible for all efforts necessary to adjust the moisture content of soil materials in order to achieve stability and specified compaction. This includes but is not limited to proactive control of surface runoff and groundwater, soil drying efforts (spreading, scarifying, etc.) and watering. Soils which are found to be wet of optimum will not be considered unsuitable. All costs for soil moisture conditioning shall be incidental to the prices of items of work bid upon.

PSP-23 DEWATERING AND EXCAVATION SUPPORT

The Contractor may encounter wet conditions during removal and demolition of existing drainage system and structures and installation of new drainage system and structures. Wet conditions may include existence of water in excavations and the existing pipe systems. Wet conditions may also result in unstable soil conditions during construction. The methods used for dewatering and excavation support are at the Contractor's discretion including well pointing, temporarily plugging, and pumping the existing drainage system or other selected methods. All costs for dewatering and excavation support including required equipment, materials, preparation, and installation of these materials, and for all labor, tools, and incidentals necessary to complete these tasks shall be included in the costs of items of work bid upon.

PSP-24 CONTROL STRIP FOR P-401 BITUMINOUS PAVEMENT

The Contractor will be required to complete a control strip for P-401 bituminous pavement in accordance with requirements of the Specifications. The location for the control strip

will be coordinated with Airport, ENGINEER, and Contractor. The control strip may be completed at any time after mix design has been approved and after the aggregate base course has been placed, compacted, and has passing QA test results. The control strip will be paid for in accordance with the requirements of Section P-401 of the Specifications.

PSP-25 DUST CONTROL

It is the intent of these specifications that the Contractor will, by watering, chemicals, vegetation, or other means, prevent the occurrence of dust which will be objectionable to the Airport or the residents of the area or violate existing laws or regulation or cause hazards to air traffic.

PSP-26 EROSION AND SEDIMENT CONTROL PERMIT REQUIREMENTS

The OWNER will obtain Erosion and Sediment Control Plan approval through SCDHEC and the associated coverage under the South Carolina NPDES General Permit for Stormwater Discharges from Construction Sites and Georgetown County Stormwater. The responsibility for complying with the conditions and requirements of the plan approval and general permit, including but not limited to site inspection and record keeping requirements, are hereby assigned to the Contractor. Site inspections and record keeping shall continue until a good stand of grass has been established at the site and the project has been closed out by SCDHEC and Georgetown County Stormwater. The Contractor will be required to provide an "As-Built" survey/drawing for the project, including data and information below. All costs associated with this item shall be included in the item "Mobilization," and no other compensation will be made. The Contractor shall notify the ENGINEER when the project is ready for closeout, and the ENGINEER will request a closeout inspection by Georgetown County and SCDHEC.

Erosion control measure shall be inspected daily during active construction. During times when construction is not on-going, erosion control measures shall be inspected weekly and after each rainfall event measuring ½" or more at a minimum.

Needed repairs/replacement shall be made immediately upon discovery or upon notification by the ENGINEER or Resident Project Representative. Cost of all repairs shall be included in items bid upon.

The Contractor will be required to provide an as-built survey for the project as specified in Section PSP-16 As-Constructed Drawing.

PSP-27 TESTING – GENERAL

All testing required by the Contract specifications for acceptance of the work (except as noted in the individual specification sections and as explained below) will be initiated by the ENGINEER with the full cooperation of the Contractor. Quality assurance testing will be scheduled after the Contractor confirms to the ENGINEER that an area is ready for testing. **NOTE:** ***Contractor is responsible for his own quality control testing and is not to request quality assurance testing until he has satisfied himself that the materials are ready for such testing. The Contractor will be required to pay for all***

retests of failing quality assurance tests taken throughout the project which are performed by the testing laboratory after the ENGINEER has been notified by the Contractor that the item is ready for testing.

An independent QA testing laboratory will be used on the project, which laboratory technicians will be under the direction of the Resident Project Representative. There is no cost to the Contractor for QA testing under this heading (except as noted in the individual specifications section and as explained above). Testing to be completed during construction is indicated for each bid item in the individual sections.

The Contractor will be required, at his expense, to furnish proposed job mix formulas for the P-401 Hot Mix Asphalt, SCDOT Type 'A' Bituminous Base, and structural concrete to the ENGINEER for his approval at least thirty (30) days prior to the proposed date for use. The Contractor may be requested to submit the necessary materials to the designated laboratory for verification and will be required to furnish all required test data, graphs, etc., as required and specified in the item specifications. The cost for the materials and delivery of these items shall be included in the unit costs for the applicable items under this Contract.

The Contractor will also be required to furnish a density gauge for use on this project during paving. This density gauge shall be operated by a trained laboratory technician to provide for continuous monitoring of paving operations and their conformance with the specifications. The cost of furnishing the density gauge and trained laboratory technician shall be borne by the Contractor. The density gauge is to be used by the Contractor as an aid in construction operations; the Owner will not use density gauge test results to determine acceptance and/or rejection of the bituminous pavement.

PSP-28 SHOP DRAWINGS

The Contractor is responsible for the preparation of detailed shop drawings and data submittals necessary for the fabrication, erection, and construction of all parts of the work in conformity with the Contract Documents. ***Six (6) copies of shop drawings or a digital scanned copy submitted by email shall be submitted to the ENGINEER in accordance with the procedures herein described.***

"Shop Drawings", wherever referred to, shall be defined as drawings, diagrams, illustrations, schedules, catalog cuts, performance charts, brochures, and other data prepared by the Contractor or any Subcontractor, Manufacturer, supplier or distributor, which illustrate how specific portions of the work shall be fabricated and/or installed.

Where it is difficult to provide "shop drawing transparencies such as for "catalog cuts", "brochures" or "photographs", the Contractor shall submit a minimum of six (6) copies of such "cuts", "brochures" or "photographs". Additional copies shall be supplied when required by the ENGINEER.

All submissions of shop drawings, brochures and catalog cuts shall be accompanied by a transmittal letter listing the drawings submitted by number and title.

Each shop drawing shall have listed on it all Contract references, drawing numbers, plus shop drawing numbers on related work by other Subcontractors, if available.

Non-reproducible shop drawings shall be submitted with a cover sheet containing all the information required on reproducible shop drawings.

Shop drawings shall be complete in every detail, including a location plan relating the work to space identification and column numbers. Materials, gauges, method of fastening, size and spacing of fastenings, connections with other work, cutting, fitting, drilling, and any and all other necessary information as per usual trade practice or as required for any specific purpose must be clearly shown.

The Contractor shall check and approve all shop drawings to make sure that they conform to the drawings, specifications, and other Contract requirements, and correct the drawings found to be inaccurate or otherwise in error. The Contractor shall verify all field dimensions and criteria and shall be responsible for the coordination of work by all Subcontractors.

Shop drawings, at the time of submission, shall bear the signature of the Contractor's checker, date and stamp of approval for submission to the ENGINEER as evidence that such drawings and/or details have been reviewed, checked and approved by the Contractor. Drawings submitted without such stamp of approval will be returned to the Contractor unapproved and will require resubmission. In such event, it will be deemed that the Contractor has not complied with the requirements of this subsection and shall bear the risks of delays as if no drawings or details had been submitted. Both sepia and prints must bear Contractor's stamp.

The Contractor, by approving and submitting shop drawings, represents that he has determined and verified all field measurements and quantities, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed and coordinated the information in the shop drawings with the requirements of the work and the Contract documents.

At the time of submission, the Contractor shall inform the ENGINEER in writing of any deviation in the shop drawings or samples from the requirements of the Contract documents.

The ENGINEER will review and approve shop drawings and samples with reasonable promptness to minimize delay, but only for conformance with the design concept of the Contract and with the information given in the Contract documents. The ENGINEER'S approval of a separate item shall not indicate approval of an assembly in which the item functions. The ENGINEER will return the shop drawings transparency/sepia to the Contractor for his use and distribution.

The ENGINEER'S approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract documents unless the Contractor has informed the ENGINEER in writing of such deviation at the time of submission and the ENGINEER has given written approval to the specific deviation, nor

shall the ENGINEER'S approval relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.

No materials shall be ordered and no portion of the work requiring shop drawings or sample submission shall be commenced until the submission has been approved by the ENGINEER. All such materials and portions of work shall be in accordance with approved shop drawings and samples.

The Contractor shall, when requested by the ENGINEER in writing, submit additional shop drawings to those required by the technical specifications or special provisions.

The Contractor shall deliver to the ENGINEER three (3) complete sets of all maintenance manuals, parts list, operating instructions and other necessary documents required for all installed materials, equipment, or machinery. Such documents shall be furnished concurrently with the installations of the respective materials, equipment or machinery. All shop drawings submitted by the Contractor and approved by the ENGINEER become part of the Contract documents.

PSP-29 WEEKLY PROGRESS MEETING

A Progress Meeting will be held weekly throughout the project. Progress meetings will be alternated on a weekly basis between a Zoom Meeting and an On-site Meeting. The weekly meeting will be scheduled at the Pre-construction Meeting. The purpose of these meetings will be scheduling and coordination of the work between Contractors, review of project progress, and discussion of project work items and issues. The Contractor will be required to have a qualified representative at each of these meetings.

PSP-30 PAY ESTIMATE DOCUMENTATION

The Contractor's attention is directed to various documentation requirements of the project. All documentation must be current as of the date of each partial pay estimate. Delinquent paperwork may result in delays in processing pay estimates. Documentation requirements include but are not limited to materials on-hand documentation (Section 90), DBE Vendor Commitments / Awards / Payments Report, and Certified Payrolls (Contractor and Subcontractors). A sample of the documents is contained in Appendix "E" - Forms, of the specifications.

PSP-31 COPIES OF CONSTRUCTION DOCUMENTS

ENGINEER will furnish at no charge to Contractor five (5) complete sets of plans and specifications including cross-sections for Contractor's use during construction. One set shall be maintained as the Project Record Documents. Additional sets of plans and specifications or individual sheets of plans will be furnished to Contractor at the cost of reproduction and postage.

PSP-32 CONTRACTS AND BONDS

The Contractor's attention is directed to Appendix "D" which includes the form of the

construction contract and performance and payment bonds. The contract form contains numerous important contract provisions including insurance requirements.

PSP-33 AS CONSTRUCTED DRAWINGS

The Contractor will be required to maintain a set of "as constructed plans" on the project at all times, noting any changes, deviations, etc., with the responsibility to furnish the Owner, at the completion of the project, a set of as constructed plans. A set of sealed "as constructed plans" shall be delivered to the ENGINEER prior to final acceptance and payment and in addition to final cross-sections, pavement elevations/edges, and final as-built ground and pavement grades (see PSP-16 AS CONSTRUCTED DRAWING for as constructed drawing requirements). All survey work must be tied to the Primary Airport Control Station and shall be on the same datum as the plans.

PSP-34 WARRANTY

A one-year warranty is applicable for all materials and workmanship for the completed project. The warranty includes the establishment and maintenance of a good stand of grass of uniform color and density as required in the specifications.

PSP-35 WATER FOR CONSTRUCTION OPERATIONS

Water for the construction operations for this project shall be paid for by the Contractor. The Contractor will be required to obtain a permit and meter from the Georgetown County Water and Sewer District. The meter shall be installed at a hydrant located inside the fenced airport area. All water utilized for the project shall be obtained from the metered hydrant.

For permit required and meter, contact:

Michael Yip
Georgetown County Water and Sewer District
PO Box 2730
456 Clearwater Drive
Pawley's Island, SC 29585
(843) 546-8408

The Contractor shall be responsible for any cost required for obtaining the permit and meter, and all water required for the project.

The Contractor shall use care when obtaining water for the project from the hydrant. The Contractor will be required to open the hydrant slowly to minimize the pressure drop in the system.

PSP-36 MISCELLANEOUS PAY ITEMS

Payment for miscellaneous items not included in the Technical Specifications shall be as follows:

Item – "Concrete Encasement for Utilities"

The Contractor will be required to concrete encase specified existing utilities located under the proposed pavement. The Contractor shall locate and mark all utility locations prior to beginning grading operations. The Contractor shall hand dig to expose the existing utilities at random locations to determine utility depth. The Contractor shall carefully excavate trenches over the utilities to fully expose the full length of the utility to be concrete encased. The Contractor shall place concrete encasement over the utilities in accordance with the details shown on Sheet TS1.1. After the concrete has cured, the Contractor shall backfill and compact the trenches in accordance with Section P-152 of the specifications.

The items for Concrete Encasement shall be measured and paid for on a linear foot basis. The linear foot cost bid shall be full compensation for all excavation, concrete encasement, backfill, and compaction of the trenches, and for furnishing all materials and for preparation, delivery, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete these items.

Payment will be made under:

- "Concrete Encasement -Existing 2" PVC Forcemain" – Per Linear Foot
- "Concrete Encasement – Existing 2" PVC Electric and Fiber Optic Conduit" - Per Linear Foot

Item – "Rip Rap Emergency Spillway and Concrete Weir"

The Contractor will be required to construct the emergency spillway and concrete weir for the proposed stormwater basin. The Contractor shall grade for installation of the spillway and concrete weir, construct the reinforced concrete weir, and install Class 'A' rip rap for the emergency spillway and bank protection in accordance with the details shown on Sheets TS1.4 and TS1.5.

The item for "Emergency Spillway and Weir" shall be measured and paid for on a lump sum basis. The lump sum cost bid shall be full compensation for all excavation, grading, rip rap placement, construction of the concrete weir, and for furnishing all materials and for preparation, delivery, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- "Rip Rap Emergency Spillway and Concrete Weir" – Per Lump Sum

Item – "Hangar Access Drive"

The Contractor will be required to construct the Hangar Access Drive utilizing millings salvaged from the removal of the abandoned runway in accordance with the details shown on the plans. The Contractor shall prepare, grade, and compact the subgrade in accordance with the requirements of Item P-152 of the specifications. The millings shall

be placed to required grade utilizing a paver and thoroughly compacted to provide smooth access drive in accordance with the grading plan and typical section shown on the plans.

The item for "Hangar Access Drive " shall be measured and paid for on a square yard basis. The square yard cost bid shall be full compensation for all grading, subgrade preparation, placement, and compaction of the millings surface course, and for furnishing all materials and for preparation, delivery, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- "Hangar Access Drive" – Per Square Yard

Item - "Lighting System Drainage Sump"

The Contractor shall construct drainage sumps to provide for drainage of the taxiway lighting system to be constructed in accordance with the details shown on the plans. The item shall include trenching and installation of a 2" conduit drain from the adjacent light base and excavation and installation of a gravel sump at locations shown for a complete installation.

The item for "Light Base Drainage Sump, Installed" shall be measured and paid for on per each basis. The cost per each bid shall be full compensation for all excavation, construction of the drainage sump, and connection to the taxiway lighting system, and for furnishing all materials and for preparation, delivery, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- "Light Base Drainage Sump" – Per Each

Item – "EDA Project Sign"

The Contractor will be required to provide and construct the "EDA Project Sign" in accordance with the attached sign specifications and details. The sign shall be installed at the location as directed by Airport Management.

The item for "EDA Project Sign" shall be measured and paid for on a lump sum basis. The lump sum cost bid shall be full compensation for preparation and providing the sign in accordance with details provided and for installation at location as directed by Airport Management, and for furnishing all materials and for preparation, delivery, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- "EDA Project Sign" – Per Lump Sum

PSP-37 CAD DRAWING FILES

CAD drawing files are available for the project. A Contractor who would like to receive a copy of the CAD drawing files shall complete the 'Release for CAD Files' form included in Appendix 'E', pages E-13 and E-14, and submit to nsilver@gtcounty.org. Once the 'Release for CAD Files' form is received, the CAD drawing files will be forwarded to the requesting party.

EDA PROJECT SIGN

The Contractor shall supply, erect, and maintain in good condition a project sign according to the specifications set forth below:

EDA SITE SIGN SPECIFICATIONS

Size: 4' x 8' x ¾"

Materials: Exterior grade/MDO plywood (APA rating A-B)

Supports: 4" x 4" x 12' posts with 2" x 4" cross branching

Erection: Posts shall be set a minimum of three feet deep in concrete footings that are at least 12" in diameter.

Paint: Outdoor enamel

Colors: Jet Black, Blue (PMS300), and Gold (PMS7406). Specifically, on white background the following will be placed:

The U. S. Department of Commerce seal in blue, black, and gold;

"EDA" in blue;

"U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT

ADMINISTRATION" in black;

"In partnership with" in blue;

(Actual name of the) "EDA Grant Recipient" in black;

Lettering: Specific fonts are named below; positioning will be as shown on the attached illustration.

"U. S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION" use Bank Gothic Medium - BANK GOTHIC MED

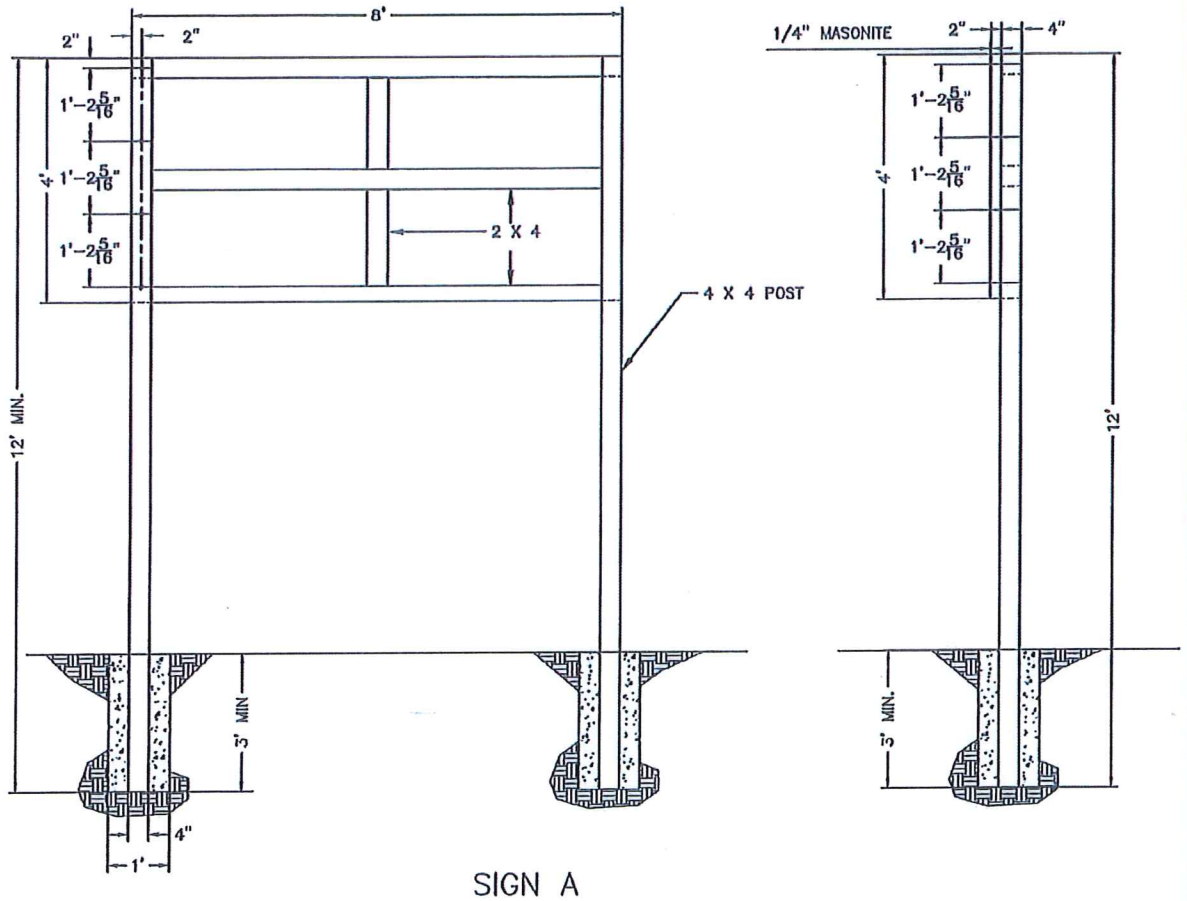
"In partnership with" use Univers™ 55 Oblique - *Univers 55*

(Name of) "EDA Grant Recipient" use Univers™ Extra Black 85 **Univers 85**

Project signs will not be erected on public highway rights-of-way. If any possibility exists for obstruction to traffic line of sight, the location and height of the sign will be coordinated with the agency responsible for highway or street safety in the area.

The EDA Regional Director may permit modifications to these specifications if they conflict with state law or local ordinances.

OMB Number: 0610-0096
Expiration Date: 01/31/2025

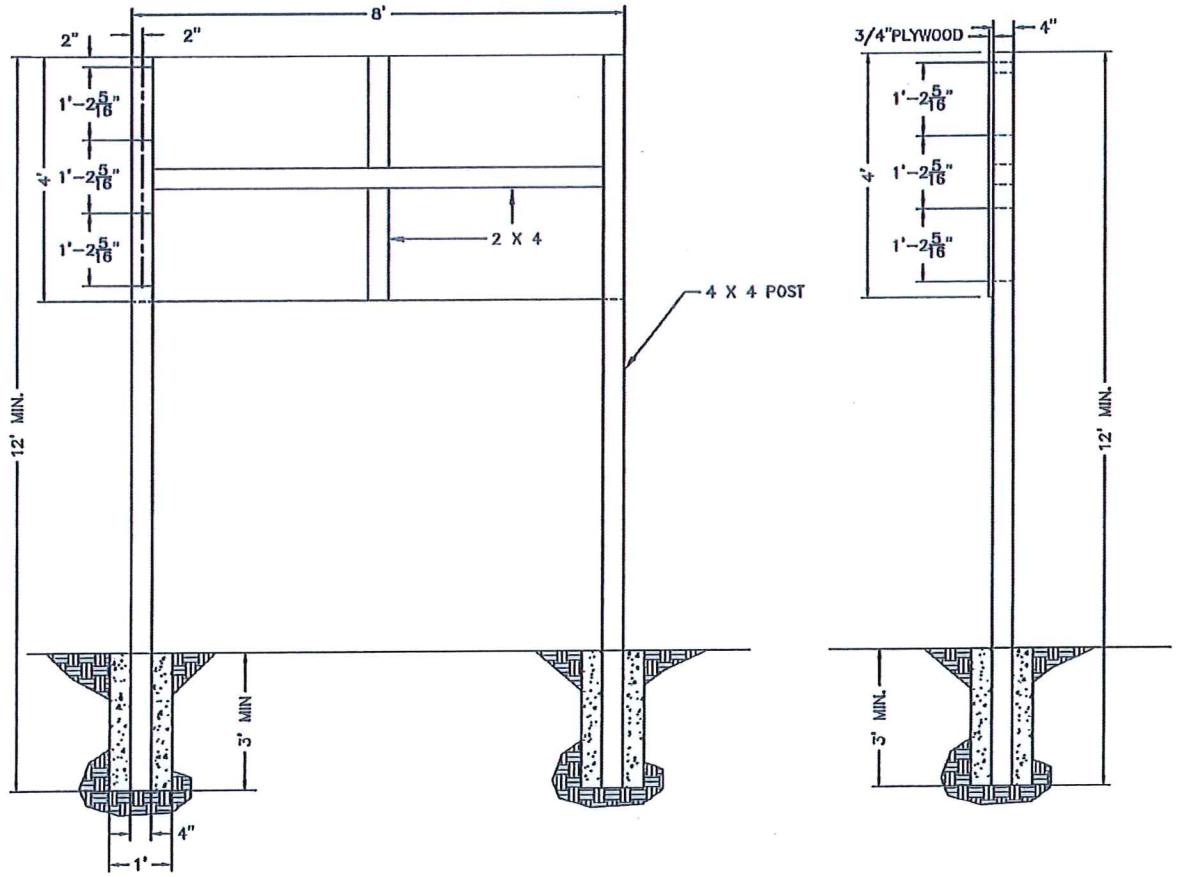


SIGN A
MASONITE SIGN

SCALE: 3/8" = 1'

PROJECT – SIGN A
ECONOMIC DEVELOPMENT ADMINISTRATION

OMB Number: 0610-0096
Expiration Date: 01/31/2025



SIGN B
PLYWOOD SIGN
SCALE: 3/8" = 1'

PROJECT – SIGN B
ECONOMIC DEVELOPMENT ADMINISTRATION

2601-2101

PSP-25

EDA

U.S. DEPARTMENT OF COMMERCE ECONOMIC DEVELOPMENT ADMINISTRATION

In partnership with

Georgetown County (GGE)

2601-2101

PSP-26

END OF PROJECT SPECIAL PROVISIONS

TECHNICAL SPECIFICATIONS

ITEM C-100

CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

A. Provide qualified personnel to develop and implement the CQCP.

B. Provide for the production of acceptable quality materials.

C. Provide sufficient information to assure that the specification requirements can be met.

D. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the ENGINEER. No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the ENGINEER as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the ENGINEER, RPR, Contractor, Subcontractors, Testing Laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the

Airport and the ENGINEER on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

A. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

B. Discussion of the QA program.

C. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

D. Establish regular meetings to discuss control of materials, methods and testing.

E. Establishment of the overall QC culture.

100-2 Description of Program.

A. General Description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

B. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the ENGINEER prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the ENGINEER for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the ENGINEER prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

(1) QC organization and resumes of key staff.

(2) Project progress schedule.

(3) Submittals schedule.

(4) Inspection requirements.

(5) QC testing plan.

(6) Documentation of QC activities and distribution of QC reports.

(7) Requirements for corrective action when QC and/or QA acceptance criteria are not met.

(8) Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP Organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of Paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

A. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time employee of the Contractor, or a

consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

B. QC Technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and Paragraph100-8.

(3) Performance of tests for the ENGINEER when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

C. Staffing Levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project Progress Schedule. Critical QC activities must be shown on the project schedule as required by Section 80, Paragraph 80-03, *Execution and Progress*.

100-5 Submittals Schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

A. Specification item number.

B. Item description.

C. Description of submittal.

D. Specification paragraph requiring submittal.

E. Scheduled date of submittal.

100-6 Inspection Requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

A. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

B. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC Testing Facility.

A. For projects that include Item P-401, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

8.1.3 - Equipment Calibration and Checks.

8.1.9 - Equipment Calibration, Standardization, and Check Records.

8.1.12 - Test Methods and Procedures.

100-8 QC Testing Plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

A. Specification item number (e.g., P-401).

B. Item description (e.g., Hot Mix Asphalt Pavements).

C. Test type (e.g., gradation, grade, asphalt content).

D. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable).

E. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated).

F. Responsibility (e.g., plant technician).

G. Control requirements (e.g., target, permissible deviations).

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The ENGINEER shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by Paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the ENGINEER daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

A. Daily Inspection Reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description.

(2) Compliance with approved submittals.

(3) Proper storage of materials and equipment.

(4) Proper operation of all equipment.

(5) Adherence to plans and technical specifications.

(6) Summary of any necessary corrective actions.

(7) Safety inspection.

(8) Photographs and/or video.

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The ENGINEER shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

B. Daily Test Reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description.

(2) Test designation.

(3) Location.

(4) Date of test.

(5) Control requirements.

(6) Test results.

(7) Causes for rejection.

(8) Recommended remedial actions.

(9) Retests.

Test results from each day's work period shall be submitted to the ENGINEER prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective Action Requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or Observations by the Engineer. All items of material and equipment are subject to inspection and/or observation by the ENGINEER or their authorized representative at the point of production, manufacture or shipment to determine if the Contractor, producer, Manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the ENGINEER, or their authorized representative. at the site for the same purpose.

Inspection and/or observations by the ENGINEER does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

A. ENGINEER will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

B. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the ENGINEER will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Method of Measurement and Payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

A. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

B. When 25% or more of the original contract is earned, an additional 25%.

C. When 50% or more of the original contract is earned, an additional 20%.

D. When 75% or more of the original contract is earned, an additional 20%

E. After final inspection and acceptance of project, the final 10%.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100.14.1 Contractor Quality Control Program (CQCP) – per Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

ASTM D3665 Standard Practice for Random Sampling of Construction Materials

ASTM D3666 Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

ITEM C-102

TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

102-1 This item shall consist of temporary control measures as shown on the plans or as ordered by the ENGINEER during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2G, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed, and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

102-2.1 **Grass.** Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 **Mulches.** Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

102-2.3 **Fertilizer.** Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists per Item T-901.

102-2.4 Slope Drains. Deleted.

102-2.5 Silt Fence. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the ENGINEER before being incorporated into the project.

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The ENGINEER shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the ENGINEER.

102-3.3 Construction Details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; or that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The ENGINEER shall limit the area of excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the ENGINEER.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the ENGINEER. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the ENGINEER, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The ENGINEER may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, Maintenance and Removal of Silt Fence. Silt fences shall extend a minimum of 16 inches and a maximum of 34 inches above the ground surface. Posts shall be set no more than 10 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 4 inches deep by 4 inches wide on the upslope side of the silt fence. The trench shall be backfilled, and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the ENGINEER.

102-3.5 Installation and Maintenance of the Vegetative Filter Strip. The Contractor shall fine grade and prepare the installation area for the vegetative filter strip and install Bermuda sod in accordance with the requirements of Item T-904 Sodding. The Contractor shall be required to maintain the sod in good condition and repair any damaged areas.

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the ENGINEER. Completed and accepted work will be measured as follows:

A. Temporary Seeding and Mulching will be measured by the acre.

B. Temporary Inlet Protection will be measured on a per each basis.

C. Temporary Construction Entrance will be measured on a per each basis.

D. Installation and Removal of Temporary Silt Fence will be measured by the linear foot.

E. Excelsior Matting shall be measured by the square yard.

F. Downspout Outlet Protection shall be measured on a per each basis.

G Rip Rap Pipe Outlet Protection shall be measured by the square yard.

H. Vegetative Filter Strip shall be measured by the square yard.

I. Floating Turbidity Barrier shall be measured by the linear foot.

J. Concrete Washout Structure will be measured on a per each basis.

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the ENGINEER and measured as provided in Paragraph 102-4.1 will be paid for under:

Item C-102-5.1A Temporary Seeding and Mulching - per Acre

Item C-102-5.1B Temporary Inlet Protection – per Each

Item C-102-5.1C Temporary Construction Entrance – per Each

Item C-102-5.1D Installation and Removal of Temporary Silt Fence - per Linear Feet

Item C-102-5.1E Excelsior Matting – per Square Yard

Item C-102-5.1F Downspout Outlet Protection – per Each

Item C-102-5.1G Rip Rap Pipe Outlet Protection – per Square Yard

Item C-102-5.1H Vegetative Filter Strip – per Square Yard

Item C-102-5.1I Floating Turbidity Barrier – per Linear Foot

Item C-102-5.1J Concrete Washout Structure – per Each

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the ENGINEER will be paid for in accordance with Section 90, Paragraph 90-05 *Payment for Extra Work*.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33C *Hazardous Wildlife Attractants on or Near Airports*

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

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA	Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

ITEM C-105

MOBILIZATION

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization Limit. Mobilization shall be limited to 10 percent of the total project cost.

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'S/RPR Field Office. An ENGINEER'S/RPR field office is not required.

METHOD OF MEASUREMENT AND PAYMENT

105-5.1 Mobilization. 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-105.6.1 Mobilization - per Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246 (As Amended)

EEOC-P/E-1 Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

ITEM C-110

METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at an acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at a rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for Computing PWL. The computational sequence for computing PWL is as follows:

A. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

B. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

C. Make a measurement at each location or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

D. Find the sample average (X) for all sublot test values within the lot by using the following formula:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

Where: X = Sample average of all sublot test values within a lot
$x_1, x_2, \ldots x_n$ = Individual sublot test values
n = Number of sublot test values

E. Find the sample standard deviation (S_n) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

Where: S_n = Sample standard deviation of the number of sublot test values in the set $d_1, d_2, \ldots d_n$ = Deviations of the individual sublot test values $x_1, x_2, \ldots$ from the average value X that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X) \ldots d_n = (x_n - X)$
n = Number of sublot test values

F. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$\mathbf{Q_L = (X - L) / S_n}$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L, using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

G. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$\mathbf{Q_L=(X-L)/S_n}$$
and
$$\mathbf{Q_U = (U - X) / S_n}$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U, using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U. Determine the PWL by use of the following formula:

$PWL = (P_U + P_L) - 100$

Where: P_L = percent within lower specification limit
P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60
A-2 = 97.55
A-3 = 99.30
A-4 = 98.35
n = 4

2. Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + . . . x_n) / n$
$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$
$X = 97.95\%$ density

3. Calculate the standard deviation for the lot.

$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)]^{1/2}$
$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$
$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$
$Q_L = (97.95 - 96.30) / 1.15$
$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with Q_L= 1.44 and n= 4. PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1 = 5.00
A-2 = 3.74
A-3 = 2.30
A-4 = 3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 \ldots n) / n$
$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$
$= 3.57\%$

3. Calculate the standard deviation S_n for the lot.

$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$
$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$
$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$
$Q_L = (3.57 - 2.00) / 1.12$
$Q_L = 1.3992$

5. Determine P_L by entering Table 1 with Q_L = 1.41 and n = 4. P_L = 97

6. Calculate the Upper Quality Index Q_U for the lot. (U= 5.0)

$Q_U = (U - X) / S_n$
$Q_U = (5.00 - 3.57) / 1.12$
$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and $n = 4$. $P_U = 93$

8. Calculate Air Voids PWL

$PWL = (P_L + P_U) - 100$
$PWL = (97 + 93) - 100 = 90$

Example of Outlier Calculation (Reference ASTM E178)

Project: Example Project
Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

A-3 = 99.30
A-4 = 98.35
A-2 = 97.55
A-1 = 96.60

2. From ASTM E178, Table 1, for n=4 an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

4. For measurements greater than the average:
If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier. For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

B. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier. For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%
OR
less than (97.95 - 1.463 × 1.15) = 96.27%.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

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 E178 Standard Practice for Dealing with Outlying Observations

END OF ITEM C-110

TEMP TCI
TEMPORARY CONSTRUCTION ITEMS

DESCRIPTION

TCI-1.1 **General.** This item consists of furnishing all labor, materials, and equipment for temporary construction items necessary for the safe and proper execution of construction and not otherwise included in other Contract items. The Contractor will be expected to supply and utilize the items listed below and other items as required in the Construction Notes or as contained in the drawings and technical specifications. Temporary construction items include, but are not limited to providing and maintaining construction barricades, portable floodlighting, lighted runway closure devices, steel plates, temporary haul road construction/maintenance, maintenance of traffic, flaggers, safety personnel, personnel training, temporary sanitary facilities, temporary drainage, temporary generator(s), waste disposal facilities, reworked/temporary materials, men and equipment as needed to keep all aircraft and/or vehicle traffic areas free of debris and ongoing construction activities.

MATERIALS

TCI-2.1 **Construction Barricades**. Construction barricades shall be High Density Polyethylene (HDPE) water-ballast barricades and shall be constructed in accordance with the details shown on the plans. Construction barricades shall be placed in accordance with the Construction Safety and Phasing Plans and around all cranes, equipment, and staging areas on the paved areas.

TCI-2.2 **Portable Floodlighting**. Portable floodlighting shall be provided, as required, for construction operations during nighttime work. The Contractor shall provide sufficient units so that all work areas are illuminated to a level of 5 horizontal footcandles. The lighting levels shall be calculated and measured in accordance with the current standards of the Illumination Engineering Society.

TCI-2.3 **Lighted Runway Closure Marker.** Lighted Runway Closure Markers should be furnished at each end of a runway when it is closed for construction activities. The markers shall be in accordance with FAA Advisory Circular 150/5345-55, 150/5370-2 and National Transportation Safety Board (NTSB) Safety Recommendation A-03-05. Closure markers shall be provided by the Contractor. The contractor will be responsible for maintaining the markers (including transportation, fueling, bulbs, etc.) during construction.

TCI-2.4 **Steel Plates**. Steel plates or similar protective material of adequate size and thickness shall be furnished as necessary to cover temporary excavations, unfinished structures or surfaces requiring protection or for safety purposes. Plates shall be securely fastened down and shall be adequate to safely support any anticipated loadings to be imposed.

TCI-2.5 **Temporary Haul Road Construction/Maintenance**. Contractor haul routes have been designated on the Plans and it shall be the Contractor's responsibility to construct. It shall be the Contractor's responsibility to inspect the existing conditions of the haul road prior to construction. Contractor shall construct the haul route(s) in accordance with the details provided on the plans. During construction, the Contractor shall be responsible for maintaining and repairing the haul road as required or directed by the ENGINEER. Locations of haul roads shall be restored to their original conditions at the conclusion of construction activities.

TCI-2.6 **Maintenance of Traffic**. Additional items required for temporary traffic control around the Airport's roadways include temporary signs, variable message signs, flashing arrow boards, lighting and warning devices, temporary pavement markings, channelizing devices, concrete barriers, crash cushions, barrels, and cones. All temporary traffic control devices shall be in accordance with SCDOT and local standards. Temporary signs shall also be in accordance with the contract documents.

TCI-2.7 **Temporary Generator**. Temporary generator(s) operating rating shall be as indicated on the drawings, voltage to match existing service. Temporary generator(s) shall be a fully integrated mobile power generating system utilizing diesel fuel and shall include sound attenuated enclosure.

TCI-2.8 **Waste Disposal Facilities**. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

CONSTRUCTION METHODS

TCI-3.1 **Construction Barricades**. Barricades shall be placed in accordance with the construction plans and as needed and shall remain in place or moved as directed until completion of work in each phase or area. The contractor shall be responsible for maintaining the barricades in good working condition throughout the duration of the contract.

TCI-3.2 **Portable Floodlighting**. Portable floodlighting is required for construction during periods of limited visibility (i.e., nighttime). Illumination requirements shall be those contained in Paragraph 2.2. Portable floodlighting shall not penetrate any operational surfaces. Floodlighting shall be directed to avoid interference with Air Traffic Controllers or aircraft pilots. Hoods or shields

may be required to prevent interference. See additional requirements on the plans.

TCI-3.3 **Maintenance of Traffic**. Temporary traffic control shall be in accordance with SCDOT and local standards.

TCI-3.4 **Construction Materials Stockpiling and Equipment Storage.** Stockpiling of construction materials and equipment storage is not permitted within operating taxiway or runway object free areas. Stockpiled material must be protected against jet blast. Stockpiled materials and equipment should be prominently marked and lighted during hours of restricted visibility or darkness if in the air operations area. Stockpiled material or equipment should not be stored near aircraft turning areas or operational movement areas, aprons, or excavations and trenches. The stockpiled construction materials and equipment shall not cause degraded or hazardous conditions to Airport operations safety. This includes determining and verifying that stockpiled materials and equipment are stored or parked at an approved location, that they are properly stowed to prevent foreign object debris (FOD), attraction by wildlife, or obstruction of air operations either by their proximity to NAVAIDs or to aircraft movement areas.

TCI-3.5 **Foreign Object Debris (FOD) Management**. Waste and loose materials capable of causing damage to aircraft landing gear or propellers or capable of being ingested in jet engines should not be left or placed on or near active aircraft movement areas. Materials tracked onto these areas shall be continuously removed by the Contractor during the construction project. Waste or loose materials that could attract wildlife shall be carefully controlled and removed on a continuous basis. The Contractor shall have sufficient mechanized sweepers and covered trash containers on site to comply with this requirement at all times. The construction area shall be kept clean at all times of debris that may blow onto the airfield.

TCI-3.6 **Flaggers.** Flaggers shall be provided, as necessary, to control the Contractor's traffic during the prosecution of the work. All Contractor vehicles or equipment that are required to cross active airfield and/or roadway areas shall do so under the direct control of a competent flagger.

METHOD OF MEASUREMENT

TCI-4.1 **Temporary Construction Items:** No direct measurement will be made for this item as payment will be made on a lump sum basis.

BASIS OF PAYMENT

TCI-5.1 **Temporary Construction Items.** Payment will be made at the lump sum bid price for "Temporary Construction Items." This payment shall be full

compensation for furnishing all materials and labor for placing, moving and removing construction barricades; providing flaggers; furnishing portable floodlighting; placing, moving, removing and maintaining lighted runway closure markers; maintenance of traffic; and for any other labor, materials, equipment, tools and incidentals necessary for temporary items required for construction of this project.

Payment for this item will be made in installments. The first payment of 10 percent of the lump sum price will be included in the payment following the construction notice to proceed (CNTP). The remaining 90 percent of the lump sum price will be included as installments in subsequent pay requests. Each such installment will be determined based on the ratio of the total work completed to date to the total contract amount.

Payment will be made under:

Item TCI-5.1-1	Temporary Construction Items – per Lump Sum

END OF ITEM TCI

ITEM P-101

PREPARATION/REMOVAL OF EXISTING PAVEMENTS AND MISCELLANEOUS ITEMS

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. Not Used.

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.

C. Repair or Removal of Base, Subbase, and/or Subgrade. Not Used.

D. Disposal of Excess Millings. Excess millings from removal of the existing runway shall be disposed of off Airport property. Millings shall be disposed of at a Georgetown County facility at 1324 Airport Boulevard. Contractor shall be required to dump millings in designated area. Millings stockpile maintenance shall be the responsibility of County staff.

101-3.2 Preparation of Joints and Cracks Prior to Overlay/Surface Treatment.
Not Used.

101-3.3 Removal of Foreign Substances/Contaminates Prior to (Overlay) (Sealcoat) (Remarking). Not Used.

101-3.4 Concrete Spall or Failed Asphaltic Concrete Pavement Repair.

A. Repair of Concrete Spalls in Areas to be Overlaid with Asphalt. Not Used.

B. Asphalt Pavement Repair. Not Used.

101-3.5 Cold Milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed of off Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

A. Patching. Not Used.

B. Profiling, Grade Correction, or Surface Correction. Not Used.

C. Clean-Up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow off the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed of off Airport.

101-3.6. Preparation of Asphalt Pavement Surfaces Prior to Surface Treatment. 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. Not Used.

101-3.8.1 Removal of Existing Joint Sealant. Not Used.

101-3.8.2 Cleaning Prior to Sealing. Not Used.

101-3.8.3 Joint Sealant. Not Used.

101-3.9 Preparation of Cracks in Flexible Pavement Prior to Sealing. Not Used.

101-3.9.1 Preparation of Crack. Not Used.

101-3.9.2 Removal of Existing Crack Sealant. Not Used.

101-3.9.3 Crack Sealant. Not Used.

101-3.9.4 Removal of Pipe and other Buried Structures.

A. Removal of Existing Pipe Material. Remove the types of pipe as indicated on the plans. The pipe material shall be legally disposed of off-site in a timely manner following removal. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment. Trenches under paved areas must be compacted to 100% of D1557.

B. Removal of Inlets/Manholes. Not Used.

C. Removal of Headwalls/Endwalls. Where indicated on the plans or as directed by the RPR, headwalls or endwalls shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. When under paved areas, excavation backfill must be compacted to 100% of ASTM D1557. When outside of paved areas, excavation backfill must be compacted to 95% of ASTM D1557.

METHOD OF MEASUREMENT

101-4.1 Pavement Removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. All excess millings shall be disposed of off Airport property at designated location. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal.

101-4.2 Joint and Crack Repair. Not Used.

101-4.3 Removal of Foreign Substances/Contaminates. Not Used.

101-4.4 Spalled and Failed Asphalt Pavement Repair. Not Used.

101-4.5 Concrete Spall Repair. Not Used.

101-4.6 Cold Milling. The unit of measure for Cold Milling Pavement Transitions shall be area of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.

101-4.7 Removal of Pipe and other Buried Structures. The unit of measurement for removal of pipe and other buried structures will be made at the contract unit price per linear foot for pipe removal and the contract unit price per each for structure removal for each completed and accepted item. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with Paragraph 101-3.9.4.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P-101-5.1 Bituminous Pavement Removal - per Square Yard

Item P-101-5.2 Cold Milling, Pavement Transitions – per Square Yard

Item P-101-5.3 Removal of Existing 12 Inch R.C. Pipe – per Linear Foot

Item P-101-5.4 Removal of Existing 24 Inch R.C. Pipe - per Linear Foot

Item P-101-5.5 Removal of Existing Headwall – per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6C 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

EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature which is not otherwise classified and paid for under one of the following items.

B. Undercut Excavation. Undercut excavation shall consist of the removal and disposal of deposits or mixtures of soils and organic matter not suitable for foundation material. Undercut excavation shall include materials that will decay or produce subsidence in the embankment. It may consist of decaying stumps, roots, logs, humus, or other material not satisfactory for incorporation in the embankment.

C. Borrow Embankment. Borrow Embankment shall consist of approved material required for the construction of embankments or for other portions of the work in excess of the quantity of usable material available from required excavations. Borrow material shall be obtained from areas outside of the airport boundaries. Borrow material shall consist of material classified as SC, SM, SP, or SW as approved by the ENGINEER.

152-1.3 Unsuitable Excavation. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the ENGINEER.

CONSTRUCTION METHODS

152-2.1 General. The suitability of material to be placed in embankments shall be subject to approval by the ENGINEER. All unsuitable material shall be disposed of off Airport property in properly permitted location.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued

and the ENGINEER notified per Section 70, Paragraph 70-20. At the direction of the ENGINEER, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the ENGINEER, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

A. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the ENGINEER has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and ENGINEER shall agree that the original ground lines shown on the original topographic mapping are accurate or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's

verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the ENGINEER in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the ENGINEER. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the ENGINEER. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

A. **Selective Grading**. When selective grading is indicated on the plans, the more suitable material designated by the ENGINEER shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

B. **Undercutting**. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the ENGINEER. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials

shall be disposed of off the Airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for Undercut Excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment.

C. **Over-Break**. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the ENGINEER. All over-break shall be graded or removed by the Contractor and disposed of as directed by the ENGINEER. The ENGINEER shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the ENGINEER determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

D. **Removal of Utilities**. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the ENGINEER. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow Excavation. There is a limited stockpile of borrow material located across the abandoned runway from the project area. The Contractor shall utilize this material for borrow prior to hauling borrow material in from offsite. Use of this onsite material will be paid for as "Unclassified Excavation".

After the available on site borrow material is utilized, there are no other borrow sources within the boundaries of the Airport property. The Contractor shall locate and obtain borrow sources, subject to the approval of the ENGINEER. The Contractor shall notify the ENGINEER at least 15 days prior to beginning the excavation so necessary measurements and tests can be made by the ENGINEER. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.

152-2.4 Drainage Excavation. Not Used.

152-2.5 Preparation of Cut Areas or Areas Where Existing Pavement Has Been Removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 100 % of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D1557. As used in this specification,

"non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of Embankment Area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per Paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR/ENGINEER, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR/ENGINEER must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the ENGINEER. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the ENGINEER.

152-2.8 Formation of Embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the ENGINEER. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials, or moisture content to achieve the specified embankment density.

The ENGINEER will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D1557. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the ENGINEER for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the ENGINEER.

If the material has greater than 30% retained on the 3/4-inch sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D1557. Under all areas to be paved, the embankments shall be compacted to a depth and to a density of not less than the percent of the maximum density as determined by ASTM D1557 as shown in the Table below. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

Subgrade Compaction Requirements		
Percent Maximum Dry Density (%)	Depth of Compaction from Pavement Surface (inches)	Depth of Compaction from Top of Subgrade (inches)
Non-Cohesive Soil		
100	0 – 28	0 – 16
95	28 – 48	16 – 37
Cohesive Soil		
95	0 – 26	0 – 14
90	26 – 41	14 – 29

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The ENGINEER shall perform all density tests for acceptance. If the specified density is not attained, the area represented by the test or as designated by the ENGINEER shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the ENGINEER and the finer material shall be used to fill the voids forming a dense, compact mass.

Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the ENGINEER.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow embankment, or other items.

152-2.9 Proof Rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 20-ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80/100/150 psi in the presence of the RPR/ENGINEER. Apply a minimum of 2 coverages, or as specified by the ENGINEER, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction Requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D1557.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch sieve, follow the methods in ASTM D1157. Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. All quality assurance testing shall be done by the ENGINEER for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the ENGINEER and the finished subgrade shall be maintained.

152-2.11 Finishing and Protection of Subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the ENGINEER.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining, and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing

by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining, and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are provided to and approved by the ENGINEER. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR/ENGINEER. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

A. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

B. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

On safety areas, turfed areas, and other designated areas within the grading limits where no subbase or base is to be placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding, or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the ENGINEER, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the comparison of digital terrain model (DTM) surfaces for computation of neat line design quantities. The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the ENGINEER.

152-3.2 The quantity of unclassified and undercut excavation to be paid for shall be the number of cubic yards measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.3 The quantity of borrow embankment in place shall be the number of cubic yards measured in its final position.

152-3.4 The quantity of Shoulder Grading to be paid for shall be the area of shoulder grading completed measured in square yards.

BASIS OF PAYMENT

152-4.1 Unclassified Excavation and Undercut Excavation payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.2 For Borrow Embankment, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.3 Shoulder Grading shall be paid for on the basis of the number of square yards as completed. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-152-4.1	Unclassified Excavation – per Cubic Yard
Item P-152-4.2	Undercut Excavation – per Cubic Yard
Item P-152-4.3	Borrow Embankment – per Cubic Yard
Item P-152-4.4	Shoulder Grading – 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.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 10-lb Rammer and a 18-in. Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3)
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

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

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66 Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152

ITEM SP

SUBGRADE PREPARATION

DESCRIPTION

SP-1.1 This item shall consist of preparation of the subgrade under the area of the proposed pavement after the existing bituminous pavement has been removed in accordance with these specifications and in conformity with the dimensions and typical cross section shown on the plans.

CONSTRUCTION METHODS

SP-2.1 GENERAL. The subgrade shall be sloped and compacted as designated on the plans within the tolerances specified in Item P-152, Excavation and Embankment.

SP-2.2 PREPARING UNDERLYING COURSE. After the existing bituminous pavement has been removed and remaining soil excavated to proposed subgrade, the subgrade shall be broken up and root raked to a depth of two (2') feet below the existing surface to approximately 5 feet outside the pavement limits.

The location of existing utility crossings and conduit are shown on the plans. The Contractor is responsible for locating all underground utilities and conduits prior to beginning construction. The Contractor shall use extreme caution and use hand excavation to locate and determine the installed depth of these items. The depth of the root raking over these utilities and conduits shall be adjusted in the field to clear and not damage these installations.

Stumps, roots, and other organic material are not acceptable in the subgrade and shall be removed. All organic material shall be removed from the project and disposed of off Airport property in a properly permitted location.

SP-2.3 FINISHING AND COMPACTING. After the subgrade has been root raked and the organic material removed, the Contractor shall determine if additional material is required to bring subgrade to proper elevations in accordance with the typical section. Additional material shall be obtained from material on site or the borrow source located off of Airport property and will be paid for as Borrow Embankment in accordance with Item P-152, if borrow material is required. The additional material shall be mixed with the in place material, graded, and compacted in accordance with requirements of Item P-152. Density tests will be taken for each 3,000 square yards of subgrade prepared in accordance with the requirements of Item P-152.

SP-2.4 PROOFROLLING. After subgrade has been compacted, the subgrade shall be proofrolled in accordance with section P-152-2.9. The proofrolling operations shall be observed by the Resident Project Representative or other

responsible party designated by the ENGINEER.

Any areas identified as pumping or otherwise unacceptable, shall be reworked to conform to the moisture content and compaction requirement of Item P-152 or shall be removed and replaced as Undercut Excavation in accordance with Item P-152. Wet material is not considered unacceptable. Each unacceptable area shall be reviewed by the ENGINEER prior to excavation to determine best method of correcting deficiencies.

SP-2.5 GRADE TOLERANCES. The subgrade shall meet the proper grade in accordance with the plans and the tolerances specified in Item P-152.

SP-2.6 DRAINAGE DURING CONSTRUCTION. Once the existing pavement section has been removed, ponding of water above the subgrade could occur. The Contractor shall plan for this occurrence and make provisions for drainage or pumping this water away from the exposed pavement trench section. The Contractor shall utilize sediment bags for handling discharge from pumps, however, the Contractor may propose other solutions. All proposed methods of draining trench section shall be reviewed and approved by the ENGINEER prior to use. All cost associated with drainage and removal of ponding water, including sediment bags shall be included in this item.

The Contractor may be required to use methods such as discing and turning subgrade to dry subgrade due to wet conditions. This work shall be completed in accordance with Item P-152 and shall be included in cost of items bid upon.

SP-2.7 MAINTENANCE. Following the final grading and compacting of the subgrade, the subgrade shall be maintained throughout its entire length by use of a standard motor grader and rollers until, in the judgment of the ENGINEER, the subgrade meets all requirements and is acceptable for construction of the next course.

The Contractor shall repair, regrade, and compact any areas damaged during placement of subsequent courses prior to placement of next course.

METHOD OF MEASUREMENT

SP-3.1 The square yardage of subgrade preparation to be paid for shall be the number of square yards of subgrade root raked, placed, compacted, and accepted in the completed course.

BASIS OF PAYMENT

SP-4.1 Payment shall be made at the contract unit price per square yard for Subgrade Preparation. This price shall be full compensation for furnishing all materials, for all preparation, including breaking up subgrade, root raking, removal and disposal of organics; mixing, grading, and compacting subgrade; and for all labor, equipment; tools, and incidentals necessary to complete the item.

Payment will be made under:

Item SP-1	Subgrade Preparation - per Square Yard

END OF ITEM SP

ITEM P-209

CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

209-2.1 **Crushed Aggregate Base**. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, crushed gravel, and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate portion, defined as the portion passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone, gravel that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

Crushed Aggregate Base Material Requirements

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% Maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss After 5 Cycles: 12% Maximum Using Sodium Sulfate - or - 18% Maximum Using Magnesium Sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 90% by Weight of Particles With at Least Two Fractured Faces and 98% With at Least One Fractured Face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% Maximum, by Weight, of Flat, Elongated, or Flat and Elongated Particles [2]	ASTM D4791
Clay Lumps and Friable Particles	Less Than or Equal to 3 Percent	ASTM C142
Fine Aggregate		
Liquid Limit	Less Than or Equal to 25	ASTM D4318
Plasticity Index	Not More than Five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 Gradation Requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

Gradation of Aggregate Base

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances[1] (Percent)
2 inches	100		0
1-1/2 inch	95-100		±5
1 inch	70-95		±8
3/4 inch	55-85		±8
No. 4	30-60		±8
No. 40[2]	10-30		±5
No. 200[2]	0-10		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No 200 sieve shall not exceed two-thirds the fraction passing the No 40 sieve.

209-2.3 Sampling and Testing.

A. Aggregate Base Materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in Paragraph 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

B. Gradation Requirements. The Contractor shall take at least two aggregate base samples per day in the presence of the RPR/ENGINEER and complete gradation testing to check the final gradation. Sampling shall be per ASTM D75 and gradation testing shall per ASTMC117 and ASTM C136. Material shall meet the requirements in Paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the ENGINEER.

209-2.4 Separation Geotextile. Not used.

CONSTRUCTION METHODS

209-3.1 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR/ENGINEER, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR/ENGINEER must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the ENGINEER. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the ENGINEER.

209-3.2 Preparing Underlying Subgrade and/or Subbase. The underlying subgrade and/or subbase shall be checked and accepted by the ENGINEER before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the ENGINEER if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per Paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the ENGINEER, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

209-3.5 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least 100% of the maximum density of laboratory specimens prepared from samples of the base material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D1557. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 Weather Limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base

course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 Surface Tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown by the Contractor. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR/ENGINEER. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade until the required smoothness and accuracy are provided to and approved by the ENGINEER. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

A. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

B. Grade. The grade and crown shall be measured at 50 stations at taxiway centerline, 12 feet from centerline, and at pavement edge and shall be within +0 and -1/2 inch of the specified grade.

209-3.9 Acceptance Sampling and Testing. Crushed aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis per ASTM D3665.

A. Density. The ENGINEER shall perform all density tests for acceptance.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

B. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by

depth tests taken by the Contractor in the presence of the RPR/ENGINEER for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of cubic yards of material actually constructed and accepted by the ENGINEER as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per cubic yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-209-5.1 Crushed Aggregate Base Course - per Cubic Yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2700 kN-m/m3))
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

American Association of State Highway and Transportation Officials (AASHTO)

M288 Standard Specification for Geosynthetic Specification for Highway Applications

END OF ITEM P-209

ITEM PMBP

PLANT MIX BITUMINOUS PAVEMENTS

DESCRIPTION

1.1 This item shall consist of a base course composed of mineral aggregate and bituminous material mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross sections shown on the plans. Each course shall be constructed to the depth, typical section, or elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course. All materials, mix design requirements, production methods, construction methods, and acceptance testing shall be in accordance with Sections 401 "Asphalt Pavements"; Section 403 "HMA Surface Course"; Supplemental Technical Specification for Hot-Mix Asphalt Material Properties, SCDOT Designation SC-M-402; and Supplemental Technical Specification for Hot Mix Asphalt Quality Assurance SCDOT Designation SC-M-400 of the SCDOT Standard Specifications for Highway Construction unless otherwise modified by this specification.

MATERIALS

2.1 All aggregates, bituminous materials, and filler shall be provided in accordance with SCDOT Standard Specifications for Highway Construction Section 401 "Asphalt Pavement", Subsection 401.2 and Supplemental Technical Specification SC-M-402.

COMPOSITION

3.1 **COMPOSITION OF MIXTURE.** The bituminous plant mix shall be composed of a mixture of aggregate, filler if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula.

3.2 **JOB MIX FORMULA.** No bituminous mixture for payment shall be produced until a job mix formula has been approved by the ENGINEER. The formula shall be submitted in writing by the Contractor to the ENGINEER at least 15 days prior to the start of paving operations and shall indicate the definite percentage of each sieve fraction of aggregate, the percentage of bitumen, and the temperature of the completed mixture when discharged from the mixer. All test data used to develop the job mix formula shall also be submitted. The job mix formula for each mixture shall be in effect until modified in writing by the ENGINEER. Should a change in sources of materials be made, a new job mix formula must be established before the new material is used.

The bituminous mixture for the surface course shall meet all of the *requirements of the South Carolina Department of Transportation requirements for Hot Mix Asphalt Base Course Type A as defined in the Supplemental Technical Specification for Hot-Mix Asphalt Material Properties SCDOT Designation: SC-M-402.*

3.2.1 **GRADATION AND JOB MIX FORMULA.** The bituminous concrete aggregate gradation and job mix formula shall meet the requirements of the current *South Carolina Department of Transportation requirements for Hot Mix Asphalt Base Course Type A as defined in the Supplemental Technical Specification for Hot-Mix Asphalt Material Properties SCDOT Designation: SC-M-402.*

CONSTRUCTION METHODS

4.1 The Bituminous Concrete Base Course shall be constructed, in accordance with the South Carolina Department of Transportation Standard Specifications, Section 401 "Asphalt Pavements", Subsection 401.4. This work shall include plant mixing, hauling, placement, compaction and acceptance testing and all other incidentals required to provide a complete bituminous surface course as required by Section 401 "Asphalt Pavements", Subsection 401.4, unless otherwise modified by this Specification.

4.2 **WEATHER LIMITATIONS.** The bituminous mixture shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 5. The temperature requirements may be waived, but only at the discretion of the ENGINEER.

Table 5. Base Temperature Limitations

Mat Thickness	Base Temperature (Minimum Degrees F)
Greater than 1 inch	45
1 inch or less	50

4.3 **BITUMINOUS MIXING PLANT.** Plants used for the preparation of bituminous mixtures shall conform to the requirements of ASTM D 995 with the following changes:

a. Requirements for All Plants.

(1) Truck Scales. The bituminous mixture shall be weighed on approved scales furnished by the Contractor, or on public scales at the Contractor's expense. Such scales shall be inspected and sealed as often as the ENGINEER deems necessary to assure their accuracy. Scales shall conform to the requirements of Section 90.

(2) **Testing Laboratory.** The Contractor or producer shall provide laboratory facilities for control and acceptance testing functions during periods of mix production, sampling, and testing and whenever materials subject to the provisions of these specifications are being supplied or tested. The laboratory shall provide adequate equipment, space, and utilities as required for the performance of the specified tests.

(3) **Inspection of Plant.** The ENGINEER, or his/her authorized representative, shall have access at all times to all parts of the plant for checking adequacy of equipment and inspecting operation of the plant: verifying weights, proportions, and character of materials, and checking the temperatures maintained in the preparation of the mixtures.

(4) **Storage Bins and Surge Bins.** Paragraph 3.9 of ASTM D 995 is deleted. Instead, the following applies. Use of surge bins or storage bins for temporary storage of hot bituminous mixtures will be permitted as follows:

(1) The bituminous mixture may be stored in surge bins for period of time not to exceed 3 hours,

(2) The bituminous mixture may be stored in insulated storage bins for a period of time not to exceed 24 hours, provided an inert gas atmosphere is maintained in the bin during the storage period.

The bins shall be such that mix drawn from them meets the same requirements as mix loaded directly into trucks.

If the ENGINEER determines that there is an excessive amount of heat loss, segregation or oxidation of the mixture due to temporary storage, no overnight storage will be allowed.

4.4 **HAULING EQUIPMENT**. Trucks used for hauling bituminous mixtures shall have tight, clean, and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

4.5 **BITUMINOUS PAVERS.** Bituminous pavers shall be self-contained, power-propelled units with an activated screed or strike-off assembly, heated if necessary, and shall be capable spreading and finishing courses of bituminous plant mix material which will meet the specified thickness, smoothness, and grade. Pavers used for shoulders and similar construction shall be capable of

spreading and finishing courses of bituminous plant mix material in widths shown on the plans.

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

The paver shall be capable of operating at forward speeds consistent with satisfactory laying of the mixture.

An automatic grade control device shall be used, and the paver shall be equipped with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated by mechanical sensors and a reference line.

The controls shall be capable of working in conjunction with any of the following attachments:

a. Taut stringline (wire) set to grade.

b. Ski-type device of not less than thirty (30') feet in length or as directed by the ENGINEER.

c. Short ski or shoe.

If during construction, it is found that the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemished areas in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued and satisfactory equipment shall be provided by the Contractor.

4.6 **ROLLERS.** Rollers of the vibratory, steel wheel, or pneumatic-tired type may be used. They shall be in good condition, capable of operating at slow speeds to avoid displacement of the bituminous mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition.

The use of equipment which causes excessive crushing of the aggregate will not be permitted.

4.7 **PREPARATION OF BITUMINOUS MATERIAL.** The bituminous material shall be heated in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature. The temperature of the bituminous material delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the

aggregate particles but shall not exceed 325° F.

4.8 PREPARATION OF MINERAL AGGREGATE. The aggregate for the mixture shall be dried and heated to the temperature designated by the job formula within the job tolerance specified. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregates. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

4.9 PREPARATION OF BITUMINOUS MIXTURE. The aggregates and the bituminous material shall be weighed or metered and introduced into the mixer in the amount specified by the job mix formula.

The combined materials shall be mixed until the aggregate obtains a uniform coating of bitumen and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture. It shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D 2489, and approved by the ENGINEER for each individual plant and for each type of aggregate used. The minimum mixing time shall be 25 seconds. The mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. *The moisture content of the mix shall not exceed 1.0%.*

4.10 TRANSPORTING, SPREADING, AND FINISHING. The mixture shall be transported from the mixing plant to the point of use in vehicles conforming to the requirements of Section 4.4. Deliveries shall be scheduled so that spreading and rolling of all mixture prepared for one day's run can be completed during daylight. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.

Immediately before placing the bituminous mixture, the underlying course shall be cleared of all debris with power blowers, power brooms, or hand brooms as directed.

The Contractor will be required to use automatic grade control sensors for this project. On the first paving lane for each taxiway or taxilane, the Contractor shall use a taut stringline (wire) on both sides of the paver. On the remaining lanes the Contractor shall use a shoe on the previously placed paving lane and a stringline (wire) on the other side of the paver. The stringline (wire) shall have grade pins at twentyfive (25') feet on center (maximum).

The mix shall be placed at a temperature of not less than 250° F. Upon arrival,

the mixture shall be spread to the full width by an approved bituminous paver. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the bituminous mat. Unless otherwise directed, placement of the mixture shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. The mixture shall be placed in consecutive adjacent strips having a minimum width of 10 except where edge lanes require less width to complete the area. The longitudinal joint in one layer shall offset that in the layer immediately below by at least 1 foot however, the joint in the top layer shall be at the centerline of the pavement. Transverse joints in one layer shall be offset by at least two (2') feet from transverse joints in the previous layer. Transverse joints in adjacent lanes shall be offset a minimum of ten (10') feet.

Edges of existing bituminous pavement abutting the new work shall be saw cut and carefully removed as shown on the drawings and painted with bituminous tack coat before new material is placed against it.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread, raked, and luted by hand tools.

4.11 **COMPACTION OF MIXTURE.** After spreading, the mixture shall be thoroughly and uniformly compacted by rolling. The surface shall be rolled when the mixture has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor.

The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until all roller marks are eliminated, the surface is of uniform texture and true to grade and cross section, and the required field density is obtained.

To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excessive water will not be permitted.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with hot hand tampers.

Any mixture that becomes loose and broken, mixed with dirt, or in any way defective shall be removed and replaced with fresh hot mixture and

immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. *Skin patching shall not be allowed.*

The Contractor shall provide at his own expense a density gauge and an experienced operator to help establish the rolling pattern during all paving operations. This exercise will not serve as a density verification for determination of acceptance or payment, but only aids the Contractor in establishing the rolling pattern required to obtain the specified density.

4.12 **JOINTS.** The formation of all joints shall be made in such a manner as to ensure a continuous bond between old and new sections of the course. All joints shall have the same texture, density, and smoothness as other sections of the course.

The roller shall not pass over the unprotected end of the freshly laid mixture except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course, in which case the edge shall be cut back to its full depth and width on a straight line to expose a vertical face. In both methods all contact surfaces shall be given a tack coat of bituminous material before placing any fresh mixture against the joint.

Longitudinal joints which are irregular, damaged, or otherwise defective shall be cut back to expose a clean, sound surface for the full depth of the course. All contact surfaces shall be given a tack coat of bituminous material prior to placing any fresh mixture against the joint.

4.13 **ACCEPTANCE SAMPLING AND TESTING OF BITUMINOUS MIXTURE (DENSITY)**. Bituminous concrete will be accepted for density on a random test location basis. Quality Assurance Testing shall be completed in accordance with Supplemental Technical Specification for Hot Mix Asphalt Quality Assurance, SCDOT Designation SC-M-400, Section 5 Acceptance Low Tonnage Paving.

4.14 **SAMPLING PAVEMENT**. Samples for determination of thickness and density of completed pavements shall be obtained by the Contractor at no extra cost. The size, number, and locations of the samples will be as directed by the ENGINEER. Samples shall be neatly cut with a core drill, or other approved equipment. The Contractor shall furnish all tools, labor, and materials for cutting samples and replacing pavement.

All laboratory tests necessary to determine conformance with requirements specified herein will be performed without cost to the Contractor.

Samples shall be removed by the Contractor and delivered by the Contractor to the OWNER'S laboratory technician within four hours after the final rolling operation over the pavement from which the sample was taken, unless the

Resident Project Representative authorizes the samples to be delivered the following day. Prior to the cutting of samples, the area of pavement from which the samples will be taken shall be cooled with ice or by other appropriate means so that the removal will not damage the sample. The samples shall be delivered to the laboratory technician in an undamaged condition. If the Resident Project Representative authorizes delivery of a sample the following day, the sample shall be delivered to the laboratory technician prior to 9:00 a.m. All samples shall be appropriately marked or identified so that the exact location from which the sample was taken can be readily recorded by the laboratory technician. The tests conducted shall include stability, flow, unit weight, voids in the total mix and percent voids filled with bitumen. Tolerances cited previously are allowable for the continuation of plant production.

4.15 THICKNESS. The thickness of each lift of surface course will be evaluated by the ENGINEER for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each sublot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the ENGINEER to circumscribe the deficient area.

4.16 SURFACE TESTS. Tests for conformity with the specified crown and grade shall be made by the Contractor immediately after initial compaction. Any variation shall be corrected by the removal or addition of materials and by continuous rolling.

The finished surface shall not vary more than ¼ inch for the surface course when tested with a twelve (12') foot straightedge applied parallel with, or at right angles to, the centerline. Prior to beginning paving operations, the Contractor shall provide a twelve (12') foot straightedge to be used in performing the surface tests.

After the completion of final rolling, the smoothness of the course shall be tested by the Contractor; humps or depressions exceeding the specified tolerances shall be immediately corrected by removing the defective work and replacing with new material, as directed by the ENGINEER. This shall be done at the Contractor's expense. The Contractor shall test the pavement surface in the presence of the Resident Project Representative whenever requested by the Resident Project Representative.

The finished surfaces of bituminous courses shall not vary from the grade line, elevations, and cross sections shown on the contract drawings by more than one half (½") inch. The Contractor shall correct pavement areas varying in

excess of this amount by paving and replacing the defective work. Skin patching will not be permitted.

METHOD OF MEASUREMENT

5.1 Plant mix bituminous concrete pavement shall be measured by the number of tons of bituminous mixture used in the accepted work. Recorded batch weights or truck scale weights will be used to determine the basis for the tonnage.

There will be no separate payment for asphalt binder. The cost for the asphalt binder shall be included in the per ton unit prices for Bituminous Pavement Base Course (Type A).

BASIS OF PAYMENT

6.1 Payment for an accepted bituminous concrete pavement shall be made at the full or adjusted contract unit price per ton. The price shall be full compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

The total project payment for plant mix bituminous pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of bituminous mixture used in the accepted work.

Payment. Payment will be made under:

Item PMBP 6.1 Bituminous Base Course - SCDOT Type 'A' - per Ton

END OF ITEM PMBP

ITEM P-401

ASPHALT MIX PAVEMENT

DESCRIPTION

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 **Aggregate.** Aggregates shall consist of crushed stone, crushed gravel, screenings, natural sand, and mineral filler, as required. **The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite, or iron oxides.** Coarse aggregate is the material retained on the No. 4 sieve. Fine aggregate is the material passing the No. 4 sieve.

A. Coarse Aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% Maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss After 5 Cycles: 12% Maximum Using Sodium Sulfate - or - 18% Maximum Using Magnesium Sulfate	ASTM C88
Clay Lumps and Friable Particles	1.0 % Maximum	ASTM C142

Material Test	Requirement	Standard
Percentage of Fractured Particles	For Pavements Designed for Aircraft Gross Weights of 60,000 Pounds or More: Minimum 75% by Weight of Particles With at Least Two Fractured Faces and 85% with at Least One Fractured Face[1]	ASTM D5821
	For Pavements Designed for Aircraft Gross Weights less than 60,000 pounds: Minimum 50% by Weight of Particles with at Least Two Fractured Faces and 65% with at Least One Fractured Face[1]	
Flat, Elongated, or Flat and Elongated Particles	8% Maximum, by Weight, of Flat, Elongated, or Flat and Elongated Particles at 5:1 [2]	ASTM D4791

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

B. Fine Aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, or gravel and shall be free from coatings of clay, silt, or other objectionable matter. Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 Cycles: 10% Maximum using Sodium Sulfate - or - 15% Maximum using Magnesium Sulfate	ASTM C88

Material Test	Requirement	Standard
Clay lumps and friable particles	1.0% Maximum	ASTM C142
Sand equivalent	45 Minimum	ASTM D2419
Natural Sand	0% to 15% Maximum by Weight of Total Aggregate	ASTM D1073

The addition of natural sand to a mix containing all crushed coarse and fine aggregates will normally increase its workability and compactability. The addition of natural sand tends to decrease the stability of the mixture; therefore, it is recommended to not use natural sand. However, if natural sand is used, use the minimum amount necessary to achieve a workable mixture.

C. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

401-2.2 Mineral Filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 Maximum	ASTM D4318

401-2.3 Asphalt Binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) 70-22.

Asphalt Binder PG Plus Test Requirements

Material Test	Requirement	Standard
Elastic Recovery	[75%] Minimum	ASTM D6084[1]

[1] Follow procedure B on RTFO aged binder.

401-2.4 Anti-Stripping Agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond

specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 **Composition of Mixture(s).** The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 **Job Mix Formula (JMF) Laboratory.** The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the ENGINEER prior to start of construction.

401-3.3 **Job Mix Formula (JMF).** No asphalt mixture shall be placed until an acceptable mix design has been submitted to the ENGINEER for review and accepted in writing. The ENGINEER's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of Paragraph 401-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. Samples shall be prepared and compacted using the gyratory compactor in accordance with ASTM D6925.

Should a change in sources of materials be made, a new JMF must be submitted to the ENGINEER for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the ENGINEER and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the ENGINEER, will be borne by the Contractor.

The ENGINEER may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

The JMF shall be submitted in writing by the Contractor at least five (5) days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The JMF shall be dated, and stamped or sealed by the responsible Professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with Paragraph 401-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with Paragraph 401-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with Paragraphs 401-2.1.
- Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMF.
- Specific Gravity and absorption of each coarse and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows or gyrations
- Laboratory mixing and compaction temperatures.
- Supplier-recommended field mixing and compaction temperatures.
- Plot of the combined gradation on a 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Asphalt Pavement Analyzer (APA) results.
- Date the JMF was developed. Mix designs that are not dated, or which are from a prior construction season shall not be accepted.

Table 1. Asphalt Design Criteria

Test Property	Value	Test Method
Number of Blows or Gyrations	75	
Air Voids (%)	3.5	ASTM D3203
Percent Voids in Mineral Aggregate (VMA), Minimum	See Table 2	ASTM D6995
Tensile Strength Ratio (TSR)[1]	Not Less Than 80 at a Saturation of 70-80%	ASTM D4867
Asphalt Pavement Analyzer (APA)[2,3]	Less Than 10 mm @ 4000 Passes	AASHTO T340 at 250 psi Hose Pressure at 64°C Test Temperature

1 Test specimens for TSR shall be compacted at 7 ± 1.0 % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867.

2 AASHTO T340 at 100 psi hose pressure at 64°C test temperature may be used in the interim. If this method is used the required value shall be less than 5 mm @ 8000 passes.

3 Where APA not available, use Hamburg Wheel Test (AASHTO T-324) 10mm @ 20,000 passes at 50°C.

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa

Table 2. Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch	--
3/4 inch	100
1/2 inch	90-100
3/8 inch	72-88
No. 4	53-73
No. 8	38-60
No. 16	26-48
No. 30	18-38
No. 50	11-27
No. 100	6-18
No. 200	3-6
Minimum Voids in Mineral Aggregate (VMA)[1]	15.0
Asphalt Percent:	
Stone or Gravel	5.0-7.5
Recommended Minimum Construction Lift Thickness	2 Inch

[1] To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

401-3.4 **Reclaimed Asphalt Pavement (RAP)**. RAP shall not be used.

401-3.5 **Control Strip.** Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the ENGINEER. The Contractor shall prepare and place a quantity of asphalt according to the JMF. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor Quality Control Program (CQCP), showing conformance with the requirements of Paragraph 401-5.1, has been accepted, in writing, by the ENGINEER.

The control strip will consist of at least 250 tons or 1/2 sublot, whichever is greater. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with Paragraph 401-4.14 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the mat has cooled to less than 160°F. The equipment used in construction of the control strip shall be the same type, configuration, and weight to be used on the project.

The control strip will be considered acceptable by the ENGINEER if the gradation, asphalt content, and VMA are within the action limits specified in Paragraph 401-5.5a; and mat density is greater than or equal to 94.5%, air voids 3.5% +/- 1%, and joint density greater than or equal to 92.5%.

If the control strip is unacceptable, necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense.

The control strip will be considered one lot for payment based upon the average of a minimum of 3 samples (no sublots required for control strip). Payment will only be made for an acceptable control strip in accordance with Paragraph 401-8.1 using a lot pay factor equal to 100.

CONSTRUCTION METHODS

401-4.1 **Weather Limitations.** The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the ENGINEER, if requested; however, all other requirements including compaction shall be met.

Table 4. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum)
	°F
3 Inches or Greater	40
Greater Than 2 Inches but Less Than 3 Inches	45

401-4.2 **Asphalt Plant.** Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items.

A. Inspection of Plant. The ENGINEER, or ENGINEER's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

B. Storage Bins and Surge Bins. The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the ENGINEER determines there is an excessive heat loss, segregation, or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not be allowed.

401-4.3 **Aggregate Stockpile Management.** Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed, and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used.

A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 **Hauling Equipment.** Trucks used for hauling asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the ENGINEER. Petroleum products shall not be used for coating truck beds. Each truck

shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 **Material Transfer Vehicle (MTV).** Material transfer vehicles are not required.

401-4.5 **Asphalt Pavers.** Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in Paragraph 401-4.12.

401-4.6 **Rollers.** The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions, or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 **Density Device.** The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the ENGINEER/RPR upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 **Preparation of Asphalt Binder.** The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of

the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles but, shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 **Preparation of Mineral Aggregate.** The aggregate for the asphalt shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 **Preparation of Asphalt Mixture.** The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all asphalt upon discharge shall not exceed 0.5%.

401-4.11 **Application of Prime and Tack Coat.** Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A prime coat in accordance with Item P-602 shall be applied to aggregate base prior to placing the asphalt mixture.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

401-4.12 **Laydown Plan, Transporting, Placing, and Finishing.** Prior to the placement of the asphalt, the Contractor shall prepare a laydown plan with

the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the ENGINEER.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

The Contractor shall survey each lift of asphalt surface course and certify to ENGINEER that every lot of each lift meets the grade tolerances of Paragraph 401-6.2d before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the asphalt mix shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the ENGINEER. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of 12.5 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the asphalt mixture uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The ENGINEER may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated asphalt mixture. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor

may take a representative sample of the rejected material in the presence of the ENGINEER/RPR, and if it can be demonstrated in the laboratory, in the presence of the ENGINEER/RPR , that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the ENGINEER, shall be removed, and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness as specified in Paragraph 401-3.3, Table 2 for the approved mix design. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

401-4.13 **Compaction of Asphalt Mixture.** After placing, the asphalt mixture shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water, as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power tampers.

Any asphalt that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 **Joints.** The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by

tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a maximum of 3 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

401-4.15 Saw-Cut Grooving. Saw-cut grooving is not required.

401-4.16 Diamond Grinding. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Equipment or grinding procedures that cause ravels, aggregate fractures, spalls, or disturbance to the pavement will not be permitted. Contractor shall demonstrate to the ENGINEER/RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

401-4.17 Nighttime Paving Requirements. The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the ENGINEER prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 **General.** The Contractor shall develop a Contractor Quality Control Program (CQCP) in accordance with Item C-100. No partial payment will be made for materials without an approved CQCP.

401-5.2 **Contractor Quality Control (QC) Facilities.** The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The ENGINEER/RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The ENGINEER will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 **Contractor QC Testing.** The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

A. Asphalt content. A minimum of two tests shall be performed per day in accordance with ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

B. Gradation. Aggregate gradations shall be determined a minimum of twice per day from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

C. Moisture Content of Aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ASTM C566.

D. Moisture Content of Asphalt. The moisture content shall be determined once per day in accordance with AASHTO T329 or ASTM D1461.

E. Temperatures. Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

F. In-Place Density Monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

G. Smoothness for Contractor Quality Control. The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR/ENGINEER. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues.

The Contractor may use a 12-foot "straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot straightedge approved by the ENGINEER. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using either the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse Measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the ENGINEER. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) **Longitudinal Measurements.** Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 feet or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per Paragraph 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in Paragraph 401-6.1d(3). Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show the area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

H. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet specifications. Grade shall be evaluated prior to and after the placement of all pavement lifts and after placement of the surface lift.

Measurements will be taken at appropriate grade lines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the grade line elevations and cross-sections shown on the plans by more than 1/2 inch vertically. The documentation will be provided by the Contractor to the ENGINEER within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the thickness specified on the plans. Grinding shall be in accordance with Paragraph 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus ½ inch and replacing with new material. Skin patching is not allowed.

401-5.4 **Sampling.** When directed by the ENGINEER, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced, or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 **Control Charts.** The Contractor shall maintain linear control charts for both individual measurements and range (i.e., difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each day will be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the ENGINEER/RPR and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the ENGINEER may suspend production or acceptance of the material.

A. Individual Measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

Control Chart Limits for Individual Measurements

Sieve	Action Limit	Suspension Limit
3/4 inch	±6%	±9%
1/2 inch	±6%	±9%
3/8 inch	±6%	±9%

Sieve	Action Limit	Suspension Limit
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

B. Range. Control charts shall be established to control gradation process variability. The range shall be plotted as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Control Chart Limits Based on Range

Sieve	Suspension Limit
1/2 inch	11%
3/8 inch	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

C. Corrective Action. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a

minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

(1) One point falls outside the Suspension Limit line for individual measurements or range; or

(2) Two points in a row fall outside the Action Limit line for individual measurements.

401-5.6 **QC Reports.** The Contractor shall maintain records and shall submit reports of QC activities daily, in accordance with Item C-100.

MATERIAL ACCEPTANCE

401-6.1 **Acceptance Sampling and Testing.** Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the ENGINEER at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

A. Quality Assurance (QA) Testing laboratory. The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

B. Lot Size. A standard lot will be equal to one day's production divided into approximately equal sublots of between 400 to 600 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

C. Asphalt Air Voids. Plant-produced asphalt will be tested for air voids on a sublot basis.

(1) Sampling. Material from each sublot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

(3) **Testing.** Air voids will be determined for each sublot in accordance with ASTM D3203 for a set of three compacted specimens prepared in accordance with ASTM D6925.

D. **In-Place Asphalt Mat and Joint Density.** Each sublot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).

(1) **Sampling**. The Contractor will cut minimum 5 inch diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the ENGINEER/RPR.

(2) **Bond.** Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the ENGINEER to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the ENGINEER.

(3) **Thickness.** Thickness of each lift of surface course will be evaluated by the ENGINEER for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each sublot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the ENGINEER to circumscribe the deficient area.

(4) **Mat Density**. One core shall be taken from each sublot. Core locations will be determined by the ENGINEER in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sublot sample by the TMD for that sublot.

(5) **Joint Density**. One core centered over the longitudinal joint shall be taken for each sublot that has a longitudinal joint. Core locations will be determined by the ENGINEER in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

401-6.2 Acceptance Criteria.

A. **General.** Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, grade and Profilograph roughness.

B. **Air Voids and Mat Density.** Acceptance of each lot of plant produced material for mat density and air voids will be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment will be determined in accordance with Paragraph 401-8.1.

C. **Joint Density.** Acceptance of each lot of plant produced asphalt for joint density will be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot will be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint will be reduced by five (5) percentage points. This lot pay factor reduction will be incorporated and evaluated in accordance with Paragraph 401-8.1.

D. **Grade.** The final finished surface of the pavement shall be surveyed by the Contractor to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch vertically.

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing, at all longitudinal grade breaks, and at start and end of each lane placed. Minimum cross-section grade points shall include grade at centerline, at joint lines, and edge of taxiway or apron pavement.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the sublot shall not be more than 95%.

E. Profilograph Roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the ENGINEER/RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I Inertial Profiler meeting ASTM E950. Data and results shall be provided within 48 hours of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline. Any areas that indicate "must grind" shall be corrected with diamond grinding per Paragraph 401-4.16 or by removing and replacing full depth of surface course. as directed by the ENGINEER. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

401-6.3 Percentage of Material Within Specification Limits (PWL). The PWL will be determined in accordance with procedures specified in Item C-110. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

Table 5. Acceptance Limits for Air Voids and Density

Test Property	Pavements Specification Tolerance Limits	
	L	U
Air Voids Total Mix (%)	2.0	5.0
Surface Course Mat Density (%)	92.8	-
Joint density (%)	90.5	--

A. Outliers. All individual tests for mat density and air voids will be checked for outliers (test criterion) in accordance with ASTM E178, at a

significance level of 5%. Outliers will be discarded, and the PWL will be determined using the remaining test values. The criteria in Table 5 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 1.55.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 94.5% with 1.30% or less variability, and (2) 90 PWL is achieved when consistently producing joints with an average joint density of at least 92.5% with 1.55% or less variability.

401-6.4 Resampling Pavement for Mat Density.

A. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the ENGINEER. A retest will consist of all the sampling and testing procedures contained in Sections 401-6.1d and 401-6.2b. Only one resampling per lot will be permitted.

(1) A redefined PWL will be calculated for the resampled lot. The number of tests used to calculate the redefined PWL will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

B. Payment for resampled lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot in accordance with Table 6.

C. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

METHOD OF MEASUREMENT

401-7.1 Measurement. Asphalt shall be measured by the number of tons of asphalt used in the accepted work. Batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of asphalt meeting all acceptance criteria as specified in Paragraph 401-6.2 shall be made based on results of tests for

mat density and air voids. Payment for acceptable lots shall be adjusted according to Paragraph 401-8.1c for mat density and air voids; and Paragraph 401-6.2c for joint density, subject to the limitation that:

A. The total project payment for plant mix asphalt pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of asphalt used in the accepted work.

B. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

C. **Basis of Adjusted Payment.** The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71% then the lot pay factor shall be reduced by 5% but be no higher than 95%.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in Paragraph 401-8.1a. Payment in excess of 100% for accepted lots of asphalt shall be used to offset payment for accepted lots of asphalt pavement that achieve a lot pay factor less than 100%.

Payment for sublots which do not meet grade in accordance with Paragraph 401-6.2d after correction for over 25% of the sublot shall be reduced by 5%.

Table 6. Price Adjustment Schedule[1]

Percentage of Material within Specification Limits (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject [2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in Paragraph 401-8.1a.

[2] The lot shall be removed and replaced. However, the ENGINEER may decide to allow the rejected lot to remain. In that case, if the ENGINEER and Contractor agree in writing that the lot shall not be removed, it shall be paid for at 50% of the contract unit price and the total project payment shall be reduced by the amount withheld for the rejected lot.

D. Profilograph Roughness. The Contractor will receive full payment when the profilograph average profile index is in accordance with Paragraph 401-6.2e. When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the contract unit price for the completed pavement.

401-8.1 Payment.
Payment will be made under:

Item P-401-8.1 Asphalt Surface Course - per Ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D979	Standard Practice for Sampling Asphalt Paving Mixtures

ASTM D1073S	Standard Specification for Fine Aggregate for Asphalt Paving Mixtures
ASTM D1188	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Asphalt Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3665	Standard Practice for Random Sampling of Construction Materials

ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D5361	Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method

ASTM D6925	Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the SuperPave Gyratory Compactor.
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D6995	Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E950	Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.

AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
AASHTO T324	Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
AASHTO T 340	Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA)

Asphalt Institute (AI)

Asphalt Institute Handbook MS-26, Asphalt Binder

Asphalt Institute MS-2 Mix Design Manual, 7th Edition

AI State Binder Specification Database

Federal Highway Administration (FHWA)

Long Term Pavement Performance Binder Program

Advisory Circulars (AC)

AC 150/5320-6F	Airport Pavement Design and Evaluation

FAA Orders

5300.1	Modifications to Agency Airport Design, Construction, and Equipment Standards

Software

FAARFIELD

END OF ITEM P-401

ITEM P-602

EMULSIFIED ASPHALT PRIME COAT

DESCRIPTION

602-1.1 This item shall consist of an application of emulsified asphalt material on the prepared base course in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

602-2.1 Emulsified Asphalt Material. The emulsified asphalt material shall be as specified in ASTM D3628 for use as a prime coat appropriate to local conditions. The Contractor shall provide a copy of the Manufacturer's Certificate of Analysis (COA) for the emulsified asphalt material. The COA shall be provided to and approved by the ENGINEER before the emulsified asphalt material is applied. The furnishing of the COA for the emulsified 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

602-3.1 Weather Limitations. The emulsified asphalt prime coat shall be applied only when the existing surface is dry; the atmospheric temperature is 50°F or above, and the temperature has not been below 35°F 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.

602-3.2 Equipment. The equipment shall include a self-powered pressure asphalt material distributor and equipment for heating asphalt material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the asphalt material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 1.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than ±5%, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying asphalt material manually to

areas inaccessible to the distributor. Equip the distributor to circulate and agitate the asphalt material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

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

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.

602-3.3 Application of Emulsified Asphalt Material. Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

The asphalt emulsion material shall be uniformly applied with an asphalt distributor at the rate of 0.15 to 0.30 gallons per square yard depending on the base course surface texture. The type of asphalt material and application rate shall be approved by the ENGINEER prior to application.

Following application of the emulsified asphalt material and prior to application of the succeeding layer of pavement, allow the asphalt coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course. Furnish and spread sand to effectively blot up and cure excess asphalt material. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner. Keep traffic off surfaces freshly treated with asphalt material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

602-3.4 Trial Application Rates. The Contractor shall apply a minimum of three lengths of at least 100 feet for the full width of the distributor bar to evaluate the amount of emulsified asphalt material that can be satisfactorily applied with the equipment. Apply three different application rates of emulsified asphalt materials within the application range specified in Paragraph 602-3.3. Other trial applications can be made using various amounts of material as directed by the ENGINEER. The trial application is to demonstrate the equipment can uniformly apply the emulsified asphalt material within the rates specified and determine the application rate for the project.

602-3.5 Freight and Waybills. The Contractor shall submit waybills and delivery tickets during the progress of the work. Before the final estimate is allowed, file with the RPR 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

602-4.1 The emulsified asphalt material for prime coat shall be measured by the gallon. Volume shall be corrected to the volume at 60°F in accordance with ASTM D4311. 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.

BASIS OF PAYMENT

602-5.1 Payment shall be made at the contract unit price per gallon for emulsified asphalt prime coat. This price shall be full compensation for furnishing all materials and for all preparation, delivering, and applying the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item P-602-5.1 Emulsified Asphalt Prime Coat - per Gallon

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 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-602

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 or above; the temperature has not been below 35°F 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 or seven hundred (700) feet 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 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 RPR 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 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.

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.

Payment will be made under:

Item P-603-5.1 Emulsified Asphalt Tack Coat - per Gallon

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 ITEM P-603

ITEM P-610

CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared, and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 **General**. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the ENGINEER before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

A. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the ENGINEER. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 Coarse Aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch	467 or 4 and 67
1 inch	57
¾ inch	67
½ inch	7

610-2.2.1 Coarse Aggregate Susceptibility to Durability (D) Cracking. Not used.

610-2.3 Fine Aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of C150 Type I, II, or III.

610-2.5 Cementitious Materials.

A. Fly Ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the ENGINEER.

B. Slag Cement (Ground Granulated Blast Furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the ENGINEER may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the ENGINEER from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

A. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

B. Water-Reducing Admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

C. Other Chemical Admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the ENGINEER. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded Joint Material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751 or D1752.

610-2.9 Joint Filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel Reinforcement. Reinforcing shall consist of steel bars conforming to the requirements of ASTM A615 (Grade 60).

610-2.11 Materials for Curing Concrete. Curing materials shall conform to one of the following items.

Materials for Curing

Waterproof paper	***ASTM C171***
Clear or white Polyethylene Sheeting	***ASTM C171***
White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B	***ASTM C309***

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the ENGINEER.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the ENGINEER's approval. If approval is granted for mixing under such conditions, aggregates, or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the ENGINEER. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing Reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded Items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing Concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR/ENGINEER. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and Protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold Weather Placing. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot Weather Placing. When concrete is placed in hot weather greater than 85°F, follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance Sampling and Testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in Paragraph 610-3.2. The ENGINEER will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective Work. Any defective work that cannot be satisfactorily repaired as determined by the ENGINEER, shall be removed, and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT AND BASIS FOR PAYMENT

610-5.1 There will be no direct measurement for payment for any work covered by this item. The cost of any structural concrete used shall be included in the bid item to which it pertains. These prices shall be full compensation for furnishing all materials and for all preparation, delivery, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates

ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete

ASTM C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

ASTM C1157 Standard Performance Specification for Hydraulic Cement

ASTM C1260 Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

ASTM C1365 Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis

ASTM C1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)

ASTM D1752 Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R Hot Weather Concreting

ACI 306R Cold Weather Concreting

ACI 308R Guide to External Curing of Concrete

ACI 309R Guide for Consolidation of Concrete

END OF ITEM P-610

ITEM P-620
RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the 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/RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the ENGINEER.

620-2.2 Marking Materials.

Table 1. Marking Materials

Paint[1]					Glass Beads[2]	
Application	Type	Color	Fed Std. 595 Number	Application Rate Maximum	Type	Application Rate Minimum
First	III	White[3]	37925	180 ft²/gal	--	--
First	III	Yellow	33538 or 33655	180 ft²/gal	--	--
Final	III	White[3]	37925	90 ft²/gal	III	8 lb./gal
Final	III	White[3]	37925	90 ft²/gal	--	--
Final	III	Yellow	33538 or 33655	90 ft²/gal	III	8 lb./gal
Final	III	Red	31136	90 ft²/gal	I	6lb./gal
Final	III	Black	37038	90 ft²/gal	--	--

[1] See Paragraph 620-2.2A
[2] See Paragraph 620-2.2B
[3] White paints shall consist of a stain resistant formulation with a rust inhibitor. See Paragraph 620-2.2A

A. Paint. Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595. White paint shall include a rust inhibitor.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type III. 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. The acrylic resin used for Type III shall be 100% cross linking acrylic as evidenced by infrared peaks at wavelengths 1568, 1624, and 1672 cm-l with intensities equal to those produced by an acrylic resin known to be 100% cross linking.

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 paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the Manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

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. Not Used.

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 in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the Manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--Preformed Thermoplastic Airport Pavement Markings. 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 RPR/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 The quantity of surface preparation shall be measured by the number of square feet of surface preparation specified in Paragraph 620-3.3.

620-4.1b The quantity of markings shall be paid for shall be measured by the number of square feet of painting. The First Application and Final Application with Beads will be measured separately.

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.

620-5.2 Payment for surface preparation shall be made at the contract price for the number of square feet for each type of surface preparation specified in Paragraph 620-3.3.

620-5.3 Payment for completed markings shall be made at the contract price for the number of square feet of marking completed. The First Application and Final Application with Beads will be paid for separately.

Payment will be made under:

Item P-620-5.1	Surface Preparation for Marking - per Square Foot
Item P-620-5.2	Permanent Pavement Marking (First Application) – White Paint with Rust Inhibitor – per Square Foot
Item P-620-5.3	Permanent Pavement Marking (Final Application) – White Paint with Rust Inhibitor and Type III Beads – per Square Foot
Item P-620-5.4	Permanent Pavement Marking (Final Application) – White Paint with Rust Inhibitor – per Square Foot
Item P-620-5.5	Permanent Pavement Marking (First Application) – Yellow Paint – per Square Foot

Item P-620-5.6	Permanent Pavement Marking (Final Application) – Yellow Paint with Type III Beads – per Square Foot
Item P-620-5.7	Permanent Pavement Marking – Black Paint – per Square Foot
Item P-620-5.8	Surface Painted Holding Position Sign (Runway 23) – 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 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	AppendixA-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 150/5340-1M	Standards for Airport Markings
AC 150/5320-12C	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

ITEM D-701

PIPE FOR STORM DRAINS AND CULVERTS

DESCRIPTION

701-1.1 This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

MATERIALS

701-2.1 Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

701-2.2 **Pipe**. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C1479	Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
ASTM C1840	Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe

701-2.3 **Concrete.** Not used.

701-2.4 **Rubber Gaskets.** Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443.

701-2.5 **Joint Mortar.** Pipe joint mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

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. Not used.

701-2.10 Precast Concrete Pipe. Precast concrete pipe shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification program.

CONSTRUCTION METHODS

701-3.1 Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state, and local rules and regulations governing the safety of men and materials during the excavation, installation, and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching, and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch or 1/2 inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The 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 inch when the bedding thickness is less than 6 inches, and 1-1/2 inch 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.** Not used.

C. **Other Pipe Materials.** Not used.

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.

701-3.4 Joining Pipe. Joints shall be made with rubber gaskets. 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.** Not used.

C. **PVC, Polyethylene, Or Polypropylene Pipe.** Not used.

D. **Fiberglass Pipe.** Not used.

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.

B. **Plastic and Fiberglass Pipe.** Not used.

C. **Metal Pipe.** Not used.

701-3.5-2 Placement of Embedment Material. The embedment material shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall

be brought up one foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on each side of the pipe to one foot above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

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 re-laid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D1557. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

701-3.7 Inspection Requirements. A post installation inspection shall be performed by the Contractor no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection. If pipes are flooded, pipes shall be plugged and dewatered to allow for 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.

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. The Contractor shall prepare a report documenting all identified issues requiring repairs based on requirements of ASTM C1840 and shall include recommended repair for all pipe distresses noted.

The Post Installation Pipe Inspection Video and Report shall be submitted to the ENGINEER by the Contractor for review and final pipe acceptance. All costs for completing and providing the Post Installation Inspection shall be included in the lump sum cost for the Contractor Quality Control Program specified in Item C-100.

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, types and size of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

701-4.2 Flared end sections shall be measured on a per each basis in place, completed, and accepted.

BASIS OF PAYMENT

701-5.0 These prices shall fully compensate the Contractor for the furnishing of 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 type, class, and size of pipe or per each for each size of flared end section.

Payment will be made under:

Item 701-5.1 15 Inch Reinforced Concrete Pipe (Class III) - per Linear Foot

Item 701-5.2 18 Inch Reinforced Concrete Pipe (Class III) - per Linear Foot

Item 701-5.3 15 Inch Concrete Flared End Section – per Each

Item 701-5.4 18 Inch Concrete Flared End Section – per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO R73	Standard Practice for Evaluation of Precast Concrete Drainage Products

ASTM International (ASTM)

ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
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 C1479	Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
ASTM C1840	Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe

National Fire Protection Association (NFPA)

NFPA 415	Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways

END ITEM D-701

ITEM D-751

MANHOLES, CATCH BASINS AND INLETS

DESCRIPTION

751-1.1 This item shall consist of construction of manholes, catch basins, and inlets, 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 nor more than 48 inches. There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole. Gaskets shall conform to the requirements of ASTM C443.

751-2.5 **Corrugated Metal.** Not used.

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. Precast inlet structures shall be manufactured in accordance with and conforming to ASTM C913.

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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 Contractor. 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. Not used.

751-3.3 Concrete Structures. Not used.

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 with ASTM C478. When a metal ladder replaces the steps, it shall be securely fastened into position.

751-3.5 Corrugated Metal Structures. Not used.

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.

Instead of steps, prefabricated ladders may be installed. For concrete structures, the ladder shall be held in place by grouting the supports in drilled holes.

751-3.9 Backfilling.

A. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the 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 Precast Concrete Drop Inlets shall be measured by the unit.

BASIS OF PAYMENT

751-5.1 The accepted quantities of inlets will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item D-751-5.1 Precast Concrete Drop Inlets - 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.

END OF ITEM D-751

ITEM T-901

SEEDING

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding, fertilizing, and liming the areas shown on the plans or as directed by the ENGINEER in accordance with these specifications.

MATERIALS

901-2.1 **Seed.** The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the ENGINEER duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Permanent Seed Mixes

Seed Mixture	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb/acre (or lb/1,000 S.F.)	Seeding Dates
Common Bermudagrass (Hulled)	80%	70%	70	March 1 – July 31
Common Bermudagrass (Unhulled)	80%	70%	70	August 1 – February 28
Rye (Grain)	80%	70%	120	

Temporary Seed Mixtures

Seed Mixture	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb/acre (or lb/1,000 S.F.)	Seeding Dates
Rye (Grain)	76%	70%	120	August 1 – February 28
Common Bermudagrass (Hulled)	80%	70%	70	March 1 – July 31

901-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such fineness that 90% will pass through a No. 20 mesh sieve and 50% will pass through a No. 100 mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate of 4,000 pounds per acre. All liming materials shall conform to the requirements of ASTM C602.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

A. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader; or

B. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

C. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be commercial fertilizer and shall be spread at the rate of 1,000 pounds per acre. For rye grass, use a starter fertilizer such as 18-24-6. For bermudagrass, use a turf grade fertilizer with a ration of 3-1-2 or 4-1-2.

901-2.4 Soil for Repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the ENGINEER before being placed.

CONSTRUCTION METHODS

901-3.1 Advance Preparation and Cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren, and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods shall be broken, and the top 3 inches of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry Application Method.

A. Liming. Lime shall be applied separately and prior to the application of any fertilizer or seed and only on seedbeds that have previously been prepared as described above. The lime shall then be worked into the top 3 inches of soil after which the seedbed shall again be properly graded and dressed to a smooth finish.

B. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in Paragraph 901-2.3.

C. Seeding. Grass seed shall be sown at the rate specified in Paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the Manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

D. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot of width for sandy or light soils.

901-3.3 Wet Application Method.

A. General. The Contractor may elect to apply seed, fertilizer, and lime by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

B. Spraying Equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds / square inch. The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipelines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-

range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

C. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime shall be added to and mixed with each 100 gallons of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the ENGINEER all sources of water at least two (2) weeks prior to use. The RPR/ENGINEER may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the ENGINEER following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed, or they shall be wasted and disposed of at approved locations.

D. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches, after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the ENGINEER, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 **Maintenance of Seeded Areas.** The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the ENGINEER. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as needed or directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the ENGINEER. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of acres measured on the ground surface, completed, and accepted.

901-4.2 The quantity of Watering to be paid for will be the actual number of 1,000 gallon units of water, up to the quantity shown in the contract documents, which have been satisfactorily and uniformly applied to the site. Any amount of water that may be needed beyond the contract quantity will be performed by the Contractor at his expense. The OWNER will not pay for any quantity of water greater than he quantity in the contract. Measurement of water will be made by means of determining the volumetric capacity of the tanks/trucks used to deliver water to the project and recording the number of loads delivered by each truck. The Contractor will ensure the quantity of each tank/truck of water is verified and recorded by the on-site Resident Project Representative or the OWNER's designated representative. Failure to obtain verification and recording of the volume of each tank/truck shall lead to sufficient grounds for the OWNER to disallow payment.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per acre or fraction thereof, which price and payment shall be full compensation for furnishing and placing

all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

901-5.2 Payment for Watering shall be made at the contract unit price per 1,000 gallons or fraction thereof, which price and payment shall be full compensation for furnishing and applying all water and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item 901-5.1 Seeding – per Acre

Item 910-5.2 Watering – per 1,000 Gallons

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602 Standard Specification for Agricultural Liming Materials

Federal Specifications (FED SPEC)

FED SPEC JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33C Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

ITEM T-904

SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the ENGINEER.

MATERIALS

904-2.1 **Sod.** Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the special provisions, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the special provisions. Sod shall be Bermudagrass.

904-2.2 **Lime.** Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such fineness that 90% will pass through a No. 20 mesh sieve and 50% will pass through a No. 100 mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate of 4,000 pounds per acre. All liming materials shall conform to the requirements of ASTM C602.

904-2.3 **Fertilizer.** Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

A. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader; or

B. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

C. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be commercial turf grade fertilizer with a ratio of 3-1-2 or 4-1-2 and shall be spread at the rate of 1,000 pounds per acre.

904-2.4 Water. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass. The source of water shall be subject to the approval of the ENGINEER prior to use.

904-2.5 Soil for Repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the ENGINEER before being placed.

CONSTRUCTION METHODS

904-3.1 General. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the ENGINEER before the various operations are started. The Contractor shall demonstrate to the RPR/ENGINEER before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 Preparing the Ground Surface. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such

damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 Applying Fertilizer and Ground Limestone. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other suitable methods. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 Obtaining and Delivering Sod. After inspection and approval of the source of sod by the ENGINEER, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 Laying Sod. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used, and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the ENGINEER, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface and ensure knitting without

displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 square inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 **Watering.** Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 **Establishing Turf.** The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the ENGINEER. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed, and the clippings raked and removed from the area.

904-3.8 **Repairing.** When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the ENGINEER, and shall then be sodded as specified in Paragraph 904-3.5.

METHOD OF MEASUREMENT

904-4.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

BASIS OF PAYMENT

904-5.1 This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment,

material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

Item T-904-5.1 Bermudagrass Sodding - per Square Yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Advisory Circulars (AC)

AC 150/5200-33C	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-904

ITEM T-905

TOPSOIL

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the ENGINEER.

MATERIALS

905-2.1 **Topsoil.** Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh sieve as determined by the wash test in accordance with ASTM C117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 **Inspection and Tests.** Within 10 days following acceptance of the bid, the ENGINEER shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in Paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on site, the location of the areas to be stripped of topsoil and the stripping depths are shown on the plans. Additional soil materials where required to meet final grades shall be obtained from off-site excavation sources.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the ENGINEER before the various operations are started.

905-3.2 Preparing the Ground Surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the ENGINEER, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining Topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the ENGINEER. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

The topsoil shall be spread on areas already tilled and smooth-graded or stockpiled in areas approved by the ENGINEER. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed, and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the Airport site, the Contractor shall locate and obtain the supply, subject to the approval of the ENGINEER. The Contractor shall notify the ENGINEER sufficiently in advance of operations in

order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing Topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 2 inches after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the ENGINEER. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

905-4.1 Topsoiling shall be considered as incidental to site construction. There will be no direct measurement for payment for topsoiling. The cost of topsoiling shall be included in the cost of related bid items. The price included shall be full compensation for furnishing and spreading of all materials and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C117 Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33C Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

ITEM T-908

MULCHING

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the ENGINEER.

MATERIALS

908-2.1 **Mulch Material.** Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed over seeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

A. Hay. Hay shall be native hay in an air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.

B. Straw. Straw shall be the stalks from threshed plant residue of oats, wheat, barley, rye, or rice from which grain has been removed. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.

C. Hay Mulch Containing Seed. Hay mulch shall be mature hay containing viable seed of native grasses or other desirable species stated in the special provisions or as approved by the ENGINEER. The hay shall be cut and handled so as to preserve the maximum quantity of viable seed. Hay mulch that cannot be hauled and spread immediately after cutting shall be placed in weather-resistant stacks or baled and stored in a dry location until used.

D. Manufactured Mulch. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications.

E. Asphalt Binder. Asphalt binder material shall conform to the requirements of ASTM D977, Type SS-1 or RS-1.

908-2.2 **Inspection.** The ENGINEER shall be notified of sources and quantities of mulch materials available, and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples

may be used as standards with the approval of the ENGINEER and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the ENGINEER. Straw or hay shall be spread over the surface to a uniform thickness at the rate of 2 to 3 tons per acre to provide a loose depth of not less than 1-1/2 inches nor more than 3 inches. Other organic material shall be spread at the rate recommended by the Manufacturer. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall be not less than one inch nor more than 2 inches.

908-3.2 Securing Mulch. The mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the ENGINEER. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. When an application of asphalt binder material is used to secure the mulch, the Contractor must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and will be held responsible for any such damage resulting from the operation.

If the "peg and string" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

908-3.3 Care and Repair.

A. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the ENGINEER, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

B. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the ENGINEER, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

C. If the "asphalt spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons per 1,000 square feet, or as directed by the ENGINEER, with a minimum of 6 gallons and a maximum of 10 gallons per 1,000 square feet depending on the type of mulch and the effectiveness of the binder securing it. Asphalt binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet from the surface of the mulch and uniform distribution of the asphalt material shall be required. A pump or an air compressor of adequate capacity shall be used to ensure uniform distribution of the asphalt material.

D. If the "asphalt mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons per 1,000 square feet or as directed by the ENGINEER, with a minimum of 6 gallons and a maximum of 10 gallons per 1,000 square feet depending on the type of mulch and the effectiveness of the binder securing it.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in acres on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per acre for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-5.1 Mulching – per Acre

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D977	Standard Specification for Emulsified Asphalt

Advisory Circulars (AC)

AC 150/5200-33C	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-908

ITEM L-108

UNDERGROUND POWER CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the ENGINEER. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

A. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53D, current version.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through Manufacturer's certification of compliance with the applicable specification, when requested by the ENGINEER.

C. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the ENGINEER) and replaced with materials that comply with these specifications at the Contractor's cost.

D. All materials and equipment used to construct this item shall be submitted to the 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 any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear

with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

E. The data submitted shall be sufficient, in the opinion of the ENGINEER, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section or electronically submitted in pdf format. 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.

F. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with Paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26C, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 **Cable**. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7F, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the Manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by Manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The

conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks, and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare Copper Wire (Counterpoise, Bare Copper Wire Ground, and Ground Rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8 and shall be bare copper wire. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 10 feet long and 3/4 inch in diameter.

108-2.4 Cable Connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans and shall be one of the types listed below. No separate payment will be made for cable connections.

A. The Cast Splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3MTM Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

B. The Field-Attached Plug-In Splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the Manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.

C. The Factory-Molded Plug-In Splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the Manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the Manufacturer's recommendations and listings.

108-2.5 Splicer Qualifications. Every airfield lighting cable splicer shall be qualified in making Airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the ENGINEER proof of the qualifications of each proposed cable splicer for the Airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

108-2.7 Flowable Backfill. Not used.

108-2.8 Cable Identification Tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type detailed on the plans.

108-2.9 Tape. Electrical tapes shall be ScotchTM Electrical Tapes –ScotchTM 88 (1-1/2 inch wide) and ScotchTM 130C® Linerless Rubber Splicing Tape (2-inch wide), as manufactured by the Minnesota Mining and Manufacturing Company (3MTM), or an approved equivalent.

108-2.10 Electrical Coating. Electrical coating shall be Scotchkote™ as manufactured by 3MTM, or an approved equivalent.

108-2.11 Existing Circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR/ENGINEER. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the ENGINEER. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR/ENGINEER. The Contractor shall record the results on forms acceptable to the ENGINEER. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above

the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 Detectable Warning Tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit, and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the ENGINEER or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the ENGINEER.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each Airport lighting cable entering or leaving cable access points, such as manholes, hand

holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in Duct Banks or Conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected, and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous, and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the ENGINEER of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable Manufacturer's

recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the ENGINEER prior to any cable installation. If required by the ENGINEER, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR/ENGINEER. Cable pull tensions shall be recorded by the Contractor and reviewed by the ENGINEER. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The Manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per Manufacturer's recommendations. During cold weather, particular attention shall be paid to the Manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the Manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the ENGINEER, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the Manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement, or earth. When cable must be coiled, lay cable out on a canvas tarp, or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of Direct-Buried Cable In Trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

A. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be

excavated to a minimum depth of 18 inches below finished grade per NEC Table 300.5, except as follows:

When off the Airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches unless otherwise specified.

Minimum cable depth when crossing under a railroad track shall be 42 inches unless otherwise specified.

The Contractor shall excavate all cable trenches to a width not less than 6 inches. Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill material may alternatively be used.

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. When existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

1. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

2. Trenching, etc., in cable areas shall then proceed, with approval of the 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 or replacement.

B. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables, be 3 inches deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. This layer shall not be compacted. The second layer shall be 5

inches deep, loose measurement, and shall contain no particles that would be retained on a one inch sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the ENGINEER. If not shown on the plans, the warning tape shall be located 6 inches above the direct-buried cable or the counterpoise wire if present. A 3-6 inch wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches minimum below finished grade.

C. **Restoration.** Following restoration of all trenching near Airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include topsoiling, fertilizing, liming, seeding, and mulching as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557. Restoration shall be considered incidental to the pay item of which it is a component part.

108-3.4 Cable Markers for Direct-Buried Cable. Not Used.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

A. Cast Splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the Manufacturer's instructions and to the satisfaction of the ENGINEER.

B. Field-Attached Plug-In Splices. These shall be assembled per the Manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

C. Factory-Molded Plug-In Splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

D. Taped or Heat-Shrink Splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the

insulation to assure that the entire surface over which the tape will be applied (plus 3 inches on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the Manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The Manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering, or splice boxes are required.

Heat shrinkable tubing shall be installed following Manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the Manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

E. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and Manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare Counterpoise Wire Installation for Lightning Protection And Grounding. If shown on the plans or included in the job specifications, bare solid #6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The ENGINEER shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

A. Equipotential. Not used.

B. Isolation. Counterpoise size is as shown on the plans. The isolation method is an alternate method for use only with edge lights installed in turf and stabilized soils and raceways installed parallel to and adjacent to the edge of the pavement. NFPA 780 uses 15 feet to define "adjacent to".

The counterpoise conductor shall be installed halfway between the pavement edge and the light base, mounting stake, raceway, or cable being protected.

The counterpoise conductor shall be installed 8 inches minimum below grade. The counterpoise is not connected to the light base or mounting stake. An additional grounding electrode is required at each light base or mounting stake. The grounding electrode is bonded to the light base or mounting stake with a 6 AWG solid copper conductor.

See AC 150/5340-30J, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Isolation Method of lightning protection.

C. **Common Installation Requirements**. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base with a No. 6 AWG bare, annealed, or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed, or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

D. **Parallel Voltage Systems**. Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 Counterpoise Installation Above Multiple Conduits and Duct Banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise Installation at Existing Duct Banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic Bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the ENGINEER. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the ENGINEER, the welding kits, materials, and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the Manufacturer's recommendations and the following:

A. All slag shall be removed from welds.

B. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the Manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30J for galvanized light base exception.

C. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3MTM ScotchkoteTM, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the Airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR/ENGINEER. The Contractor shall demonstrate the electrical

characteristics to the satisfaction of the ENGINEER. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

A. Earth resistance testing methods shall be submitted to the ENGINEER for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR/ENGINEER. All such testing shall be at the sole expense of the Contractor.

B. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The ENGINEER shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the ENGINEER the following:

C. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

D. That all affected circuits (existing and new) are free from unspecified grounds.

E. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 500 megohms. Verify continuity of all series airfield lighting circuits prior to energization.

F. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

G. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

H. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

I. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American

National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the ENGINEER prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the ENGINEER. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Trenching shall be measured by the linear feet of trench, including the excavation, backfill, and restoration, completed, measured as excavated, and accepted as satisfactory. When specified, separate measurement shall be made for trenches of various specified widths.

The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack.

Cable and counterpoise slack is considered incidental to this item and is included in the Contractor's unit price. No separate measurement or payment will be made for cable or counterpoise slack.

108-4.3 No separate payment will be made for ground rods.

108-4.4 Supplemental ground rod (required where initial impedance test of a safety ground rod exceeds 25 ohms) shall be measured on a per each basis, and shall include the second ground rod, #6 wire for connection to the first safety ground rod, all connections, and trenching.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench, or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the ENGINNER. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1 Counterpoise Trench - per Linear Foot

Item L-108-5.2 Temporary Jumper Cable (L-824, No. 8 AWG, 5kV, Type C) Installed - per Linear Foot

Item L-108-5.3 L-824C Underground Cable, 1/C, No. 8 AWG, 5kV, Type C, Installed in Conduit - per Linear Foot

Item L-108-5.4 Solid Bare Copper Counterpoise Wire, No. 6 AWG, Installed in Trench or Above Duct Bank Including Ground Rods and Grounding Connectors – per Linear Foot.

Item L-108-5.5 Supplemental Ground Rod, Including Trenching, No. 6 AWG Counterpoise and Connections – per Each.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-26C Maintenance of Airport Visual Aid Facilities

AC 150/5340-30J Design and Installation Details for Airport Visual Aids

AC 150/5345-7F Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-26D Specification for L-823 Plug and Receptacle, Cable Connectors

AC 150/5345-53D	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E	Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

ITEM L-110

AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits and removal of existing duct banks and conduit. 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 neatly bound in a properly sized 3-ring binder, tabbed by specification section, or 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. Not used.

110-2.3 Plastic Conduit. Plastic conduit and fittings-shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all Types, Classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all Types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, Types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit Type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

A. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.

B. Type II–Schedule 40 PVC suitable for either above ground or underground use.

C. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.

D. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting Manufacturer.

110-2.4 Split Conduit. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.5 Conduit Spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

110-2.7 Precast Concrete Structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another ENGINEER approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.8 Flowable Backfill. Not used.

110-2.9 Detectable Warning Tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The 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 inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or

traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the 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 test polypropylene pull rope. The ends shall be secured, and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet.

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. Flowable backfill may alternatively be used

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.

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.

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 below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet beyond the edges of the pavement or 3 feet beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals.

Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the 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 intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches wide tape, 8 inches minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch wide tape only for single conduit runs. Utilize the 6-inch wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the 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 nor more than 12 inches wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand, or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch sieve. The bedding material shall be tamped until firm.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches below the finished grade. Conduits outside the Airport's

secured area shall be installed so that the tops of the conduits are at least 24 inches below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the 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 square and 4 - 6 inches thick extending approximately one inch above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word “DUCT” or “CONDUIT” on each marker slab. Impression of letters shall be done in a manner, approved by the 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 high and 3 inches wide with width of stroke 1/2 inch and 1/4 inch deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for Conduits. For conduits, 8 inches of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches in diameter.

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" except that the material used for backfilling shall be select material not larger than 4 inches in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period's construction, whichever is less.

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 topsoiling, fertilizing, liming, 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. Removed cable shall remain the property of the Contractor.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

110-4.2 Connection of conduit or duct to existing light base shall be measured per each for the completed and accepted connection.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material. 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 2 Inch PVC Conduit (Schedule 40), in Trench - per Linear Foot

Item L-110-5.2 1 Way Concrete Encased 2 Inch PVC Duct - per Linear Foot

Item L-110-5.3 2 Way Concrete Encased 2 Inch PVC Duct - per Linear Foot

Item L-110-5.4 Connection of Conduit or Duct to Existing Light Base – per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30J	Design and Installation Details for Airport Visual Aids
AC 150/5345-53D	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

ITEM L-115

ELECTRICAL JUNCTION STRUCTURES

DESCRIPTION

115-1.1 This item shall consist of electrical junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the ENGINEER. This item shall include the installation of each electrical junction structure with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the ENGINEER including removal of existing junction structures as shown on the plans.

EQUIPMENT AND MATERIALS

115-2.1 General.

A. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the ENGINEER.

B. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the 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 any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

D. The data submitted shall be sufficient, in the opinion of the ENGINEER, to determine compliance with the plans and specifications. The Contractor's

submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section, or 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 the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete Structures. Not used.

115-2.3 Precast Concrete Structures. Not used.

115-2.4 Junction Boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) Airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch thickness for L-867 and 3/4-inch thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean, and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

115-2.7 Frames and Covers. Not used.

115-2.8 Ladders. Not used.

115-2.9 Reinforcing Steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/Special Backfill. Bedding or special backfill shall be as shown on the plans.

115-2.11 Flowable Backfill. Not used.

115-2.12 Cable Trays. Not used.

115-2.13 Plastic Conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

115-2.14 Conduit Terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.15 Pulling-In Irons. Not used.

115-2.16 Ground Rods. Ground rods shall be one piece, copper clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 10 feet long nor less than 3/4 inch in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified Excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the ENGINEER without additional expense to the Owner

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the 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.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs, and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the ENGINEER. All seams, crevices, disintegrated rock, and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting, and shoring necessary to implement and protect the excavation and the structure as required for safety

or conformance to governing laws. The cost of bracing, sheeting, and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting, and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be affected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the ENGINEER. Structures shall be placed after the ENGINEER has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches of sand or a material approved by the ENGINEER as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete Structures. Not used.

115-3.3 Precast Unit Installations. Not used.

115-3.4 Placement and Treatment of Castings, Frames and Fittings. Not used.

115-3.5 Installation of Ladders. Not used.

115-3.6 Removal of Sheeting and Bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The ENGINEER may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the ENGINEER.

Backfill shall not be placed against any structure until approval is given by the ENGINEER. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the ENGINEER establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the ENGINEER may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property, or persons due to improper placing or compacting of backfill.

115-3.8 Connection of Duct Banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches above the floor. The ground rod shall be installed within one foot of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup And Repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared, and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall be backfilled, compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near Airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD) and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

115-3.13 Manhole Elevation Adjustments. Not used.

115-3.14 Duct Extension to Existing Ducts. Not used.

METHOD OF MEASUREMENT

115-4.1 Electrical Junction Structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing.

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item L-115-5.1 Electrical Junction Can, L-867(D), 24 Inch Deep, Class 1A with Galvanized Steel Cover, Including Ground Rods and Connections, Installed - Per Each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

AC 150/5345-7F	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26C	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42J	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30J	Design and Installation Details for Airport Visual Aids
AC 150/5345-53D	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

EB #83	In Pavement Light Fixture Bolts

Mil Spec

MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

END OF ITEM L-115

ITEM L-125
INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of Airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the ENGINEER.

EQUIPMENT AND MATERIALS

125-2.1 General.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53D, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

B. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the 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, which do comply with these specifications, at the sole cost of the Contractor.

C. All materials and equipment used 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. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

D. The data submitted shall be sufficient, in the opinion of the ENGINEER, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in a neatly bound, properly sized 3-ring binder, tabbed by specification section, or electronic PDF format, tabbed by specification section. The ENGINEER reserves the right to reject any or all equipment, materials, or procedures, which, in the ENGINEER's opinion, does not meet the system design and the standards and codes, specified herein.

E. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not used.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46E. Lamps shall be of size and type indicated, or as required by fixture Manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861T (L)	2	2	-	-	L-867	-	10/15 Watt	14" Height

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44K.

Signs

Type	Size	Style	Class	Mode	Notes
L-858C	2	4	-	2	72 Inch Overall Length
L-858L | L-858R	2	2	2	2	2 Module
L-858Y	2	2	2	2	1 Module

125-2.9 Runway End Identifier Light (REIL). Not used.

125-2.10 Precision Approach Path Indicator (PAPI). Not used.

125-2.11 Circuit Selector Cabinet. Not used.

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42J. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47C.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect, and test all equipment, accessories, conduit, cables, wires, buses, grounds, and support items necessary to ensure a complete and operable Airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the ENGINEER, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the Owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the Manufacturer's recommendations.

125-3.4 Elevated and In-Pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

REMOVAL OF LIGHTING EQUIPMENT

125-4.1 Removal of Existing Handholes or Junction Boxes. The Contractor shall remove existing handholes or junction boxes as shown on the plans or as directed by the ENGINEER. All materials, equipment, and debris shall be disposed of off Airport property by the Contractor.

125-4.2 Removal of Existing Lighting Cables. Not used.

METHOD OF MEASUREMENT

125-5.1 Taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the ENGINEER.

Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the ENGINEER.

The removal of existing duct will be measured by the linear foot. The removal of existing junction cans will be measured by each item removed. The removal of airfield lighting cable will not be measured and will be paid for on a lump sum basis.

BASIS OF PAYMENT

125-6.1 Payment will be made at the Contract unit price for each complete taxiway light and guidance sign installed by the Contractor and accepted by the ENGINEER. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item 125-6.1	Removal of Existing Handhole or Junction Boxes – per Each
Item 125-6.2	Removal of Existing Concrete Duct – per Linear Foot
Item 125-6.3	Medium Intensity Taxiway Edge Light, Type L-861T(L), Base Mounted, Including Ground Rods and Connectors, Installed – per Each
Item 125-6.4	New Guidance Sign, L-858(L), Size 2, Single Faced, One Module, Installed – per Each
Item 125-6.5	New Guidance Sign, L-858(L), Size 2, Single Faced, Two Module, Installed – per Each
Item 125-6.6	New Guidance Sign, L-858 Unlighted, Size 2, 72 Inch Overall Length, Installed – per Each
Item 125-6.7	Installation of Taxiway Light Number Tags – per Lump Sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18G	Standards for Airport Sign Systems
AC 150/5340-26C	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30J	Design and Installation Details for Airport Visual Aids
AC 150/5345-5D	Circuit Selector Switch

AC 150/5345-7F	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26C	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28H	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39D	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42J	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44K	Specification for Runway and Taxiway Signs
AC 150/5345-46E	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47C	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51B	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53D	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125

APPENDIX 'A'

PROPOSAL REQUIREMENTS
and
BID FORM

PROPOSAL REQUIREMENTS AND CONDITIONS

HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK

GEORGETOWN COUNTY AIRPORT
GEORGETOWN , SOUTH CAROLINA

DATE: _____

In compliance with the Advertisement (Notice to Bidders), the undersigned hereby proposes to furnish the materials and perform the work for completion of all items, listed below in strict accordance with the Advertisement (Notice to Bidders), Plans, and General Provisions, Special Provisions of the Specifications, and all contract documents for the consideration of the price quoted in the following items and agrees, upon receipt of written notice of the acceptance of this Proposal, that within one hundred twenty (120) days after the date of the opening of the Proposals, that it will execute a contract in accordance with the Proposal as accepted, and give the required Performance and Payment Bond with good and sufficient surety or sureties, within fifteen (15) days after receipt of notice of formal award of contract and presentation of the prescribed forms.

Bidder shall complete all line items and total amount of Schedule I – Hangar Taxilane Improvements and Hangar Sitework. Failure to submit prices and amount for each item shall be cause for rejection of Bid. The Owner reserves the right to reject any and all bids and to waive any and all technical defects in the execution and submission of any bid. It is the intent of the Owner to award one contract for all work depending on the availability of local, state, and federal funding.

Contract award will be made on the basis of the lowest responsive qualified bidder (at the time of initial award) for work in the best interest of the Owner and subject to the availability of local, state, and federal funding. The Owner reserves the right to reject any or all bids and to waive formalities and technicalities.

This project will be partially funded with federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the federal laws and regulations associated with that program.

IMPORTANT NOTICE

The Contractor's attention is directed to the requirements of Appendix "B", Disadvantaged Business Enterprise Program, and the Equal Employment Opportunity Requirements in Appendix "C", which must be submitted with the Proposal.

The undersigned understands that the entirety of Section 20 and Appendix "B" and "C" of these specifications shall be considered a part of the Proposal, and that if

we are notified by the ENGINEER that we are the low bidder(s), we shall submit the information required, hereinafter related to these requirements, within time period of such notification as specified in the applicable sections of the specifications.

The Bidder is aware of the affirmative action requirements of 33% minority participation for each trade and 6.9% female participation for each trade (See Appendix 'C') and subcontract requirements to obtain the goal of **10.9% of** Disadvantaged Business Enterprise participation established for this contract; has completed and is submitting, along with the bid proposal, required information (see "Disadvantaged Business Enterprise Program") describing actions taken in order to achieve such goals; and understands that meeting or exceeding the stated goals is a condition for being awarded this contract.

Failure to submit the above information may be grounds for rejection of our proposal.

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

Wages not less than the minimum rates of wages, as predetermined for this project by the Secretary of Labor, were used in the preparation of this Proposal.

It is understood that the quantities of work to be done are approximate only and are intended principally to serve as a guide in evaluating Proposals.

The undersigned agrees that, if awarded the contract(s), it will commence work not later than the date set by the ENGINEER in the Notice(s) to Proceed, and that it will complete the work within the time specified above and in accordance with the Specifications.

Enclosed is security in the amount of 5% of the total base bid, consisting of a Bid Bond payable to Georgetown County, South Carolina.

_____
Name of Bidder

BY: _____
(Signature)

_____
(Name and Title of Signing Official) (Seal)

S.C. Contractor's License No. _____

For Corporation, provide Name and Post Office Address for the President, Secretary, and Treasurer.

President
Name _____
Address _____
_____
_____

Secretary
Name _____
Address _____
_____
_____

Treasurer
Name _____
Address _____
_____
_____

For Partnership provide Name and Address for each Partner:

Name _____
Address _____
_____
_____

Name _____
Address _____
_____
_____

Name _____
Address _____
_____
_____

Name _____
Address _____
_____
_____

For Individual, provide Name and Post Office Address:

Name _____
Address _____
_____
_____

Note: Failure to complete blank spaces may be grounds for rejecting bid.

PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

_____ _____

Signature of Contractor Date

_____

Title

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S. C. 1001.

(Reference: 2 CFR Part 200, Appendix II(C), 41 CFR Part 60-1)

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

_____ _____

Signature of Contractor Date

_____

Title

(Reference: 49 USC § 50104; 49 CFR part 30)

CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The applicant represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) The applicant represents that it is ( ) is not ( ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Signature of Contractor

Date

Title

(Reference: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts.

DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

_____ _____

Signature of Contractor Date

_____

Title

(Reference: 2 CFR Part 180 (Subpart B), 2 CFR Part 200, Appendix II(H), 2 CFR Part 1200, DOT Order 4200.5, Executive Orders 12549 and 12689)

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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

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

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

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

_____ _____

Signature of Contractor Date

_____

Title

(Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR part 200, Appendix II(I); 49 CFR part 20, Appendix A)

CERTIFICATE OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:

a) Only installing iron, steel and manufactured products produced in the United States;

b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.

c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or

d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.

b) To faithfully comply with providing U.S. domestic products.

c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

d) Certify that all construction materials used in the project are manufactured in the U.S.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type

4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility/project." The required documentation for a Type 3 waiver is:

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including,
b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.

d) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
b) At minimum two comparable equal bids and/or offers,
c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component.
d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

_____	_____
Date	Signature
_____	_____
Company Name	Title

FORM OF NON-COLLUSION AFFIDAVIT

(This Affidavit is Part of the Proposal)

STATE OF _____

COUNTY OF _____

_____

being first duly sworn, deposes and says that he/she is

_____

(Sole Owner, a partner, president, secretary, etc.)

of _____

the party making the foregoing Proposal that such Proposal is genuine and not collusive or sham; that said Offeror has not colluded, conspired, connived, or agreed directly or indirectly, with any Offeror or person, to put in a sham Proposal, or that such other person shall refrain from submitting a proposal and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the proposal price of affiant or any other Offeror, or to fix any overhead, profit or cost element of said proposal price, or of that of any other Offeror or to secure any advantage against Owner any person interested in the proposed Contract; and that all statements in said Proposal are true; and further, that such Offeror has not, directly or indirectly submitted this proposal, or the contents thereof, or divulged information or date relative to any association or to any member or agent thereof.

_____

Signature of Offeror

Sworn to and subscribed before me this _____ day of _____, 2023.

(Official Seal)

_____

Official Signature of Notary

_____, Notary Public

Notary's Printed or Typed Name

My Commission expires _____, 20__.

FORM CD-512
(REV 12-04)

U.S. DEPARTMENT OF COMMERCE

CERTIFICATION REGARDING LOBBYING
LOWER TIER COVERED TRANSACTIONS

Applicants should review the instructions for certification included in the regulations before completing this form. Signature on this form provides for compliance with certification requirements under 15 CFR Part 28, "New Restrictions on Lobbying."

LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 15 CFR Part 28, for persons entering into a grant, cooperative agreement or contract over $100,000 or a loan or loan guarantee over $150,000 as defined at 15 CFR Part 28, Sections 28.105 and 28.110, the applicant certifies that to the best of his or her knowledge and belief, that:

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

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

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

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure occurring on or before October 23, 1996, and of not less than $11,000 and not more than $110,000 for each such failure occurring after October 23, 1996.

Statement for Loan Guarantees and Loan Insurance

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

In any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure occurring on or before October 23, 1996, and of not less than $11,000 and not more than $110,000 for each such failure occurring after October 23, 1996.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above applicable certification.

NAME OF APPLICANT	AWARD NUMBER AND/OR PROJECT NAME
	EDA No. 04-79-07837 GGE Improvements Project
PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
SIGNATURE	DATE

EXHIBIT 1

May 2014

DISADVANTAGED BUSINESS ENTERPRISES (DBE) COMMITTAL SHEET

Information must be shown on this sheet as required by the supplemental specifications entitled ""*Disadvantaged Business Enterprises (DBE) Supplemental Specification*" included in this proposal.

FAILURE TO PROVIDE ALL INFORMATION REQUIRED ON THIS FORM MAY RESULT IN THE AWARD BEING MADE TO THE NEXT LOWEST RESPONSIBLE AND RESPONSIVE BIDDER. FOR DESIGN BUILD PROJECTS, FAILURE TO PROVIDE ALL INFORMATION REQURIED ON THIS FORM MAY RESULT IN SANCTION IN ACCORDANCE WITH PART B OF THE DBE SUPPLEMENTAL SPECIFICATIONS.

[1]Name & Address of DBE's (Subcontractor or Supplier)	[2]Percent	[3]Description of Work and Approximate Quantity [6](show percent when appropriate)				[5]Dollar Value
		Item	Qty.	Unit	[4]Unit Price	

BASED ON THE ABOVE, BIDDER'S TOTAL COMMITTAL FOR THIS CONTRACT: _____%

THE CONTRACT DBE GOAL LISTED IN PART A OF THE SUPPLEMENTAL SPECIFICATION: _____%

1 The designation of Firm A and/or B is not considered acceptable. I hereby certify that this company has communicated with and received quotes from the DBE's listed above and that they are willing to perform the work as listed above and that this company is committed to utilizing the above firm(s) on this contract.

2 Percent – show percent of total contract amount committed to each DBE listed.

3 All information requested must be included unless item is listed in proposal on a lump sum basis.

4 Unit Price – show unit price quoted by DBE.

5 Dollar Value – extended amount based on Quantity and Unit Price.

6 Applies to lump sum items only.

The form may be reproduced or additional sheets added in order to provide all requested information.

SWORN to before me this _____
day of _____, 20

_____(SEAL)
Notary Public for _____
My commission expires: _____

_____
Company

By: _____

Title: _____

Exhibit 2

DBE SUBCONTRACTOR DATA
Company Name and Address: _____ _____ _____ Owner's Name/Contact Person: _____ Telephone # ( ) _____ Fax # ( ) _____ DBE Status MBE _____ WBE _____ Certifying Agency and Address: _____ _____ _____ On-Site Certification Visit Performed By: _____ Date: _____ Date of Initial Certification: _____
Company Name and Address: _____ _____ _____ Owner's Name/Contact Person: _____ Telephone # ( ) _____ Fax # ( ) _____ DBE Status MBE _____ WBE _____ Certifying Agency and Address: _____ _____ _____ On-Site Certification Visit Performed By: _____ Date: _____ Date of Initial Certification: _____
Company Name and Address: _____ _____ _____ Owner's Name/Contact Person: _____ Telephone # ( ) _____ Fax # ( ) _____ DBE Status MBE _____ WBE _____ Certifying Agency and Address: _____ _____ _____ On-Site Certification Visit Performed By: _____ Date: _____ Date of Initial Certification: _____

EXHIBIT 3

DBE CONTACT SCHEDULE

Submitting Contractor: _____

Project Name and Number: _____

Date: _____

Date	MBE/ WBE	Name and Address of Person Contacted	Telephone Number	Type of Work to be Performed	Proposal Price

I, _____, _____ certify that the
(Name) (Title)
above identified contractors were contacted to obtain qualified MBE/WB quotations for the _____
_____ Project, also listed above.

SIGNED: _____

EXHIBIT 4

IDENTIFIED UNAVAILABLE DBEs

Submitting Contractor: _____
Project Name and Number: _____
Date: _____

Date	MBE/ WBE	Name and Address of Person Contacted	Telephone Number	Type of Work to be Performed

I, _____, _____ certify that the
(Name) (Title)
above identified contractors were contacted to obtain qualified MBE/WB quotations for the _____ _____ Project, also listed above, and that each subcontractor states unavailability or non-interest in performance of work.

SIGNED: _____

LIST OF PRIME AND SUBCONTRACTORS
MANDATORY BID SUBMISSION FORM

The undersigned states that the following is a full and complete list of proposed prime contractor and sub-contractors on this Project and the class of work to be performed by each, and that such list will not be added to nor altered without the written consent of the Owner.

Prime Contractor, Subcontractor Consultants and Address	Class of Work to be Performed
1) _____	_____
_____	_____
2) _____	_____
_____	_____
3) _____	_____
_____	_____
4) _____	_____
_____	_____
5) _____	_____
_____	_____
6) _____	_____
_____	_____

Date:_____ **Bidder/Proposer**_____

Signed:_____ **Title:**_____

ATTACH

"EVIDENCE OF COMPETENCY"

and

"EVIDENCE OF FINANCIAL RESPONSIBILITY"

per

SECTION 20-02 OF THE GENERAL CONDITIONS

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
1	C-100	Contractor Quality Control Program (CQCP)		LS	1		
2	C-102	Temporary Seeding and Mulching		Acre	30		
3	C-102	Temporary Inlet Protection		Each	6		
4	C-102	Temporary Construction Entrance		Each	1		
5	C-102	Installation and Removal of Temporary Silt Fence		LF	5,400		
6	C-102	Excelsior Matting		SY	2,100		
7	C-102	Downspout Outlet Protection		Each	14		
8	C-102	Rip Rap Pipe Outlet Protection		SY	3		
9	C-102	Vegatative Filter Strip		SY	5,500		
10	C-102	Floating Turbidity Barrier		LF	100		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
11	C-102	Concerete Washout Structure		Each	1		
12	C-105	Mobilization		LS	1		
13	TCI	Temporary Construction Items		LS	1		
14	P-101	Bituminous Pavement Removal		SY	32,000		
15	P-101	Cold Milling, Pavement Transitions		SY	1100		
16	P-101	Removal of Existing 12 Inch R.C. Pipe		LF	55		
17	P-101	Removal of Existing 24 Inch R.C. Pipe		LF	750		
18	P-101	Removal of Existing Headwall		Each	4		
19	PSP-37	Concrete Encasement-Existing 2" PVC Forcemain		LF	70		
20	PSP-37	Concrete Encasement-Existing 2" Fiber Optic Conduit		LF	70		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
21	P-152	Unclassified Excavation		CY	31,500		
22	P-152	Undercut Excavation		CY	1,000		
23	P-152	Borrow Embankment		CY	11,000		
24	P-152	Shoulder Grading		SY	1,800		
25	SP	Subgrade Preparation		SY	16,000		
26	P-209	Crushed Aggregate Base Course		CY	3,200		
27	PMBP	Bituminous Base Course - SCDOT Type "A"		Ton	550		
28	P-401	Asphalt Surface Course		Ton	4,200		
29	PSP-37	Hangar Access Drive		SY	1,540		
30	P-602	Emulsified Asphalt Prime Coat		Gal	4,350		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
31	P-603	Emulsified Asphalt Tack Coat		Gal	1,300		
32	P-620	Surface Preparation for Marking		SF	6,300		
33	P-620	Permanent Pavement Marking (First Application) - White Paint with Rust Inhibitor		SF	4,250		
34	P-620	Permanent Pavement Marking (Final Application) - White Paint with Rust Inhibitor and Type III Beads		SF	3,600		
35	P-620	Permanent Pavement Marking (Final Application) - White Paint with Rust Inhibitor		SF	660		
36	P-620	Permanent Pavement Marking (First Application) - Yellow Paint		SF	1,180		
37	P-620	Permanent Pavement Marking (Final Application) - Yellow Paint with Type III Beads		SF	1,180		
38	P-620	Permanent Pavement Marking - Black Paint		SF	680		
39	P-620	Surface Painted Holding Position Sign (Runway 23)		Each	2		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
40	D-701	15 Inch Reinforced Concrete Pipe (Class III)		LF	688		
41	D-701	18 Inch Reinforced Concrete Pipe (Class III)		LF	438		
42	D-701	15 Inch Concrete Flared End Section		Each	2		
43	D-701	18 Inch Concrete Flared End Section		Each	1		
44	D-751	Precast Concrete Drop Inlet		Each	6		
45	PSP-37	Rip Rap Emergency Spillway and Concrete Wier		LS	1		
46	T-901	Seeding		Acre	25		
47	T-901	Watering		1,000 Gallons	980		
48	T-904	Bermudagrass Sodding		SY	2,000		
49	T-908	Mulching		Acre	25		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
50	PSP-37	EDA Project Sign		LS	1		
51	L-108	Counterpoise Trench		LF	3,000		
52	L-108	Temporary Jumper Cable (L-824, No. 8 AWG, 5kV, Type C) Installed		LF	290		
53	L-108	L-824C Underground Cable, 1/C, No. 8 AWG, 5kV, Type C, Installed in Conduit		LF	6,000		
54	L-108	Solid Bare Copper Counterpoise Wire, No. 6 AWG, Installed in Trench or Above Duct Bank Including Ground Rods and Grounding Connectors		LF	3,800		
55	L-108	Supplemental Ground Rod, Including Trenching, No. 6 AWG Counterpoise and Connections		Each	48		
56	L-110	2 Inch PVC Conduit (Schedule 40), in Trench		LF	4,500		
57	L-110	1 Way Concrete Encased 2" PVC Duct		LF	750		
58	L-110	2 Way Concrete Encased 2 Inch PVC Duct		LF	70		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
59	L-110	Connection of Conduit or Duct to Existing Light Base		Each	2		
60	L-115	Electrical Junction Can, L-867(D), 24 Inch Deep, Class 1A with Galvanized Steel Cover, Including Ground Rods and Connectors, Installed		Each	10		
61	L-125	Removal of Existing Handholes or Junction Boxes		Each	2		
62	L-125	Removal of Existing Concerete Duct		LF	190		
63	L-125	Medium Intensity Taxiway Edge Light, Type L-861T(L), Base Mounted, Including Ground Rods and Connectors, Installed		Each	36		
64	L-125	New Guidance Sign, L-858(L), Size 2, Single Faced, One Module, Installed		Each	1		
65	L-125	New Guidance Sign, L-858(L), Size 2, Single Faced, Two Module, Installed		Each	1		
66	L-125	New Guidance Sign, L-858 Unlighted, Size 2, 72 Inch Overall Length, Installed		Each	1		

Georgetown County Airport
Schedule I - Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101 Bid No.: 23-037

Bidder: _____

Item	Spec.	Description	Unit Price in Words	Unit	Quantity	Unit Price	Ext. Total
67	L-125	Installation of Taxiway Light Number Tags		LS	1		
68	PSP-37	Light Base Drainage Sump, Installed		Each	6		

Total - Base Bid _____

Contract Time: See Project Special Provisions - Section PSP-5

Liquidated Damages: See Project Special Prtovisions - Section PSP-5

APPENDIX 'B'
DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

"APPENDIX B"

DISADVANTAGED BUSINESS ENTERPRISE (DBE) SUPPLEMENTAL SPECIFICATION

GEORGETOWN COUNTY.

It is the policy of Georgetown County to ensure nondiscrimination in the award and administration of federally assisted contracts and to use Disadvantaged Business Enterprises (DBEs) in all types of contracting and procurement activities according to State and Federal laws. To that end Georgetown County has established a DBE program in accordance with regulations of the United States Department of Transportation (USDOT) found in 49 CFR Part 26.

This document, known as the "DBE Supplemental Specifications" includes two main parts:

Part A. "Instructions to Bidders – Pre-award Requirements"
Part B. "Instructions to Contractors – Post-award Requirements."

PART A. INSTRUCTIONS TO BIDDERS – PRE- AWARD REQUIREMENTS

When incorporated into Local Public Agency procurements, the terms "bid", "bidder", and "bid letting" shall mean "proposal", "proposer" and "proposal opening."

DBE CONTRACT GOAL

A. The DBE participation goal for this contract is **10.9%.**

B. The successful bidder shall exercise all necessary and reasonable steps to ensure that DBEs perform services or provide materials on this contract in an amount that meets or exceeds the DBE contract goal and commitment. Submitting the bid, including electronically, shall constitute an agreement by the bidder that if awarded the contract, it will meet or exceed the DBE contract goal and commitment or make good faith efforts to meet the goal or commitment. Failure to meet the contract goal or make good faith efforts to meet the contract goal will result in the the bid being considered irregular and subject to rejection, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

DBE COMMITTAL

A. Each bidder shall enter all the information regarding how it intends to meet the DBE goal in the attached Exhibit 1 – Disadvantaged Business Enterprise (DBE) Committal Sheet. The listing of DBEs shall constitute a commitment by the bidder to utilize the listed DBEs, subject to the replacement requirement set forth below in section "Replacement of Certified DBEs -Section B". A DBE listed on the DBE List or DBE Committal Sheet hereinafter shall be referred to as a "committed DBE."

B. In meeting the DBE contract goal, the bidder shall use only certified DBEs included in the "South Carolina Unified Certification Program DBE Directory" (hereinafter referred to as the "Unified DBE Directory.") The "Unified DBE Directory" is available on line.

C. Failure to provide all information required in the DBE Committal Sheet will make the bid irregular and subject to rejection, resulting in the contract being awarded to the next lowest responsible and responsive bidder.

D. For non-electronic bidding for Local Public Agency procurements, use the attached DBE Committal Sheet for listing proposed DBE commitments.

The following information must be selected or entered in the electronic bid:

(1) The names and addresses of certified DBEs whose services or materials will be used in the contract.

(2) An Item of work, approximate Quantity of work to be performed or materials to be supplied, Unit (of measurement), Unit Price, and the extended dollar amount of participation by each DBE listed.

(a) Item: The Item is the bid item with which the DBE will be associated and must be selected from the Schedule of (Bid) Items. If the proposed work is for only a portion of an Item of work (i.e. hauling of materials, tying of reinforced steel, etc.) an adequate description of this work shall be included in the Note block.

(b) Quantity, Unit, & Unit Price: Initially when an Item is selected, the contract quantity, unit, and the bidder's unit price and extension will appear. If the proposed work is for only a portion of an item as described in (1) above, then the Quantity, Unit Price and /or Extension shall be changed to reflect the actual amount of work committed to the DBE. The Unit (of measurement) cannot be changed.

(3) The bidder must also submit a copy of a signed statement or quote from each of the DBEs listed in the DBE committal sheet. The signed statements or quotes should verify the items, quantities, units, unit prices, and dollar values listed in the DBE committal sheet. COPIES OF THE SIGNED STATEMENTS MUST BE SUBMITTED TO GEORGETOWN COUNTY DEPARTMENT OF PURCHASING WITHIN FOUR (4) CALENDAR DAYS OF THE BID LETTING from the apparent low bidder. Should the apparent low bid be rejected for failing to meet the goal, the next apparent low bidder will have three (3) calendar days from notification to submit the signed quotes. GEORGETOWN COUNTY will accept facsimiles of the verified statements with the caveat that the bidder must furnish the original document to GEORGETOWN COUNTY upon request. Signed quotes must be on the DBEs letterhead and contain the following information: date, printed name, address, and phone number of the authorized individual providing the quote, project name and identification number, quote needs to be addressed to contractor from the DBE, and identify specific services being performed and/or material being supplied.

GOOD FAITH EFFORTS REQUIREMENTS

A. Requirements for Submission for Approval of a Good Faith Effort. If the bidder does not meet the DBE contract goal through the DBE committals submitted with the bid, it is the bidder's responsibility to request, in writing (faxes and emails are acceptable), a good faith effort review by 5:00 pm of the next business day after they submit their bid. Bidder must submit additional information to satisfy to GEORGETOWN COUNTY that good faith efforts have been made by the bidder in attempting to meet the DBE contract goal. **THIS SUPPORTING INFORMATION/DOCUMENTATION MUST BE FURNISHED TO GEORGETOWN COUNTY IN WRITING WITHIN THREE (3) CALENDAR DAYS OF THE BID LETTING.** One complete set and five (5) copies of this information must be received by Contract Administration no later than 12:00 noon of the third calendar day following the bid letting. Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a sample representative letter along with the list of the firms being solicited. The documented efforts listed in item (C.) below are some items GEORGETOWN COUNTY will consider in evaluating the bidder's good faith efforts. The documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documents.

B. Failure to Submit Required Material. If the bidder fails to provide this information by the deadline, the bid is considered irregular and may be rejected.

C. Evaluation of a Good Faith Effort. GEORGETOWN COUNTY may consider the following factors in judging whether or not the bidder made adequate and acceptable good faith efforts to meet the DBE contract goal:

(1) Did the bidder attend any pre-bid meetings that were scheduled by GEORGETOWN COUNTY to inform DBEs of subcontracting opportunities?

(2) Did the bidder provide solicitations through all reasonable and available means (e.g. posting a request for quotes from DBE subcontractors on SCDOT Construction Extranet webpage; attendance at pre-bid meetings, advertising and/or written notices at least 10 days prior to the letting; or showing the bidder provided written notice to all DBEs listed in the "Unified DBE Directory" that specialize in the areas of work in which the bidder will be subcontracting).

(3) Did the bidder follow-up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested or not? If a reasonable amount of DBEs in the area of work do not provide an intent to quote, or there are no DBEs that specialize in the area of work to be subcontracted, did the bidder call GEORGETOWN COUNTY DEPARTMENT OF PURCHASING to give notification of the bidder's inability to obtain DBE quotes?

(4) Did the bidder select portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goal? This includes, where appropriate, breaking out contract items of work into economically feasible units to facilitate DBE participation, even when the bidder might otherwise perform these items of work with its own forces.

(5) Did the bidder provide interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract?

(6) Did the bidder negotiate in good faith with interested DBEs, or reject them as unqualified without sound reasons based on a thorough investigation of their

capabilities? Any rejection should be noted in writing with a description as to why an agreement could not be reached. The fact that the bidder has the ability or desire to perform the work with its own forces will not be considered as sound reason for rejecting a DBEs quote.

(7) Was a quote received from an interested DBE, but rejected as unacceptable because it was not the lowest quote received? The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in and of itself be considered as a sound reason for rejecting the quotation as unacceptable, as long as the quote is not unreasonable.

(8) Did the bidder specifically negotiate with non-DBE subcontractors to assume part of the responsibility to meet the contract goal when the work to be sublet includes potential for DBE participation?

(9) Any other evidence that the bidder submits which demonstrates that the bidder has made reasonable good faith efforts to include DBE participation.

(10) The DBE commitments submitted by all other bidders who were able to meet the DBE contract goal.

(11) Did the bidder contact SCDOT/GEORGETOWN COUNTY for assistance in locating certified DBEs?

D. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE contract goals.

E. GEORGETOWN COUNTY may give the bidder an opportunity to cure any deficiencies resulting from a minor informality or irregularity in the DBE commitment or waive any such deficiency when it is in the best interest of the County. A minor informality or irregularity is one which is merely a matter of form or is some immaterial variation from the exact requirements of the invitation for bids having no effect or merely a trivial or negligible effect on DBE contract goal, quality, quantity, or delivery of the supplies or performance of the contract, and the correct or waiver of which would not be prejudicial to bidders.

DETERMINATION AND RECONSIDERATION PROCEDURES

A. After the letting, GEORGETOWN COUNTY will determine whether or not the low bidder has met the DBE participation contract goal or made good faith efforts to meet the goal. If GEORGETOWN COUNTY determines that the apparent low bidder failed to meet the goal, did not demonstrate a good faith effort to meet the goal, or meet the requirements of a commercially useful function, GEORGETOWN COUNTY will notify the apparent low bidder of its determination by email and by US Mail or hand-delivery. The apparent low bidder may request a reconsideration of this determination.

B. The bidder must make a request for reconsideration in writing within three (3) calendar days of receipt of the determination. Within six (6) calendar days of receipt of the determination, the bidder must provide written documentation to GEORGETOWN COUNTY supporting its position. Only documentation dated within three (3) calendar days of the bid letting may be used in support of its position. No DBE goal efforts performed after 3 calendar days of the bid will be allowed as evidence. If the bidder fails to request a reconsideration within three (3) calendar days, the determination shall be final.

C. To reconsider the bidder's DBE commitment or good faith efforts, GEORGETOWN COUNTY will designate a panel of three (3) GEORGETOWN COUNTY employees, who did not take part in the original determination (hereinafter referred to as the "Reconsideration Panel"). The Reconsideration Panel will contact the bidder and schedule a meeting. The Reconsideration Panel will make reasonable efforts to accommodate the bidder's schedule; however, if the bidder is unavailable or not prepared for a hearing within ten (10) calendar days of receipt of GEORGETOWN COUNTY original written determination, the bidder's reconsideration rights will be considered to have been waived.

D. The meeting will be held at the GEORGETOWN COUNTY administrative offices. The bidder will be allowed up to two (2) hours to present written or oral evidence supporting its position.

E. The Reconsideration Panel will issue a written report and recommendation to the GEORGETOWN COUNTY ADMINISTRATOR. GEORGETOWN COUNTY shall not award the contract until the GEORGETOWN COUNTY ADMINISTRATOR issues a decision or the bidder waives its reconsideration right either through failure to request reconsideration or failure to be available for the meeting. The GEORGETOWN COUNTY ADMINISTRATOR will notify the bidder of the final decision in writing.

CONSEQUENCES OF FAILURE TO COMPLY WITH DBE PROVISIONS

A. Failure on the part of the bidder to meet the DBE contract goal or to demonstrate good faith efforts to meet the DBE contract goal will result in the bid being declared irregular and may be rejected resulting in the contract being awarded to the next lowest responsible and responsive bidder. Upon rejection, the award may be made to the next lowest responsible and responsive bidder.

B. After bid letting, but prior to award, GEORGETOWN COUNTY reserves the right to cancel the project, or any or all bids or proposals may be rejected in whole or part, when it is in the best interest of the State.

DIRECTORY OF SOUTH CAROLINA CERTIFIED DISADVANTAGED BUSINESS ENTERPRISES

A. The "Unified DBE Directory" approved for use in each particular letting is available on line. The bidder is advised that this directory pertains only to DBE certification and not to qualifications. It is the bidder's responsibility to determine the actual capabilities and/or limitations of the certified DBE firms. The directory can be found at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

B. In meeting the DBE participation contract goal, the bidder shall use only DBEs that are included in the "Unified DBE Directory" contained on-line, are current for the month the bid is submitted. The bidder may only count toward the DBE goal work in the areas for which the DBE has been certified, unless prior written approval from GEORGETOWN COUNTY is obtained. The bidder and the DBE must jointly apply to GEORGETOWN COUNTY for approval of work in an area of work other than that in which the DBE has been certified. The requested work must be in an area related to the area of work in which the DBE has been

certified. Such requests must be submitted in writing to the GEORGETOWN COUNTY no later than ten (10) calendar days prior to the date of the letting. GEORGETOWN COUNTY has the right to approve or disapprove the request. GEORGETOWN COUNTY will give the bidder and the DBE written notice of his decision no later than five (5) calendar days prior to the date on which bids are received. If approved, a copy of the written approval must accompany the submission of the subcontractor's quote.

C. Certification of a DBE for work in a certain area of work or approval to perform work in a related area shall not constitute a guarantee that the DBE will successfully perform the work or that the work will be performed completely. Such certification or approval shall only imply that the successful completion of the work by the DBE can count toward satisfying the DBE contract goal in accordance with the counting rules set forth in 49 CFR Part 26 (see section "Counting Certified DBE Participation Toward Meeting the DBE Goal" below.)

D. The bidder may print a copy of the "Unified DBE Directory" from SCDOT web page at http://www.scdot.org/doing/businessDevelop_SCUnified.aspx.

ADDITIONAL DBE PARTICIPATION

The bidder is strongly encouraged to obtain the maximum amount of DBE participation feasible on the contract. Any DBE participation in excess of the DBE contract goal shall also be included in the DBE Quarterly Reports.

CONTRACTOR'S REQUIRED SUBMISSION: Contractor The prospective must submit the following information/forms concerning DBE participation in the contract with the bid.

- ☐ Exhibit 1 DBE Committal Sheet
- ☐ Exhibit 2 DBE Subcontractor Data
- ☐ Exhibit 3 DBE Contact Schedule
- ☐ Exhibit 4 Identified Unavailable DBEs
- ☐ Include Copy of each DBE's SCDOT Unified Certification
- ☐ *Good Faith Effort Documentation

PART B. INSTRUCTIONS TO CONTRACTORS – POST-AWARD REQUIREMENTS

CONTRACTOR'S OBLIGATIONS

A. 49 CFR 26. The Contractor shall carry out the applicable requirements of 49 CFR Part 26 and these DBE Supplemental Specifications in the award and administration of this contract. Failure by the Contractor to carry out these requirements is a material breach of the contract, and may result in the termination of the contract or such other remedy as GEORGETOWN COUNTY deems appropriate.

B. Meeting both the Goal and Commitment or Making Good Faith Efforts to Meet the Goal and Commitment. It is the Contractor's responsibility to meet or make good faith efforts to meet the DBE contract goal and commitments. Failure to meet the goal or commitments to the specific DBEs listed on the committal sheet or to demonstrate good faith efforts to meet the goal or commitments may result in any one or more of the following sanctions:

(1) Withholding monthly progress payments;
(2) Declaring the Contractor in default pursuant to Contract provisions and terminating the contract;
(3) Assessing sanctions in the amount of the difference in the DBE contract committal and the actual payments made to each certified DBE;
(4) Disqualifying the Contractor from bidding pursuant to Regulation 63-306, Volume 25A, of the S. C. Code of Laws; and/or
(5) Requiring the Contractor to obtain DBE participation on future contracts to the extent the Contractor failed to meet or use good faith efforts to meet the DBE contract goal.

C. Using the DBEs shown on the Committal Sheet to Perform the Work. The Contractor must utilize the specific DBEs listed on the "DBE Committal Sheet" to perform the work and supply the materials for which each is listed unless the Contractor obtains prior written approval from GEORGETOWN COUNTY to perform the work with other forces or obtain the materials from other sources as set forth in section "Replacement of Certified DBEs - Section B" below. The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or, with prior written approval of GEORGETOWN COUNTY, by other forces (including those of the Contractor). Failure to meet a commitment to a specific DBE may result in the sanctions listed in section "Contractor's Obligations - Section B" above, unless prior written approval is obtained for replacement of the committed DBE.

When GEORGETOWN COUNTY makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Contractor will not be required to seek additional participation. When GEORGETOWN COUNTY makes changes that result in additional work to be performed by a DBE based upon the Contrator's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original work.

D. Incorporating DBE Supplemental Provisions in Subcontracts. The Contractor shall make available, at the request of GEORGETOWN COUNTY, a copy of all DBE subcontracts. The Contractor shall ensure that all subcontracts or agreements with DBEs to supply labor or materials require that the subcontract and all lower tier subcontracts be performed in accordance with these DBE Supplemental Specifications. The contractor is advised to insert the following provision in each subcontract or agreement:

> "This contract or agreement shall be performed in accordance with the requirements of the GEORGETOWN COUNTY DBE Project Specification".

REPLACEMENT OF CERTIFIED DBEs

A. Requirement for Replacement. The following shall apply to replacement of a DBE listed on the "DBE Committal Sheet":

(1) *When a DBE listed on the DBE committal sheet (hereafter referred to as a "committed DBE") is unable or unwilling to perform the work in accordance with the subcontract,* the Contractor shall follow the replacement procedures in section "Replacement of Certified DBEs - Section B" below. Failure on the part

of the Contractor to comply with this requirement shall constitute a breach of contract and may be cause for the imposition of the sanctions set forth in section "Contractor's Obigations - Section B" above.

(2) *When a committed or non-committed DBE is decertified or removed from the SC Unified DBE Directory after execution of a valid subcontract agreement with the Contractor*:

(a) The Contractor may continue to utilize the decertified DBE on the contract and receive credit toward the DBE contract goal for the DBEs work unless the Contractor is implicated in the DBE decertification. However, the Contractor is encouraged to replace the decertified DBE with a certified DBE where feasible.

(b) If a *committed or non-committed* DBE is removed from the SC Unified DBE Directory due to graduation from the DBE program, the Contractor may continue to utilize the graduated DBE on the contract and receive credit toward the DBE contract goal for the DBEs work.

(3) *When a committed DBE is decertified or removed from the SC Unified DBE Directory prior to execution of a valid subcontract agreement with the Contractor, the* Contractor shall follow the replacement procedures in section "Replacement of Certifed DBEs - Section B" below. Failure on the part of the Contractor to comply with this requirement shall constitute a breach of the contract and may be cause for the imposition of the sanctions set forth in Contractor's Obligations - Section B above.

B. Replacement Procedures. In order to replace a *committed* DBE, the Contractor must obtain prior written approval from GEORGETOWN COUNTY. Prior to requesting GEORGETOWN COUNTY's approval to terminate and/or substitute a committed DBE, the Contractor is to give notice to the DBE subcontractor in writing (certified mail) with a copy provided to GEORGETOWN COUNTY. The purpose of this notice is to both inform the DBE subcontractor of the Contractor's intent to request GEORGETOWN COUNTY's approval to terminate and/or substitute as well as to outline the reasons for the request. The DBE subcontractor shall be given five (5) calendar days from receipt of notice to provide a written response stating either its consent or its reasons why it objects to the proposed termination. On a case by case basis and at GEORGETOWN COUNTY's sole discretion, a shorter response period than five calendar days may be allowed as a matter of public necessity. If GEORGETOWN COUNTY determines a shorter response period is justified, the contractor and committed DBE will be advised in writing. In no case shall the Contractor's ability to negotiate a more advantageous contract with another subcontractor be considered a valid basis for replacement. If the Contractor obtains the GEORGETOWN COUNTY's approval for the replacement, the Contractor shall replace the committed DBE with another certified DBE or make good faith efforts to do so as set forth in section "Replacement of Certified DBEs - Section C" below. Any DBE who is certified at the time of replacement may be used as a replacement. If GEORGETOWN COUNTY does not approve of the replacement, the Contractor shall continue to use the *committed* DBE in accordance with the contract. Failure to do so may constitute cause for imposition of any of the sanctions set forth in section "Contractor's Obligations - Section B" above.

C. Good Faith Efforts. After approval for replacement is obtained, if the Contractor is not able to find a replacement DBE, the Contractor shall provide GEORGETOWN COUNTY with documentation of its good faith efforts to find a replacement. This documentation shall include, but is not limited to, the following:

(1) Copies of written notification to certified DBEs that their interest is solicited in subcontracting the work defaulted by the previous certified DBE or in subcontracting other items of work in the contract.

(2) Statement of efforts to negotiate with certified DBEs for specific subbids including at a minimum:

(a) Names, addresses and telephone numbers of certified DBEs who were contacted;
(b) Description of the information provided to certified DBEs regarding the plans and specifications for portions of the work to be performed;
(c) Statement of why additional agreements with certified DBEs were not reached.

(3) For each certified DBE contacted but rejected, the reasons for the Contractor's rejection. Failure to find a replacement DBE at the original price is not in itself evidence of good faith.

(4) Documentation demonstrating that the Contractor contacted GEORGETOWN COUNTY's Department of Purchasing for assistance in locating certified DBEs willing to take over that portion of work or do other work on the contract.

If GEORGETOWN COUNTY determines that the Contractor has made good faith efforts to replace the committed DBE with another certified DBE, then the remaining portion of the DBEs work shown on the "DBE Committal Sheet" can be completed by the Contractor's own forces or by a non-DBE subcontractor approved by GEORGETOWN COUNTY. The Contractor will not be required to make up that part of the DBE goal attributable to the portion of work not completed by the committed DBE, and this shortfall in meeting the DBE goal will be waived by GEORGETOWN COUNTY.

If GEORGETOWN COUNTY determines that the Contractor has not made good faith efforts to replace the committed DBE with another certified DBE, such failure may constitute cause for imposition of any of the sanctions set forth in Contractor's Obligations - Section B above.

D. Payment from GEORGETOWN COUNTY. The Contractor shall not be entitled to payment for work or material committed to a committed DBE unless:

(1) The work is performed by the *committed* DBE; or
(2) The work is performed by another certified DBE after GEORGETOWN COUNTY has given approval to replace the committed DBE as provided above; or

(3) The work is performed by a non-DBE after GEORGETOWN COUNTY determines that the Contractor has demonstrated good faith efforts to replace the committed DBE as provided above.

COUNTING CERTIFIED DBE PARTICIPATION TOWARD MEETING THE DBE GOAL

DBE participation shall be measured by the actual, verified payments made to DBEs subject to the following rules (all references to "DBE" herein shall mean "certified DBE"). The Contractor is bound by these rules in regard to receiving and reporting credit toward the DBE contract goal. The Contractor shall report on DBE Quarterly Reports only the amounts properly attributable toward the goal under these rules.

A. General Counting Rules.

(1) The entire amount of that portion of a construction contract (or other contract not covered by Paragraph A(2) of this Section) that is performed by the DBEs own forces may be counted toward the goal. The cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate) can be counted toward the goal.

(2) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is also a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.

(3) The Contractor can count expenditures to a DBE only if the DBE is certified by SCDOT, except as provided in section "Replacement of Certified DBEs - Paragraph (A)(2)" above, in the event a DBE loses eligibility status after a subcontract is signed.

(4) The Contractor can count expenditures to a DBE only after the DBE has actually been paid.

B. Joint Ventures. When a DBE performs as a participant in a joint venture, the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces can be counted toward DBE goals. A joint venture must be approved by GEORGETOWN COUNTY prior to start of the contract.

C. Commercially Useful Function. Expenditures to a DBE contractor can be counted toward DBE goals only if the DBE is performing a commercially useful function on that contract:

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is

performing a commercially useful function, GEORGETOWN COUNTY will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, GEORGETOWN COUNTY will examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, GEORGETOWN COUNTY will presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in Paragraph (3) of this Section, the DBE may present evidence to rebut this presumption. GEORGETOWN COUNTY may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) GEORGETOWN COUNTY's decisions on commercially useful function matters are subject to review by the Federal Highway Administration, but are not administratively appealable to the USDOT.

D. Special Rules for Trucking Companies. GEORGETOWN COUNTY will use the following rules to determine whether a DBE trucking company is performing a commercially useful function and what portion of the DBE work can be counted toward DBE goals:

(1) ***DBE must control all work.*** To be considered as performing a commercially useful function, the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) ***DBE must "own" at least one truck***. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the project. For purposes of this Section, a DBE will be considered to "own" a truck if:

a) the truck is titled in the DBEs name; or,

b) the DBE leases the truck under a valid lease-to-own agreement and the driver of the truck is an employee of the DBE.

The DBE must submit documentation to GEORGETOWN COUNTY to establish the number of trucks the DBE owns, operates and insures. The DBE must submit the documentation to GEORGETOWN COUNTY's Department of Purchasing at the time of certification, annual reporting on certification requirements, or at any time during the year that the DBE obtains additional trucks.

(3) ***Counting DBE trucking toward DBE goal***. The Contractor can count toward DBE goals the total value of the transportation services the DBE provides using trucks the DBE owns, insures, and operates using drivers the DBE employs.

(4) ***Counting subcontracted DBE trucking toward DBE goal.*** The DBE may subcontract with another DBE firm, including an Owner-operator who is certified as a DBE, to provide trucks on a project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided by the DBE subcontractor.

(5) ***Counting subcontracted non-DBE trucking toward the goal.*** The DBE may lease trucks from a non-DBE firm, including an Owner-operator, to provide trucks on a project. Prior to beginning work, the DBE must provide the ENGINEER with a list identifying all DBE and non-DBE trucks and truck numbers that will be used on the project. In this case, the Contractor may count toward the DBE goal the total value of the transportation services provided in each quarter by the non-DBE trucks, not to exceed the value of the transportation services provided by DBE-owned trucks in that quarter. For example, in a given quarter, if DBE-owned trucks provide transportation services of $50,000, while non-DBE trucks provide transportation services of $75,000, a maximum of $100,000 can be counted toward the DBE goal in that quarter.

For purposes of this Paragraph (5), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the lease truck. Leased trucks must display a placard with the name and USDOT identification number of the DBE leasing the truck. The placard must be legible and visable when standing at least 15 feet from the driver's side of the truck. It may be affixed to the side of the truck or inside the cab window as long as it does not interfere with the safe operation of the truck. See example below.

Sample placard:

Operated by:

Bell's Trucking,LLC
USDOT 123456

NOTE: DBE firms may not receive credit for DBE participation when leasing non-DBE owned trucks from the Prime Contractor with whom the DBE firm is subcontracted as 49 CFR 26.55(a)(1) applies.

E. DBE Manufacturers and Dealers. The Contractor can count expenditures with DBEs for materials or supplies toward DBE goals in accordance with the following rules:

(1) *DBE Manufacturers*. If the materials or supplies are obtained from a DBE manufacturer, the Contractor can count 100 percent of the cost of the materials or supplies toward DBE goals. For purposes of this Paragraph, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under

the contract and of the general character described by the specifications. The DBE must be listed as a "manufacturer" in the "South Carolina Unified DBE Directory" to be considered a manufacturer for purposes of these counting rules.

(2) *DBE Dealers*. If the materials or supplies are purchased from a DBE regular dealer, the Contractor can count 60 percent of the cost of the materials or supplies toward DBE goals. For purposes of this Section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. The DBE must be listed as a "dealer" in the "South Carolina Unified DBE Directory" to be considered a dealer for purposes of these counting rules.

(3) *DBE Brokers*. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of material or supplies required on a job site, toward DBE goals.

JOINT CHECKS.

GEORGETOWN COUNTY must approve all requests for a Contractor to issue and use joint checks with a DBE. The following conditions apply:

A. The DBE must submit a request to the GEORGETOWN COUNTY which includes a formalized agreement between all parties that specify the conditions under which the arrangement will be permitted;

B. The DBE remains responsible for all other elements of 49 CFR 26.55(c)(1). GEORGETOWN COUNTY must clearly determine that independence is not threatened because the DBE retains final decision making responsibility;

C. There can be no requirement by the prime contractor that a DBE use a specific supplier nor the prime contractor's negotiated unit price.

REPORTS

The Contractor shall furnish to GEORGETOWN COUNTY the following reports and information. THIS REQUIREMENT APPLIES REGARDLESS OF WHETHER THERE IS A CONTRACT GOAL ASSIGNED TO THE CONTRACT.

A. DBE Quarterly Reports. The Contractor shall provide to GEORGETOWN COUNTY, DBE Quarterly Reports showing the dollar amount of payments to each certified DBE. The Contractor and each DBE that received payment must sign the report. The Contractor's and DBE's signature on the Quarterly Report shall constitute certification that the DBE has performed the work and that the Contractor is entitled to credit toward the DBE goal for the

amount shown in accordance with the counting rules set forth in section "Counting Certified DBE Participation Toward Meeting the DBE Goal" above. The report shall include the amount paid each DBE for the quarter and the total amount paid to each DBE on the contract. The report must include DBE subcontractors, hauling firms, and suppliers. The report shall be submitted in duplicate to the ENGINEER by the 15th of the month after each calendar quarter (January, April, July, and October 15). Failure to submit the quarterly report may result in the withholding of monthly progress and/or final payment. The Quarterly Report must be submitted for each quarter even if no payments have been made to a DBE in that quarter. When no payments have been made to a DBE in a quarter, DBEs are not required to sign the report.

B. Trucker's Reports. All DBE haulers must complete and submit a DBE Trucker's Report along with the DBE quarterly report when the DBE leases trucks from another firm. The DBE hauler must list all trucks leased, payments made to the lessee during the quarter, and identify whether each leased truck is owned by a certified DBE or non-DBE. DBE Haulers must also submit one copy of each lease agreement to the ENGINEER prior to the start of work for each truck leased. A lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

C. Other Documents. Upon request of GEORGETOWN COUNTY, the Contractor and all subcontractors shall furnish documents, including subcontracts, necessary to verify the amount and costs of the materials or services provided by certified DBE suppliers or subcontractors. The Contractor shall keep the documents that verify this information for at least three years from the date of final close-out of the contract. Failure to provide these documents upon request may result in the withholding of monthly progress and/or final payment or disqualifying the Contractor from bidding pursuant to R. 63-306, South Carolina State Regulations.

CONTRACT COMPLETION – DETERMINATION OF WHETHER CONTRACTOR HAS MET THE GOAL OR MADE GOOD FAITH EFFORTS

A. Review by GEORGETOWN COUNTY. After receipt of the final DBE Quarterly Reports, GEORGETOWN COUNTY will review the necessary contract documentation to determine whether the Contractor has met the DBE commitments and contract goal.

B. Notification of Failure to Meet Goal. If the documentation indicates that the Contractor has not met the DBE commitments and contract goal, GEORGETOWN COUNTY will notify the Contractor in writing and request documentation of the Contractor's good faith efforts to meet the goal.

C. Determination of Good Faith Efforts. The Contractor shall submit documentation demonstrating good faith efforts to meet the contract commitments and goal to the GEORGETOWN COUNTY within thirty (30) calander days of the date of the "Notification of Failure to Meet Goal." GEORGETOWN COUNTY will provide the Contractor with written notice of GEORGETOWN COUNTY's determination whether good faith efforts have been demonstrated.

D. Request for Reconsideration. If the Contractor disagrees with GEORGETOWN COUNTY's determination of post construction compliance, the Contractor may request a reconsideration by filing a written request with GEORGETOWN COUNTY within ten (10) calender days after receipt of the determination. The Contractor shall submit any additional documentation that it wishes to be considered in support of its position within ten (10) calendar days of its request for reconsidertation. If the Contractor fails to request a reconsideration within ten (10) calendar days, the determination shall be final. If the Contractor requests reconsideration, GEORGETOWN COUNTY will appoint a Reconsideration Official who did not take part in the original determination to review the decision and supporting documentation (hereinafter referred to as the "Reconsideration Official"). The Reconsideration Official will contact the Contractor and schedule a meeting with the Contractor. The meeting will be held at Georgetown County Administration Offices in Georgetown, SC. At the meeting, the Contractor will have an opportunity to present oral and written evidence to demonstrate that good faith efforts were made to meet the DBE commitments and contract goal. The Reconsideration Official may also consider evidence presented by GEORGETOWN COUNTY at the same meeting. After the meeting, the Reconsideration Official will issue a written report and recommendation to GEORGETOWN COUNTY. GEORGETOWN COUNTY shall make the final decision on the issue. GEORGETOWN COUNTY will notify the Contractor of the final decision in writing.

Note:
49 CFR 26 defines days to mean calendar days. In computing any period of time described in this part, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal holiday, the period extends to the next day that is not a Saturday, Sunday, or Federal holiday. Similarly, in circumstances where the recipient's offices are closed for all or part of the last day, the period extends to the next day on which the agency is open.

EXHIBIT 1

May 2014

DISADVANTAGED BUSINESS ENTERPRISES (DBE) COMMITTAL SHEET

Information must be shown on this sheet as required by the supplemental specifications entitled ""*Disadvantaged Business Enterprises (DBE) Supplemental Specification*" included in this proposal.

FAILURE TO PROVIDE ALL INFORMATION REQUIRED ON THIS FORM MAY RESULT IN THE AWARD BEING MADE TO THE NEXT LOWEST RESPONSIBLE AND RESPONSIVE BIDDER. FOR DESIGN BUILD PROJECTS, FAILURE TO PROVIDE ALL INFORMATION REQURIED ON THIS FORM MAY RESULT IN SANCTION IN ACCORDANCE WITH PART B OF THE DBE SUPPLEMENTAL SPECIFICATIONS.

[1]Name & Address of DBE's (Subcontractor or Supplier)	[2]Percent	[3]Description of Work and Approximate Quantity [6](show percent when appropriate)				[5]Dollar Value
		Item	Qty.	Unit	[4]Unit Price	

BASED ON THE ABOVE, BIDDER'S TOTAL COMMITTAL FOR THIS CONTRACT: _____%

THE CONTRACT DBE GOAL LISTED IN PART A OF THE SUPPLEMENTAL SPECIFICATION: _____%

1 The designation of Firm A and/or B is not considered acceptable. I hereby certify that this company has communicated with and received quotes from the DBE's listed above and that they are willing to perform the work as listed above and that this company is committed to utilizing the above firm(s) on this contract.

2 Percent – show percent of total contract amount committed to each DBE listed.

3 All information requested must be included unless item is listed in proposal on a lump sum basis.

4 Unit Price – show unit price quoted by DBE.

5 Dollar Value – extended amount based on Quantity and Unit Price.

6 Applies to lump sum items only.

The form may be reproduced or additional sheets added in order to provide all requested information.

SWORN to before me this _____
day of _____, 20

_____(SEAL)
Notary Public for _____
My commission expires: _____

_____
Company

By: _____

Title: _____

EXHIBIT 2

DBE SUBCONTRACTOR DATA

Company Name and Address: _____

_____

_____

Owner's Name/Contact Person: _____

Telephone # ( ) _____ Fax # ( ) _____

DBE Status MBE _____ WBE _____

Certifying Agency and Address: _____

_____

_____

On-Site Certification Visit Performed By: _____

Date: _____

Date of Initial Certification: _____

Company Name and Address: _____

_____

_____

Owner's Name/Contact Person: _____

Telephone # ( ) _____ Fax # ( ) _____

DBE Status MBE _____ WBE _____

Certifying Agency and Address: _____

_____

_____

On-Site Certification Visit Performed By: _____

Date: _____

Date of Initial Certification: _____

Company Name and Address: _____

_____

_____

Owner's Name/Contact Person: _____

Telephone # ( ) _____ Fax # ( ) _____

DBE Status MBE _____ WBE _____

Certifying Agency and Address: _____

_____

_____

On-Site Certification Visit Performed By: _____

Date: _____

Date of Initial Certification: _____

EXHIBIT 3

DBE CONTACT SCHEDULE

Submitting Contractor: _____
Project Name and Number: _____
Date: _____

Date	MBE/ WBE	Name and Address of Person Contacted	Telephone Number	Type of Work to be Performed	Proposal Price

I, _____, _____ certify that the
(Name) (Title)
above identified contractors were contacted to obtain qualified MBE/WB quotations for the _____
_____ Project, also listed above.

SIGNED: _____

EXHIBIT 4

IDENTIFIED UNAVAILABLE DBEs

Submitting Contractor: _____
Project Name and Number: _____
Date: _____

Date	MBE/ WBE	Name and Address of Person Contacted	Telephone Number	Type of Work to be Performed

I, _____, _____ certify that the
(Name) (Title)
above identified contractors were contacted to obtain qualified MBE/WB quotations for the _____
_____ Project, also listed above, and that each ahs states unavailability or non-interest in performance of work.

APPENDIX 'C'
FEDERAL and EDA CONTRACT PROVISIONS

APPENDIX 'C'

FEDERAL AND EDA CONTRACT PROVISIONS

1. EDA CONTRACTING PROVISIONS FOR CONSTRUCTION PROJECTS

See attached EDA Contracting Provisions for Construction Projects for additional contract provisions.

2. BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the Contractor or its Subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

(Reference: 2 CFR § 200 Appendix II(A))

3. DAVIS-BACON WAGE RATES

See EDA Contracting Provisions for Construction Projects Section 15 for Davis Bacon Labor Standards.

"General Decision Number: SC20230040 01/06/2023
Superseded General Decision Number: SC20220040
State: South Carolina
Construction Type: Highway
Counties: Allendale, Bamberg, Barnwell, Beaufort, Colleton, Georgetown, Hampton, Jasper, Newberry, Orangeburg, and Williamsburg Counties in South Carolina.

DOES NOT INCLUDE SAVANNAH RIVER SITE IN ALLENDALE AND BARNWELL COUNTIES

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for

commercial navigation, bridges involving marine construction; and other major bridges).

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

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.

If the contract was awarded on or between January 1, 2015, and January 29, 2022, and the contract is not renewed or extended on or after January30, 2022: Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

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

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

Modification Number	Publication Date
0	01/06/2023

SUSC2011-038 09/15/2011

	Rates	Fringes
CARPENTER (Form Work Only)	$ 14.47 **	
CEMENT MASON/CONCRETE FINISHER	$ 14.11 **	
IRONWORKER, REINFORCING	$ 15.64 **	
LABORER		
Asphalt, Includes Asphalt Distributor, Raker, Shoveler, and Spreader	$ 10.96 **	
Common or General Georgetown, Hampton, Jasper	$ 10.07 **	
Luteman	$ 11.71 **	
Pipelayer	$ 13.87 **	
Traffic Control-Cone Setter		

Beaufort, Colleton, Georgetown, Hampton.....$ 12.84 **
Traffic Control-Flagger.....$ 11.68 **

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POWER EQUIPMENT OPERATOR:
Backhoe/Excavator/Track hoe
Georgetown, Hampton, Jasper, Williamsburg.....$ 17.23
Bulldozer.....$ 20.12
Crane.....$ 16.62
Grader/Blade.....$ 16.62
Loader (Front End).....$ 15.51 **
Mechanic.....$ 18.22
Milling Machine.....$ 18.83
Paver
Colleton, Georgetown, Hampton, Jasper.....$ 13.67 **
Roller.....$ 12.76 **
Screed.....$ 13.01 **
Tractor.....$ 13.26 **

TRUCK DRIVER
Dump Truck.....$ 12.00 **
Lowboy Truck.....$ 14.43 **
Single Axle, Includes Pilot Car.....$ 12.04 **
Tractor Haul Truck.....$ 16.25

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

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($16.20) or 13658 ($12.15). Please see the Note at the top of the wage determination for more information.

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

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

The body of each wage determination lists the classification and wage rates that have been found

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

Union Rate Identifiers

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

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:
* an existing published wage determination

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

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

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

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

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

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

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

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

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

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

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END OF GENERAL DECISION"

4. RIGHTS TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part

401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within in the 37 CFR §401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental or research work.

(Reference: 2 CFR § 200 Appendix II(F); 37 CFR § 401)

5. PROCUREMENT OF RECOVERED MATERIALS

Contractor and Subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and Subcontractors are to use of products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or,
b) The Contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/epawaste/conserve/tools/cpg/products/.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the Contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule.
b) Fails to meet reasonable contract performance requirements.
c) Is only available at an unreasonable price.

(Reference: 2 CFR § 200.322; 40 CFR part 247)

6. NOTICE OF REQUIREMENTS FOR AFFIRMATION ACTION

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246 AND 41 CFR PART 60-4)

The following Notice shall be included in and shall be a part of all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000.

The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area are as follows:

Timetables	Goals for Minority Participation for Each Trade	Goals for Female Participation for each Trade
	33.0%	6.9%

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

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

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor;

estimated dollar amount of the subcontract; estimated starting and completion dates of then subcontract; and the geographical area in which the subcontract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is:

State of South Carolina
County of Georgetown
City of Georgetown

(Reference: Executive Order 11246 and 41 CFR Port 60-04)

OMB Number: 0610-0096
Expiration Date: 01/31/2025

U. S. DEPARTMENT OF COMMERCE
ECONOMIC DEVELOPMENT ADMINISTRATION

EDA CONTRACTING PROVISIONS
FOR CONSTRUCTION PROJECTS

These EDA Contracting Provisions for Construction Projects (EDA Contracting Provisions) are intended for use by recipients receiving federal assistance from the U. S. Department of Commerce - Economic Development Administration (EDA). They contain provisions specific to EDA and other federal provisions not normally found in non-federal contract documents. The requirements contained herein must be incorporated into all construction contracts and subcontracts funded wholly or in part with federal assistance from EDA.

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1. DEFINITIONS

Agreement – The written instrument that is evidence of the agreement between the Owner and the Contractor overseeing the Work.

Architect/Engineer - The person or other entity engaged by the Recipient to perform architectural, engineering, design, and other services related to the work as provided for in the contract.

Contract – The entire and integrated written agreement between the Owner and the Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

Contract Documents – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents.

Contractor – The individual or entity with whom the Owner has entered into the Agreement.

Drawings or Plans – That part of the Contract Documents prepared or approved by the Architect/Engineer that graphically shows the scope, extent, and character of the Work to be performed by the Contractor.

EDA - The United States of America acting through the Economic Development Administration of the U.S. Department of Commerce or any other person designated to act on its behalf. EDA has agreed to provide financial assistance to the Owner, which includes assistance in financing the Work to be performed under this Contract. Notwithstanding EDA's role, nothing in this Contract shall be construed to create any contractual relationship between the Contractor and EDA.

Owner – The individual or entity with whom the Contractor has entered into the Agreement and for whom the Work is to be performed.

Project – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

Recipient – A non-Federal entity receiving a Federal financial assistance award directly from EDA to carry out an activity under an EDA program, including any EDA-approved successor to the entity.

Specifications – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

Subcontractor – An individual or entity having direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

Work – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

2. APPLICABILITY

The Project to which the construction work covered by this Contract pertains is being assisted by the United States of America through federal assistance provided by the U.S. Department of Commerce - Economic Development Administration (EDA). Neither EDA, nor any of its departments, entities, or employees is a party to this Contract. The following EDA Contracting Provisions are included in this Contract and all subcontracts or related instruments pursuant to the provisions applicable to such federal assistance from EDA.

3. FEDERALLY REQUIRED CONTRACT PROVISIONS

(a) All contracts in excess of the simplified acquisition threshold - currently fixed at $150,000 (*see* 41 U.S.C. §§ 134 and 1908) must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.

(b) All contracts in excess of $10,000 must address termination for cause and for convenience by the Recipient including the manner by which it will be effected and the basis for settlement.

(c) All construction contracts awarded in excess of $10,000 by recipients of federal assistance and their contractors or subcontractors shall contain a provision requiring compliance with Executive Order 11246 of September 24, 1965, *Equal Employment Opportunity*, as amended by Executive Order 11375 of October 13, 1967, and Department of Labor implementing regulations at 41 C.F.R. part 60.

(d) All prime construction contracts in excess of $2,000 awarded by Recipients must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3148) as supplemented by Department of Labor regulations at 29 C.F.R. part 5. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations at 29 C.F.R. part 3.

(e) All contracts awarded by the Recipient in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704 (the Contract Work Hours and Safety Standards Act) as supplemented by Department of Labor regulations at 29 C.F.R. part 5.

(f) All contracts must include EDA requirements and regulations that involve a requirement on the contractor or sub-contractor to report information to EDA, the Recipient or any other federal agency.

(g) All contracts must include EDA requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.

(h) All contracts must include EDA requirements and regulations pertaining to copyrights and rights in data.

(i) All contracts and subgrants in excess of $150,000 must contain a provision that requires compliance with all applicable standards, orders, or requirements issued under the Clean Air Act (42 U.S.C. § 7401 *et seq.*) and the Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. § 1251 *et seq.*), and Executive Order 11738, *Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act With Respect to Federal Contracts, Grants, or Loans*.

(j) Contracts must contain mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C.§ 6201).

(k) Contracts must contain a provision ensuring that contracts are not to be made to parties on the government wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. part 180.

(l) Contracts must contain a provision ensure compliance with the Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352) under which contractors that apply or bid for an award of $100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

(m) If the Recipient is a state agency or agency of a political subdivision of a state, any contract awarded must contain a provision ensuring compliance with section 6002 of the Solid Waste Disposal Act (42 U.S.C. § 6962), as amended by the Resource Conservation and Recovery Act related to the procurement of recovered materials.

4. REQUIRED PROVISIONS DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion of correction.

5. INSPECTION BY EDA REPRESENTATIVES

The authorized representatives and agents of EDA shall be permitted to inspect all work, materials, payrolls, personnel records, invoices of materials, and other relevant data and records.

6. EXAMINATION AND RETENTION OF CONTRACTOR'S RECORDS

(a) The Owner, EDA, or the Comptroller General of the United States, or any of their duly authorized representatives shall, generally until three years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders that do not exceed $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the Owner, EDA, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

7. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule. The Contractor also shall furnish the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only to determine the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

8. CONTRACTOR'S TITLE TO MATERIAL

No materials, supplies, or equipment for the work shall be purchased by the Contractor or by any subcontractor that is subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants and guarantees that he/she has good title to all work, materials, and equipment used by him/her in the Work, free and clear of all liens, claims, or encumbrances.

9. INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the completion of the Work shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. Materials of construction, particularly those upon which the strength and durability of any structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for intended uses.

10. "OR EQUAL" CLAUSE

Whenever a material, article, or piece of equipment is identified in the Contract Documents by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard. Any material, article, or equipment of other manufacturers and vendors that will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is, in the opinion of the Architect/Engineer, of equal substance and function. However, such substitution material, article, or equipment shall not be purchased or installed by the Contractor without the Architect/Engineer's written approval.

11. PATENT FEES AND ROYALTIES

(a) Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Architect/Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the Owner in the Contract Documents.

(b) To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

12. CLAIMS FOR EXTRA COSTS

No claims for extra work or cost shall be allowed unless the same was done in pursuance of a written order from the Architect/Engineer approved by the Owner.

13. CONTRACTORS AND SUBCONTRACTORS INSURANCE

(a) The Contractor shall not commence work under this Contract until the Contractor has obtained all insurance reasonably required by the Owner, nor shall the Contractor allow any subcontractor to commence work on his/her subcontract until the insurance required of the subcontractor has been so obtained and approved.

(b) Types of insurance normally required are:

(1) Workers' Compensation
(2) Contractor's Public Liability and Property Damage
(3) Contractor's Vehicle Liability
(4) Subcontractors' Public Liability, Property Damage and Vehicle Liability
(5) Builder's Risk (Fire and Extended Coverage)

(c) **Scope of Insurance and Special Hazards:** The insurance obtained, which is described above, shall provide adequate protection for the Contractor and his/her subcontractors, respectively, against damage claims that may arise from operations under this contract, whether such operations be by the insured or by anyone directly or indirectly employed by him/her and also against any of the special hazards that may be encountered in the performance of this Contract.

(d) **Proof of Carriage of Insurance:** The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates, and dates of expiration of applicable insurance policies.

14. CONTRACT SECURITY BONDS

(a) If the amount of this Contract exceeds $150,000, the Contractor shall furnish a performance bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and also a payment bond in an amount equal to one hundred percent (100%) of the Contract price or in a penal sum not less than that prescribed by State, Territorial, or local law, as security for the payment of all persons performing labor on the Work under this Contract and furnishing materials in connection with this Contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law. Before final acceptance, each bond must be approved by EDA. If the amount of this Contract does not exceed $150,000, the Owner shall specify the amount of the payment and performance bonds.

(b) All bonds shall be in the form prescribed by the Contract Documents except as otherwise provided in applicable laws or regulations, and shall be executed by such sureties as are named in the current list of *Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies* as published in Treasury Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's

authority to act. Surety companies executing the bonds must also be authorized to transact business in the state where the Work is located.

15. **LABOR STANDARDS - DAVIS-BACON AND RELATED ACTS**
(as required by section 602 of PWEDA)

(a) **Minimum Wages**

(1) All laborers and mechanics employed or working upon the site of the Work in the construction or development of the Project will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act at 29 C.F.R. part 3, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at the time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, which is attached hereto and made a part hereof, regardless of any contractual relationship that may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 C.F.R. § 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 C.F.R. § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates determined under 29 C.F.R. § 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(2) (i) Any class of laborers or mechanics to be employed under the Contract, but not listed in the wage determination, shall be classified in conformance with the wage determination. EDA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(A) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(B) The classification is utilized in the area by the construction industry; and

(C) The proposed wage rate, including any bona fide fringe benefits, bears a

reasonable relationship to the wage rates contained in the wage determination.

(ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and EDA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by EDA or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210.

(iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and EDA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), EDA or its designee shall refer the questions, including the views of all interested parties and the recommendation of EDA or its designee, to the Administrator for determination.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(2)(ii) or (iii) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(b) **Withholding**

EDA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper employed or working on the site of the Work in the construction or development of the Project, all or part of the wages required by the Contract, EDA or its designee may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations

have ceased. EDA or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

(c) **Payrolls and basic records**

(1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the Work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the Work in the construction or development of the Project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. § 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, the plan or program is financially responsible, and the plan or program has been communicated in writing to the laborers or mechanics affected, and provide records that show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(2) (i) For each week in which Contract work is performed, the Contractor shall submit a copy of all payrolls to the Owner for transmission to EDA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 C.F.R. part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose. It may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402; or downloaded from the U.S. Department of Labor's website at https://www.dol.gov/whd/forms/wh347.pdf. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors

(ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:

(A) That the payroll for the payroll period contains the information required to be maintained under 29 C.F.R. § 5.5(a)(3)(i) and that such information is correct and complete;

(B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 C.F.R. part 3; and

(C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.

(iii)The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 15(c)(2)(ii) of this section.

(iv)The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of Title 18 and section 3729 of Title 31 of the U.S. Code.

(3) The Contractor or subcontractor shall make the records required under paragraph 15(c)(1) of this section available for inspection, copying, or transcription by authorized representatives of EDA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, EDA or its designee may, after written notice to the Contractor or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 C.F.R. § 5.12.

(d) **Apprentices and Trainees**.

(1) **Apprentices**. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training (Bureau), or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any

apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a Project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) **Trainees**. Except as provided in 29 C.F.R. § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program that has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(3) **Equal employment opportunity**. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity

requirements of Executive Order 11246, *Equal Employment Opportunity*, as amended, and 29 C.F.R. part 30.

(e) **Compliance with Copeland Anti-Kickback Act Requirements**. The Contractor shall comply with the Copeland Anti-Kickback Act (18 U.S.C. § 874 and 40 U.S.C. § 3145) as supplemented by Department of Labor regulations (29 C.F.R. part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that the Contractor and any subcontractors shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which they are otherwise entitled. The Owner shall report all suspected or reported violations to EDA.

(f) **Subcontracts**. The Contractor and any subcontractors will insert in any subcontracts the clauses contained in 29 C.F.R. §§ 5.5(a)(1) through (10) and such other clauses as EDA or its designee may require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 C.F.R. § 5.5.

(g) **Contract termination; debarment**. The breach of the contract clauses in 29 C.F.R. § 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a subcontractor as provided in 29 C.F.R. § 5.12.

(h) **Compliance with Davis-Bacon and Related Act Requirements**. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 C.F.R. parts 1, 3, and 5 are herein incorporated by reference in this contract.

(i) **Disputes concerning labor standards**. Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and EDA or its designee, the U.S. Department of Labor, or the employees or their representatives.

(j) **Certification of Eligibility**.

(1)By entering into this Contract, the Contractor certifies that neither it nor any person or firm that has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(2) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 C.F.R. § 5.12(a)(1).

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

16. **LABOR STANDARDS - CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

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

(b) **Violation; liability for unpaid wages, liquidated damages**. In the event of any violation of the clause set forth in paragraph (a) of this section, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a) of this section.

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

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

17. **EQUAL EMPLOYMENT OPPORTUNITY**

(a) The Recipient hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 C.F.R. chapter 60, which is paid for in whole or in part with funds obtained from EDA, the following equal opportunity clause:

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments hereunder, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965 and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by EDA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of

this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph 17(a)(1) and the provisions of paragraphs 17(a)(1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as EDA or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by EDA or the Secretary of Labor, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

(9) The Recipient further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally-assisted construction work. Provided, however, that if the Recipient so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government that does not participate in work on or under the Contract.

(10)The Recipient agrees that it will assist and cooperate actively with EDA and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish EDA and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist EDA in the discharge of the EDA's primary responsibility for securing compliance.

(11) The Recipient further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by EDA or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Recipient agrees that if it fails or refuses to comply with these undertakings, EDA may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this EDA financial assistance; refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case

to the Department of Justice for appropriate legal proceedings.

(b) Exemptions to Above Equal Opportunity Clause (41 C.F.R. chapter 60):

(1) Contracts and subcontracts not exceeding $10,000 (other than Government bills of lading, and other than contracts and subcontracts with depositories of Federal funds in any amount and with financial institutions which are issuing and paying agents for U.S. savings bonds and savings notes) are exempt. The amount of the Contract, rather than the amount of the federal financial assistance, shall govern in determining the applicability of this exemption.

(2) Except in the case of subcontractors for the performance of construction work at the site of construction, the clause shall not be required to be inserted in subcontracts below the second tier.

(3) Contracts and subcontracts not exceeding $10,000 for standard commercial supplies or raw materials are exempt.

18. CONTRACTING WITH SMALL, MINORITY AND WOMEN'S BUSINESSES

(a) If the Contractor intends to let any subcontracts for a portion of the work, the Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services.

(b) Affirmative steps shall consist of:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;

(4) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises;

(5) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies;

(6) Requiring each party to a subcontract to take the affirmative steps of this section; and

(7) The Contractor is encouraged to procure goods and services from labor surplus area firms.

19. **HEALTH, SAFETY, AND ACCIDENT PREVENTION**

(a) In performing this contract, the Contractor shall:

(1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to their health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;

(2) Protect the lives, health, and safety of other persons;

(3) Prevent damage to property, materials, supplies, and equipment; and

(4) Avoid work interruptions.

(b) For these purposes, the Contractor shall:

(1) Comply with regulations and standards issued by the Secretary of Labor at 29 C.F.R. part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701 – 3708); and

(2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.

(c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this Contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 C.F.R. part 1904.

(d) The Owner shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the Work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Owner may issue an order stopping all or part of the Work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.

(e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as EDA, or the Secretary of Labor shall direct as a means of enforcing such provisions.

20. CONFLICT OF INTEREST AND OTHER PROHIBITED INTERESTS

(a) No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof.

(b) No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.

(c) The Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the Contract Documents has a corporate or financial affiliation with the supplier or manufacturer.

(d) The Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, may be involved. Such a conflict may arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in the Contractor. The Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors, or anything of monetary value from the Contractor or subcontractors.

(e) If the Owner finds after a notice and hearing that the Contractor, or any of the Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of the Owner or EDA in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, the Owner may, by written notice to the Contractor, terminate this Contract. The Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which the Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.

(f) In the event this Contract is terminated as provided in paragraph (e) of this section, the Owner may pursue the same remedies against the Contractor as it could pursue in the event of a breach of this Contract by the Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, the Owner may pursue exemplary damages in an amount (as determined by the Owner) which shall not be less than three nor more than ten times the costs the Contractor incurs in providing any such gratuities to any such officer or employee.

21. RESTRICTIONS ON LOBBYING

(a) This Contract, or subcontract is subject to 31 U.S.C. § 1352, regarding lobbying restrictions. The section is explained in the common rule, 15 C.F.R. part 28 (55 FR 6736-6748, February 26, 1990). Each bidder under this Contract or subcontract is generally prohibited from using federal funds for lobbying the Executive or Legislative Branches of the Federal Government in connection with this EDA Award.

(b) **Contract Clause Threshold**: This Contract Clause regarding lobbying must be included in each bid for a contract or subcontract exceeding $100,000 of federal funds at any tier under the EDA Award.

(c) **Certification and Disclosure**: Each bidder of a contract or subcontract exceeding $100,000 of federal funds at any tier under the federal Award must file Form CD-512, *Certification Regarding Lobbying – Lower Tier Covered Transactions*, and, if applicable, Standard Form-LLL, *Disclosure of Lobbying Activities*, regarding the use of any nonfederal funds for lobbying. Certifications shall be retained by the Contractor or subcontractor at the next higher tier. All disclosure forms, however, shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(d) **Continuing Disclosure Requirement**: Each Contractor or subcontractor that is subject to the Certification and Disclosure provision of this Contract Clause is required to file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person. Disclosure forms shall be forwarded from tier to tier until received by the Recipient of the EDA Award, who shall forward all disclosure forms to EDA.

(e) **Indian Tribes, Tribal Organizations, or Other Indian Organizations**: Indian tribes, tribal organizations, or any other Indian organizations, including Alaskan Native organizations, are excluded from the above lobbying restrictions and reporting requirements, but only with respect to expenditures that are by such tribes or organizations for lobbying activities permitted by other federal law. An Indian tribe or organization that is seeking an exclusion from Certification and Disclosure requirements must provide EDA with the citation of the provision or provisions of federal law upon which it relies to conduct lobbying activities that would otherwise be subject to the prohibitions in and to the Certification and Disclosure requirements of 31 U.S.C. § 1352, preferably through an attorney's opinion. Note, also, that a non-Indian subrecipient, contractor, or subcontractor under an award to an Indian tribe, for example, is subject to the restrictions and reporting requirements.

22. HISTORICAL AND ARCHAEOLOGICAL DATA PRESERVATION

The Contractor agrees to facilitate the preservation and enhancement of structures and objects of historical, architectural or archaeological significance and when such items are found and/or unearthed during the course of project construction. Any excavation by the Contractor that uncovers an historical or archaeological artifact shall be immediately reported to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the State Historic

Preservation Officer (SHPO) for recovery of the items. *See* the National Historic Preservation Act of 1966 (54 U.S.C. § 300101 *et seq.*, formerly at 16 U.S.C. § 470 *et seq.*) and Executive Order No. 11593 of May 31, 1971.

23. **CLEAN AIR AND WATER**

Applicable to Contracts in Excess of $150,000

(a) **Definition**. "Facility" means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by the Contractor or any subcontractor, used in the performance of the Contract or any subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the United States Environmental Protection Agency (EPA) determines that independent facilities are collocated in one geographical area.

(b) In compliance with regulations issued by the EPA, 2 C.F.R. part 1532, pursuant to the Clean Air Act, as amended (42 U.S.C. § 7401 *et seq.*); the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251 *et seq.*); and Executive Order 11738, the Contractor agrees to:

(1) Not utilize any facility in the performance of this contract or any subcontract which is listed on the Excluded Parties List System, part of the System for Award Management (SAM), pursuant to 2 C.F.R. part 1532 for the duration of time that the facility remains on the list;

(2) Promptly notify the Owner if a facility the Contractor intends to use in the performance of this contract is on the Excluded Parties List System or the Contractor knows that it has been recommended to be placed on the List;

(3) Comply with all requirements of the Clean Air Act and the Federal Water Pollution Control Act, including the requirements of section 114 of the Clean Air Act and section 308 of the Federal Water Pollution Control Act, and all applicable clean air and clean water standards; and

(4) Include or cause to be included the provisions of this clause in every subcontract and take such action as EDA may direct as a means of enforcing such provisions.

24. **USE OF LEAD-BASED PAINTS ON RESIDENTIAL STRUCTURES**

(a) If the work under this Contract involves construction or rehabilitation of residential structures over $5,000, the Contractor shall comply with the Lead-based Paint Poisoning Prevention Act (42 U.S.C. § 4831). The Contractor shall assure that paint or other surface coatings used in a residential property does not contain lead equal to or in excess of 1.0 milligram per square centimeter or 0.5 percent by weight or 5,000 parts per million (ppm) by weight. For purposes of this section, "residential property" means a dwelling unit, common areas, building exterior surfaces, and any surrounding land, including outbuildings, fences and play equipment affixed to the land, belonging to an owner and available for use by residents, but not

including land used for agricultural, commercial, industrial or other non-residential purposes, and not including paint on the pavement of parking lots, garages, or roadways.

(b) As a condition to receiving assistance under PWEDA, recipients shall assure that the restriction against the use of lead-based paint is included in all contracts and subcontracts involving the use of federal funds.

25. ENERGY EFFICIENCY

The Contractor shall comply with all standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6201) for the State in which the Work under the Contract is performed.

26. ENVIRONMENTAL REQUIREMENTS

When constructing a Project involving trenching and/or other related earth excavations, the Contractor shall comply with the following environmental constraints:

(1) **Wetlands**. When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert wetlands.

(2) **Floodplains**. When disposing of excess, spoil, or other construction materials on public or private property, the Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency (FEMA) Floodplain Maps, or other appropriate maps, i.e., alluvial soils on Natural Resource Conservation Service (NRCS) Soil Survey Maps.

(3) **Endangered Species**. The Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and a representative of EDA. Construction shall be temporarily halted pending the notification process and further directions issued by EDA after consultation with the U.S. Fish and Wildlife Service.

27. DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSIONS

As required by Executive Orders 12549 and 12689, *Debarment and Suspension*, 2 C.F.R. Part 180 and implemented by the Department of Commerce at 2 C.F.R. part 1326, for prospective participants in lower tier covered transactions (except subcontracts for goods or services under the $25,000 small purchase threshold unless the subrecipient will have a critical influence on or substantive control over the award), the Contractor agrees that:

(1) By entering into this Contract, the Contractor and subcontractors certify, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared

ineligible, or voluntarily excluded from participation in this Contract by any federal department or agency.

(2) Where the Contractor or subcontractors are unable to certify to any of the statements in this certification, the Contractor or subcontractors shall attach an explanation to this bid.

See also 2 C.F.R. part 180 and 2 C.F.R. § 200.342.

28. **EDA PROJECT SIGN**

The Contractor shall supply, erect, and maintain in good condition a Project sign according to the specifications provided by EDA. To the extent practical, the sign should be a free standing sign. Project signs shall not be located on public highway rights-of-way. Location and height of signs will be coordinated with the local agency responsible for highway or street safety in the Project area, if any possibility exists for obstructing vehicular traffic line of sight. Whenever the EDA site sign specifications conflict with State law or local ordinances, the EDA Regional Director will permit such conflicting specifications to be modified so as to comply with State law or local ordinance.

29. **BUY AMERICA**

To the greatest extent practicable, contractors are encouraged to purchase American-made equipment and products with funding provided under EDA financial assistance awards.

APPENDIX 'D'
CONTRACT AND BONDS

STATE OF SOUTH CAROLINA	)	**CONSTRUCTION**
	)	
GEORGETOWN COUNTY	)	**CONTRACT**

THIS CONTRACT made and entered into this_____ day of _____ 2023, by and between Georgetown County, hereinafter referred to as the "Owner", a body politic and corporate and political subdivision of the State of South Carolina, whose administrative address is: 129 Screven Street, Georgetown, South Carolina 29440; and _____ hereinafter referred to as the "Contractor", a limited liability corporation formed and existing under the laws of the State of _____ and authorized to do business within the State of South Carolina whose administrative address is: _____ _____.

IN WITNESS WHEREOF:

WHEREAS the Owner has a project entitled "_____" hereinafter referred to as the "Project", and;

WHEREAS, the Contractor has submitted a proposal for the Project at $_____ which is the Lump Sum Base Bid and the Owner has awarded the Project to the Contractor; and

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, as well as other good and valuable consideration not specifically mentioned, the parties agree as follows:

SAMPLE

1. The Contractor, for and in consideration of the payments hereinafter specified and agreed to be made by the Owner, hereby covenants and agrees to furnish and deliver all materials required, to do and perform all the work and labor, in a satisfactory and workmanlike manner, required to complete the Project within the time specified, in strict and entire conformity with the Plans, Technical Specifications and other Contract documents, on file at Georgetown County, which are duly approved by the Owner and which said Plans, Specifications and other Contract documents are hereby made part of this Contract as fully and with the same effects as if the same had been set forth at length in the body of this Contract.

2. The Contractor hereby agrees to indemnify, defend and hold the Owner and, the Engineer, and each of their agents, representatives, directors, officers, and employees harmless from any and all liabilities, losses, damages, penalties, judgments, awards, claims, demands, costs, expenses, (including reasonable attorney's fees and court costs), actions, lawsuits or other proceedings arising directly or indirectly, in whole or in part, out of the negligence or willful acts or omissions of the Contractor, Trade Subcontractors, or their respective agents, directors, officers or employees in connection with this Agreement or in any way with the services or Work described herein, any occurrence at the Project site, or any occurrence arising in connection with or at the Project site or in connection with the Work, whether within or beyond the scope of its duties hereunder.

3. The Project has been designed by Talbert and Bright, Inc. whose office is located at 4810 Shelley Drive, Wilmington, NC 28405 and who will act as the ENGINEER in connection with completion of the Work in accordance with the Contract Documents.

4. The project will be considered substantially complete upon completion of all items listed in the Bid Form and appurtenances in accordance with the Contract Documents, including successful performance of all testing requirements. As listed in the bid document, total project completion shall be 120 calendar days from the notice to proceed with specific timelines within that total project completion time as follows: thirty (30) calendar days for Phase I (Work Area 1); sixteen (16) contract days for Phase II-Runway 5-23 Closure-Work in ROFA; one (1) contract day for Phase II-Final Marking Application-Work in ROFA; and two (2) calendar days for Removal of Erosion Control Items. A liquidated damages fee of $1,500 per calendar day applies for failure to complete any of these timelines.

5. The Contractor's indemnity and defense obligations under this Contract shall be absolute notwithstanding any provision contained herein or elsewhere to the contrary, and shall survive Final Completion and Final Payment for a period equal to the statute of limitations for any action which could be brought against the Owner or its agents, officers, directors and employees and shall continue through the duration of any action brought during the applicable time periods.

6. The Contractor agrees to indemnify, defend and hold the Owner, and the Engineer, and each of their agents, representatives, officers, directors and employees, harmless from all costs, damages and expenses, including reasonable attorneys fees, incurred by the Owner and its consultants by virtue of any claim or claims filed by any Trade Subcontractor, mechanic, laborer, or materialman making claims arising from the performance of the Work by, through, or under the Contractor, provided the Contractor has received from the Owner all amounts properly due under this Contract concerning the claim. The Contractor shall execute and deliver to the Owner's title insurer similar indemnifications or such other document as such title insurer shall reasonably request in order to protect it against lien claims from Trade Subcontractors. The Contractor also hereby agrees to indemnify and hold harmless, protect and defend the Owner and its consultants from and against any liability, claim, judgment, loss or damage, including, but not limited, to direct damages, attorney's fees, court costs and expenses of collection, occasioned in whole or in part by the sole failure of the Contractor, and its Trade Subcontractors to comply with any of the terms or provisions of this Contract.

SAMPLE

7. In any and all claims against the Owner, by any employee of the Contractor or Trade Subcontractor, anyone directly or indirectly employed by any of them, their agent or anyone for whose acts any of the Contractor of Trade Subcontractors may be liable, the indemnification obligation under this Paragraph 2 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Trade Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

8. The Owner hereby agrees to pay to the Contractor for the said work, when fully completed, the total sum of $_____ (the said sum being the total of the Contractor's bid, a copy of which is attached hereto and, pro tanto, made a part hereof for all purposes), subject to such

additions and deductions as may be provided for in the Contract Documents. In the event the bid contains multiple pay items, it is understood that the amount to be paid shall be the total based on the unit prices, together with lump sum prices, contained in said bid, for the work actually completed. Payments on accounts will be made as customarily provided by the County and consistent with applicable County procedures. The Contractor shall submit bills for fees or other compensation for services or expenses in detail sufficient for a proper pre-audit and post audit thereof. Any unit of provision of goods and services must be approved in writing by the Owner prior to payment.

9. The Owner may unilaterally cancel this Contract and the goods and services there under in the event that the Contractor fails and refuses to allow public access to all documents, papers, letters, or other material subject to the provisions of the applicable South Carolina Code of Laws, made or received by the Contractor in conjunction with this Contract.

10. This Contract has been executed by the parties prior to the rendering of any goods or services by the Contractor.

11. The Contractor shall provide a payment and performance bond (the "Bond") to the Owner meeting the requirements of applicable South Carolina Code of Laws, The Georgetown County Procurement Ordinance, as amended, and associated bid documents referenced herein, which by virtue of executing this contract the Contractor has accepted in the sum of $_____ _____ and shall cause the Bond to be recorded with the Notice of Commencement in the Public Records of Georgetown County, South Carolina.

12. This Contract shall be subordinate to any rule, regulation, order or law of the United States of America, or the State of South Carolina, respectively.

13. Contractor and its employees shall promptly observe and comply with all applicable provisions of any Federal, State and local laws, ordinances, rules or regulations which govern or apply to the goods or services rendered by Contractor hereunder including the wages paid by Contractor to its employees. Contractors shall require all of its Subcontractors to comply with the provisions of this paragraph.

SAMPLE

14. Contractor shall procure and keep in force during the term of this contract all necessary insurance (including but not limited to general liability, casualty, workers compensation, and automobile), licenses, registrations, certificates, permits and other authorizations as are required by law in order for Contractor to render its services hereunder. Contractor shall require all of its Subcontractors to comply with the provisions of this paragraph.

15. All remedies provided in this Contract shall be deemed cumulative and additional and not in lieu of or exclusive of each other or of any other remedy available to any party at law or in equity. In the event one party shall prevail in any action (including appellate proceedings), at law or in equity arising hereunder, the losing party will pay all costs, expense, reasonable attorneys' fees and all other actual and reasonable expenses incurred in the defense and/or prosecution of any legal or arbitration proceedings, including, but not limited to, those for paralegal, investigative, legal support services and actual fees charged by expert witnesses for testimony and analysis, incurred by the prevailing party referable thereto.

16. Contractor represents and warrants unto Owner that no officer, employee or agent of Owner has any interest, either directly or indirectly, in the business or property for/on which the Contractor to conduct activities hereunder. Contractor further represents and warrants to Owner that it has not employed or retained any third party person, other than a bona fide employee working solely for Contractor, to bid, solicit or secure this Contract, that it has not paid or agreed to any person, company, corporation, individual or firm, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of this Contract, and that it has not agreed, as an express or implied condition for obtaining this Contract, to employ or retain the services of any firm or person in connection with carrying out this Contract. Contractor assures that it will insert the above provision in each of its Subcontractor agreements relating to the services to be performed hereunder.

17. The headings of the sections of this Contract are for the purpose of convenience only and shall not be deemed to expand or limit the provisions contained in such sections.

SAMPLE

18. This Contract, including all Contract documents such as, but not limited to, bid documents and procurement packages, constitutes the entire agreement between the parties and shall supersede and replace all prior agreements or understandings, written or oral, relating to the matters set forth herein.

19. This Contract shall not be amended or modified other than in writing signed by the parties hereto. Notwithstanding the foregoing, any Amendments that are not being paid for, in whole or in part, with funds granted by the United States or State of South Carolina need not be approved by them.

20. The validity, interpretation, construction and effect of this Contract shall be in accordance with and be governed by the laws of the State of South Carolina. In the event any provision hereof shall be finally determined to be unenforceable, or invalid, such unenforceability or invalidity shall not affect the remaining provisions of this Contract which shall remain in full force and effect.

21. Termination of Contract

    a) The Owner may, by written notice, terminate this Contract in whole or in part at any time, either for the Owner's convenience or because of failure to fulfill the Contract obligations. Upon receipt of such notice, services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performed this Contract, whether completed or in process, delivered to the Owner.

    b) If the termination is due to failure to fulfill the Contractor's obligations, the Owner may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Owner for any additional cost occasioned to the Owner thereby.

c) If, after notice of termination for failure to fulfill its Contract obligations, it is determined that the Contractor had not failed, the termination shall be deemed to have been affected for the convenience of the Owner. In such event, adjustment in the Contract price shall be made as provided in paragraph 21.a of this clause.

d) The rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract.

e) Non-Appropriation:
It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the County will only be required to pay for services completed to the satisfaction of the County.

SAMPLE

22. Waiver or Forbearance
Any delay or failure of County to insist upon strict performance of any obligation under this Agreement or to exercise any right or remedy provided under this Agreement shall not be a waiver of County's right to demand strict compliance, irrespective of the number or duration of any delay(s) or failure(s). No term or condition imposed on Contractor under this Agreement shall be waived and no breach by Contractor shall be excused unless that waiver or excuse of a breach has been put in writing and signed by both parties. No waiver in any instance of any right or remedy shall constitute waiver of any other right or remedy under this Agreement. No consent to or forbearance of any breach or substandard performance of any obligation under this Agreement shall constitute consent to modification or reduction of the other obligations or forbearance of any other breach.

23. Title VI Compliance:
Georgetown County hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Georgetown County receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with Georgetown County. Any such complaint must be in writing and filed with Georgetown County's Title VI Coordinator within one hundred and eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discriminatory Complaint Form, please see our website at http://www.gtcounty.org.

24. Federal & Economic Development Administration (EDA) Grant Contract Provisions:
Due to the grant funding associated with this project, all EDA requirements will apply to this project as if written out in full herein. Contractor must hereby agree to comply with any and all contract provisions as set forth in the "EDA Contracting Provisions for Construction Projects" as well as Appendix II to 2 CFR Part 200 – Contract Provisions for Non-Federal Entity Contracts under Federal awards.

Federal Procurement Regulations

The following clauses contained in the Federal Procurement Regulations (FPR) or the Defense Acquisition Regulations (DAR) apply to all federal fund expenditures and are a part of the County's field order terms and conditions.

Special Terms and Conditions -- Federal Grants Special Terms and Conditions -- Federal Contracts	
The following provisions of the Federal Acquisition Regulations (FAR) apply regardless of the amount of the order.	
Anti-Kickback Procedures	52.203-7
Buy American Act-- Free Trade Agreements--Israeli Trade Act	52.225-3
Contract Work Hours and Safety Standards Act--Overtime Compensation	52.222-4
Integrity of Unit Prices	52.215-14(a)(b)
Equal Opportunity	52.222-26
Notice to the Government of Labor Disputes	52.222-1
Preference for U.S. - Flag Air Carriers (for international air travel only)	52.247-63
Restrictions on Subcontractor Sales to the Government	52.203-6
Service Contract Act of 1965, as Amended	52.222-41
Termination for Convenience of Government (Education and Other Nonprofit Institutions)	52.249-5 (a)-(f)
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $2,500.	
Affirmative Action for Workers with Disabilities	52.222-36
Instructions to Offerors--Competitive Acquisition	52.215-1
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $10,000.	
Affirmative Action for Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	52.222-35
Audits and Records--Negotiation	52.215-2
Employment Reports on Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	52.222.37
Instructions to Offerors--Competitive Acquisition	52.215-1
Utilization of Small Business Concerns	52.219-8
Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns	52.219.23

SAMPLE

Walsh-Healey Public Contracts Act		52.222-20
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $25,000.		
Authorization and Consent		52.227-1
Notice and Assistance Regarding Patent and Copyright Infringement		52.227-2
Preference for Privately Owned U.S.- Flag Commercial Vessels		52.247-64
Utilization of Labor Surplus Area Concerns (Reserved)		52.220-3
Utilization of Women-Owned Small Business (Reserved)		52.219-13
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $100,000.		
Clean Air and Water (Reserved)		52.223-1,2
Price Reduction for Defective Cost or Pricing Data--Modifications--Sealed Bidding		52.214-27 **or**
Subcontractor Cost or Pricing Data--Modifications--Sealed Bidding		52.214-28
NOTE: 52.214-27 applies if cost or pricing data is initially required; if not, 52.214-28 applies to transactions over $100,000.		
The following provisions of the Federal Acquisition Regulations (FAR) also apply if the amount of the order exceeds $500,000.		
Labor Surplus Area Subcontracting Program (Reserved)		52.220-4
Small Business Subcontracting Plan		52.219-9
Small Disadvantaged Business Participation Program--Incentive Subcontracting		52.219.26
The following provisions of the Federal Acquisition Regulations (FAR) apply when noted:		
Filing of Patent Applications--Classified Subject Matter	When subcontract involves classified matters	52.227-10
Hazardous Material Identification and Material Safety Data	When subcontract involves hazardous material	52.223-3
Patent Rights--Retention by the Contractor	When the subcontract or purchase order involves experimental research and development work.	52.227-11,12
NOTE: 52.227-11 applies to small business and nonprofit organizations; 52.227-12 applies to others.		
Representation of Limited Rights Data and Restricted Computer Software	When subcontract includes technical data or software acquisition requirements (DOD	52.227-15

SAMPLE

	only)**	
Rights in Data--General	Same as ** above.	52.227-14
Technical Data Declaration, Revision, and Withholding of Payment--Major Systems	Same as ** above.	52.227-21
Required Sources for Jewel Bearings (Reserved)	When subcontract or purchase order requires use of jewel bearings.	52.208-1
Security Requirements	When subcontract involves access to classified information.	52.204-2
The County reserves all administrative, contractual, and legal remedies against the contractor or vendor who breaches any of the contract terms.		

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SAMPLE

IN WITNESS WHEREOF, the Owner and Contractor hereto have signed and sealed this Contract on the day and date first above written. To facilitate execution, this Agreement may be executed, including electronically, in as many counterparts as may be required. It shall not be necessary that the signature on behalf of both parties hereto appear on each counterpart hereof. All counterparts hereof shall collectively constitute a single agreement.

APPROVED:	APPROVED:
CONTRACTOR	GEORGETOWN COUNTY
By:_____	By:_____
Title: _____	**Angela Christian, County Administrator**
Date:_____	Date:_____

SAMPLE

PERFORMANCE BOND
100% of the Contract Amount

KNOW ALL MEN BY THESE PRESENT that:

CONTRACTOR NAME
CONTRACTOR ADDRESS

as Principal, hereinafter called Contractor and _____, a corporation duly organized in the State of _____ and licensed under laws of and authorized to do business in the State of South Carolina as Surety, hereinafter called Surety, are held firmly bound unto

GEORGETOWN COUNTY
129 SCREVEN STREET, SUITE 239
GEORGETOWN, SOUTH CAROLINA 29440

hereinafter called OWNER, in the amount of **write in words** ($ **amount**) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firm by these present.

WHEREAS, Contractor has by written agreement dated _____ 2023, entered into a Contract with OWNER for **Hangar Taxilane Improvements and Hangar Sitework** in accordance with drawings and specifications prepared by:

TALBERT & BRIGHT, INC.
4810 SHELLEY DRIVE
WILMINGTON, NORTH CAROLINA 28405

which contract is by reference made a part hereof and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that, if Contractor shall promptly and faithfully perform said Contract, then this 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 and Contractor.

Whenever 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 defaults, 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 make available as work progresses (even though there should be a default or a succession of

defaults under the Contract or Contracts 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 second paragraph hereof. The term "balance of contract price" as used in paragraph, shall mean the total amount payable by OWNER to Contractor under the Contract and any amendment thereto, less the amount properly paid by OWNER to Contractor. It is the intent for the contract to be completed within the contract time or liquidated damages will be assessed in accordance with the specifications.

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 _____ 2023.

BY:

_____
Principal

_____
Name (Seal)

_____
Title

BY:

_____
Surety

_____
Name (Seal)

_____
Title

WITNESS:

_____

WITNESS:

_____

BY:

_____
Licensed Resident Agent (Signature)

_____
Licensed Resident Agent (Typed)

_____
Street Address

_____
City, State, Zip

_____
Telephone Number

LABOR AND MATERIAL PAYMENT BOND
100% of the Contract Amount

KNOW ALL MEN BY THESE PRESENT: that

CONTRACTOR NAME
CONTRACTOR ADDRESS

as Principal, hereinafter called Principal, and _____ corporation duly organized in the State of _____ and licensed under the laws of and authorized to do business in the State of South Carolina as Surety, hereinafter called Surety, are held firmly bound unto

GEORGETOWN COUNTY
129 SCREVEN STREET, SUITE 239
GEORGETOWN, SOUTH CAROLINA 29440

as Obligee, hereinafter called OWNER, for the use and benefit of claimants as herein below defined, in the amount of **write in words** ($ **amount**) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firm by these present.

WHEREAS,

Principal has by written agreement dated _____ 2023 entered into a contract with OWNER for **Hangar Taxilane Improvements and Hangar Sitework** in accordance with drawings and specifications prepared by:

TALBERT & BRIGHT, INC.
4810 SHELLEY DRIVE
WILMINGTON, NORTH CAROLINA 28405

which contract is by reference made a part hereof and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION are such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for the use in the performance of the Contract, 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 Principal or with a subcontractor of the Principal 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 Contractor.

2. The above named Principal and Surety hereby jointly and severally agree with the OWNER

that every claimant as herein defined, who has not been paid in full before the expiration of a 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 judgement for such sum or sums as may be justly due claimant, and have execution thereon. The 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 Principal, shall have given written notice to any two of the following: the Principal, the OWNER, 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 who 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 Principal, OWNER, or surety, at any place where an office is regularly maintained for the transaction of business, or served in the state in which the aforesaid project is located, save that such service need not be made by public officer.

   b. After the expiration of one (1) year following the date of which Principal ceased work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be 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' liens 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 _____ 2023.

BY:

_____
Principal

_____
Name (Seal)

_____
Title

WITNESS:

_____

BY:

_____
Surety

_____
Name (Seal)

_____
Title

WITNESS:

_____

BY:

_____
Licensed Resident Agent (Signature)

_____
Licensed Resident Agent (Typed)

_____
Street Address

_____
City, State, Zip

_____
Telephone Number

APPENDIX 'E'
FORMS

OMB Number: 0610-0096
Expiration Date: 11/30/2021

ECONOMIC DEVELOPMENT ADMINISTRATION

CHANGE ORDER FORM

EDA Award Number: _____ Date: _____

Recipient: _____

Co-Recipient(s): _____

Recipient's Authorized Representative: _____
Name & Phone Number

Construction Contract No.	Contractor Name	Change Order No.

The Change Order will provide for the following:

Change Order Justification (Include cost analysis, if not unit cost in bid proposal or schedule of values):

	TOTAL	EDA Funded Amount	* Non-EDA Funded Amount
Original Contract Amount	$	$	$
Current Contract Amount adjusted by previous Change Orders	$	$	$
This Change Order will ☐ (increase) ☐ (decrease) the Contract Amount by:	$	$	$
The original, scheduled date of completion is/was:			
The new Contract Amount including this Change Order will be:	$	$	$
The Contract Time will ☐ (increase) ☐ (decrease) the schedule by:	calendar days	calendar days	calendar days
The estimated date for completion of all work is:	(Date)	(Date)	(Date)

** Construction components not part of the EDA Grant Project and do not include EDA funds nor local match funds.*

_____ _____
Prepared By (Signature) **Date**

_____
Prepared By (Typed or Written Name & Title)

TALBERT & BRIGHT, INC.
CHANGE ORDER

NO.:_____ DATED_____

GRANT NO: _____ TBI NO: 2601-2101

PROJECT: Hangar Taxilane Improvements and Hangar Sitework AIRPORT: Georgetown County Airport

OWNER: Georgetown County

CONTRACTOR: _____ ADDRESS: _____

CONTRACT FOR: _____ DATE: _____

TO:_____, (CONTRACTOR)

ORIGINAL CONTRACT AMOUNT	$_____
PREVIOUS CHANGES	$_____
CONTRACT AMOUNT PRIOR TO THIS CHANGE ORDER	$_____
NET (INCREASE) (DECREASE) RESULTING FROM THIS CHANGE ORDER	$_____
CURRENT CONTRACT AMOUNT INCLUDING THIS CHANGE ORDER	$_____
NET CONTRACT (INCREASE) (DECREASE) RESULTING FROM THIS CHANGE ORDER	___ (WORKING DAYS)
CURRENT CONTRACT TIME INCLUDING THIS CHANGE ORDER	___ (WORKING DAYS)

A. The aforementioned change and work affected thereby are subject to all contract stipulations and covenants;
B. The rights of the Owner are not prejudiced; and
C. All claims against the Owner which are incidental to or as a consequence of the aforementioned changes are satisfied.

RECOMMENDED FOR ACCEPTANCE: TALBERT & BRIGHT, INC.:

BY:_____ DATE: _____

ACCEPTED BY CONTRACTOR: _____
_____, (CONTRACTOR NAME)

BY:_____ DATE:_____

ACCEPTED BY OWNER: _____, (OWNER NAME)

BY:_____ DATE:_____

APPROVED BY:_____ DATE:_____

TITLE: _____

YOU ARE DIRECTED TO MAKE THE CHANGES NOTED BELOW IN THE SUBJECT CONTRACT:

ITEM	DESCRIPTION	ADDITIONS	DELETIONS
NET ADDITIONS OR DELETIONS			
NET ADDITIONS OR DELETIONS			

REASON FOR CHANGE:

ITEM NO -

ITEM NO -

ITEM NO -

ITEM No –

ATTACHMENTS:

ESTIMATE OF PARTIAL PAYMENT

No.

Application Date:		**Period Ending:**
Original Contract Price:	$	-
Net Change Orders:	$	-
Current Contract Price:	$	-
Total Amount Earned:	$	-
Retained Percentage (5%):	$	-
Total Earned Less Retained:	$	-
Total Previously Approved:	$	-
Amount Due This Estimate:	$	-
Total Amount Due:	$	-

EDA
TBI No.: **2601-2101**
Project Name:

Airport: **Georgetown County Airport**
Airport Sponsor: **Georgetown County Airport**
Sponsor Address: **129 Airport Road**
Georgetown, SC 29440
Contractor:
Contract Date:
Contract For:

CERTIFICATE OF CONTRACTOR

The undersigned certifies to the best of his knowledge and belief that all items, units, quantities and prices for work and material herein are correct; that all work has been performed and materials supplied in accordance with the terms and conditions of the Construction Contract and all authorized changes thereto; that the above is a true and correct statement of the contract up to and including the last day of the period of the estimate; that all previous payments received from the Owner for work performed under the Construction Contract have been applied to discharge all obligations incurred by the undersigned in connection with work covered by prior estimates for partial payment; and that all materials and equipment incorporated in the above project are free and clear of all liens, security interests and encumbrances.

Contractor: _____ **By:** _____

Date: _____ **Title:** _____

CERTIFICATE OF OWNER'S ENGINEERS

I certify that I have verified this Estimate for Partial Payment and that to the best of my knowledge and belief it is a true and correct statement of work performed materials supplied under the Contract.

TALBERT & BRIGHT, INC., WILMINGTON, NORTH CAROLINA

Resident Observer **Project Engineer**

Name: _____ **Name:** _____

Date: **Date:**

OWNER'S RECOMMENDATION FOR PAYMENT

Approved and Payment Recommended

Owner: _____ **By:** _____

Date: _____ **Title:** _____

OWNER:_____

Sheet ____ of ____ Sheets

No. And Description of Unit		Contract			Work Done This Period		Work Completed to Date		
Item # (1)	Detailed Estimate (2)	Quantity (3)	Unit Price (4)	Cost Estimate (5)	No. of Units (6)	Amount Earned (7)	No. of Units (8)	Amount Earned (9)	Percent Complete (10)
Totals									

DBE/MBE/WBE/HUB VENDOR COMMITMENTS/AWARDS/PAYMENTS

AIRPORT NAME:_____ CONTRACTOR PAY REQUEST #:_____

PROJECT #:_____ FINAL ☐

Instructions: Select the Final button if this is the last payment for this project. The % column includes total payment, including the current payment to meet the goal.

Payor Name	Vendor / Sub Name	Awards and Billings				Date Paid to Vendor / Sub this Invoice	%
		Committed Award ($)	Total Prior Payments ($)	Current Payment ($)	Total ($)		
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%
					$ 0.00		0%

PAYOR NAME:

PAYOR SIGNATURE:

DATE SIGNED:

SPONSOR NAME:

SPONSOR SIGNATURE:

DATE SIGNED:

Notes:

Talbert & Bright, Inc. Project Diary

Project: _____

TBI No: 2601-2101 _____ Week Ending : _____

Equipment Working: _____

Approximate # of Employees: _____

Date: Saturday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Sunday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Monday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Tuesday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Wednesday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Thursday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

Date: Friday Contract Days to Date:

Weather AM: _____ Weather PM: _____ Temperature AM: _____ Temperature PM: _____

Hours Worked: Contractor: _____ RPR: _____ Lab: _____

Work in Progress: _____

I certify that I have performed the field work and administrative duties for this project, and that through my presence and personal observation of the work and through standard testing methods, the Contractor is accomplishing the contract work in accordance with the requirements of the plans and specifications. (Certification by RPR and Contractor.)

_____ _____

Contractor's Authorized Representative Date

_____ _____

Resident Project Representative

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

OWNER ☐
ENGINEER ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

PROJECT (Name and Address): Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport
Georgetown, South Carolina

TO (Owner):

Engineer's Project No.: 2601-2101
EDA No.: _____
Contract for: Georgetown County
Contract Date: _____

CONTRACTOR: _____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the (insert name and address of Surety Company here)

_____
_____
_____ , Surety Company

on bond of (here insert name and address of Contractor)

_____
_____
_____ , Contractor

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of its obligations to (here insert name and address of Owner)

_____
_____
_____ , Owner

as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,

the Surety Company has hereunto set its hand this _____ day of _____ 20___.

Surety Company
Signature of Authorized Representative

Attest:
(Seal):

_____
Title

CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS

OWNER ☐
ENGINEER ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

TO (Owner):

Engineer's Project No.: 2601-2101
EDA No.: _____
Contract for: Georgetown County
Contract Date: _____

PROJECT (Name and Address): Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport
Georgetown, South Carolina

State of: _____
County of: _____

The undersigned, pursuant to the General Conditions of the Contract for Construction, hereby certifies that to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services, who have or may have liens against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

CONTRACTOR: _____
Address: _____
_____
_____

BY: _____

Subscribed and sworn to before me this _____ day of _____ 20___.

Notary Public: _____

My Commission Expires: _____

(Seal)

AFFIDAVIT OF PAYMENTS OF DEBTS AND CLAIMS

OWNER ☐
ENGINEER ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

TO (Owner):

Engineer's Project No.: 2601-2101
EDA No.: _____
Contract for: Georgetown County
Contract Date: _____

PROJECT (Name and Address): Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport
Georgetown, South Carolina

State of: _____
County of: _____

The undersigned, pursuant to the General Conditions of the Contract for Construction, hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None". If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

CONTRACTOR: _____
Address: _____
_____
_____

BY: _____

Subscribed and sworn to before me this _____ day of _____ 20___.

Notary Public: _____

My Commission Expires: _____

(Seal)

TALBERT & BRIGHT

October 11, 2023

RELEASE FOR CAD FILES

RE: Georgetown County Airport
Hangar Taxilane Improvements and Hangar Sitework
TBI No. 2601-2101

We are providing the listed electronic files for your convenience relative the referenced project. The electronic files are provided subject to the following terms and conditions:

Our electronic files are compatible with AutoCAD Release 2019. The project plans were prepared with extensive use of AutoCAD paper space and external reference capabilities. We make no representation as to the compatibility of these files with your hardware or software or that of your subs.

Data contained on these electronic files represents part of our instruments of service to the Georgetown County Airport and shall not be used by you or anyone else receiving these data through or from you for any purpose other than as a convenience and only in connection with the referenced project. No other use or reuse by you or by others will be permitted. This information will be held in confidence and not shared with anyone. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action of any nature against us, our officers, directors, employees, agents or subconsultants that may arise out of or in connection with your use of the electronic files.

Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold us harmless against all damages, liabilities, or costs, including reasonable attorney's fees and defense costs, arising out of, or resulting from your use of these electronic files.

These electronic files are not construction documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. We make no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed or sealed hard-copy construction documents prepared by this office and the electronic files provided, you shall immediately advise this office. Any notice to this office of any conflict in the documents shall not create any responsibility on us to confirm or deny the existence of any conflict or to make any changes in the contract documents. You are responsible for determining if any conflict exists. By your use of these electronic files, you are not relieved of your duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate all dimensions and details, take field measurements, verify field conditions, coordinate your work with that of other contractors for the project, and verify information provided to us by others used in the design of this project.

We are furnishing the following electronic files:

- 2601-2101_base-BID.dwg (CAD File showing existing/proposed contours for project as well as proposed drainage, proposed pavement, pavement removal, etc.)
- 2601-2101_ Finished Grade.xml (Proposed surface file)
- 2601-2101_Existing Grade.xml (Existing surface file)

Under no circumstances shall delivery of these electronic files for use by you be deemed a sale by us, and we make no warranties, either express or implied, of merchantability and fitness for any particular purposes. In no event shall we be liable for any loss of profit or any consequential damages as a result of your use or reuse of these electronic files and the information and data contained in them.

Agreed as to terms:

Alan M. Smith

Print Name: Alan M. Smith

Talbert & Bright, Inc.

Print Name: _____

Company Name: _____

APPENDIX 'F'
SUBSURFACE DATA

SCI | SOIL CONSULTANTS, INC.
Engineering and Testing
Since 1951

PO Drawer 698
Charleston, SC 29402-0698
P: 843.723.4539 F: 843.723.3648
www.SoilConsultantsInc.com

Construction Materials | Geotechnical | Nondestructive | Special Inspections

GEOTECHNICAL REPORT
HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITE WORK
GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SC

PREPARED FOR

TALBERT & BRIGHT, INC.

SCI PROJECT 220110
OCTOBER 18, 2022

SCI | SOIL CONSULTANTS, INC.
Engineering and Testing
Since 1951

PO Drawer 698
Charleston, SC 29402-0698
P: 843.723.4539 F: 843.723.3648
www.SoilConsultantsInc.com

October 18, 2022

Talbert & Bright, Inc.
4810 Shelley Drive
Wilmington, NC 28405

Attention: Mr. Al Smith, P.E.

SCI Project 220110

Dear Ms. Cabiness:

Soil Consultants, Inc. (SCI) submits this report to provide results of the geotechnical services provided for the proposed hangar taxilane improvements and hangar sitework located at the Georgetown County Airport in Georgetown, SC. Our services were performed in accordance with SCI Proposal No. 14-21-080 (rev2), dated May 17, 2022. This report provides a discussion of the proposed development, exploration procedures used, subsurface conditions encountered, and recommendations for site preparation and asphalt pavement design. We appreciate the opportunity to be of service to you during the design phase of this project. If we may be of further assistance during design or as construction proceeds, please call.

Analyses by:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 17234 RONALD R. AUSTIN

10/18/2022

Ronald R. Austin, P.E.

Reviewed by:

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 29039 ALVIN TALBOT HENDERSON III

10/18/2022

A. Talbot Henderson, III, P.E.

SOUTH CAROLINA SOIL CONSULTANTS, INC. No. 124 CERTIFICATE OF AUTHORIZATION

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INTRODUCTION

Soil Consultants, Inc. (SCI) presents this report to document geotechnical findings and recommendations for the proposed hangar taxilane improvements and hangar sitework located at the Georgetown County Airport in Georgetown, SC. Geotechnical services were performed in accordance with SCI Proposal No. 14-21-080 (rev2), dated May 17, 2022. Our services were authorized via the *Contract for Services*, between Talbert & Bright, Inc. and SCI, which was signed on September 2, 2022.

SCOPE OF PROJECT

Based on project information provided, it is our understanding that the project includes investigation and evaluation of the existing conditions in support of the design for a new taxilane and aprons for three new hangars at the site. We understand that this information is desired to assist in providing recommendations for new pavement design. We have been provided a site plan drawing showing the existing site conditions and the proposed improvements at the site.

The purpose of this subsurface exploration is to determine the subsurface soil conditions in the proposed pavement areas. In addition, the purpose of the exploration is to determine California Bearing Ratio (CBR) values based on the soil conditions encountered in the borings that can be used in the design of new pavements for the proposed project performed by others.

For the purposes of this report, we have assumed, based on the existing topography at the site and our observations of the existing pavements and surrounding areas, that no more than 2 feet of fill will be required to raise the grades in the pavement areas. This fill height refers to the net fill height above the pre-existing ground or pavement surface elevation at the time of our subsurface exploration neglecting any fill that is placed where existing soils or pavement will be removed

SITE DESCRIPTION

The project site is part of the Georgetown County Airport property and is located in the northeastern portion of the airport property. At the time of our investigation, an old asphalt-paved runway was present in the area where the new taxilane will be constructed. The areas where the new hangar aprons will be constructed were undeveloped and cleared, except that one of the new hangars was under construction. The ground surfaces in the proposed apron areas were covered with grass and weeds.

Topographic information was not provided. However, based on observations at the site, the pavement surfaces in the existing runway area and the ground surfaces in the proposed hangar apron areas appear relatively flat. However, there is an existing drainage ditch approximately 3 feet deep running north to south through the proposed hangar footprints. In addition, the runway and ground surface elevations appeared similar to the ground surface elevations of the surrounding areas of the airport property.

FIELD EXPLORATION

On September 9 and 12, 2022, SCI representatives performed coring of the pavement and hand-auger borings at 5 test locations, designated C-1 through C-5, along the alignment of the proposed taxilane. In addition, hand-auger borings were performed at three test locations, designated B-1 through B-3, in the proposed hangar apron areas. Test locations were marked at the site using the provided site plan drawing with reference to existing site features. Approximate test locations are shown on Figure 1, *Test Location Plan,* attached.

At each taxilane test location, 4-inch diameter holes were cored through the existing asphalt surface course, and the thickness of the asphalt course materials were measured. Following completion of the coring at the taxilane test locations, borings were manually advanced using hand-auger equipment to identify the underlying soil conditions. In addition, borings were manually advanced using hand-auger equipment to identify the soil conditions in the proposed hangar apron areas. In the hand-auger borings, we performed dynamic cone penetrometer (DCP) testing at the soil subgrade and at 2-foot intervals to depths of approximately 4 feet below the existing soil subgrade surface. The DCP testing was performed using the Dual-Mass Cone Penetrometer, which was developed by the U.S. Army Corps of Engineers (ASTM D-6951) to measure California Bearing Ratio (CBR) values of pavement subgrade soils.

Following completion of the hand-auger borings, the boreholes were backfilled with soil cuttings, and the holes through the pavement were patched using asphalt cold patch material. After completion of the field investigation, the asphalt cores and soil samples collected were transported to our laboratory. The soil samples were examined by a geotechnical engineer and visually classified in accordance with the Unified Soil Classification System (USCS). Soil samples from this exploration will be retained for a period of three months from the date of this report. Unless other arrangements are made, they will be disposed of following this period.

SHWT INVESTIGATION

On September 9, 2022 an SCI representative visited the project site to perform a Seasonal High Water Table (SHWT) investigation. Soil borings were performed at two locations which were designated SHWT-1 and SHWT-2. The borings were advanced to depths of 5 feet below the ground surface using manually-advanced hand-auger drilling equipment. Approximate boring locations are shown on Figure 1, *Test Location Plan,* attached.

Below a topsoil layer estimated to be approximately 6 inches thick, the SHWT borings encountered sands with varying amounts of silt to termination of the borings at depths of 5 feet. The sands with silt were classified as SP-SM in accordance with the Unified Soil Classification System using the Visual-Manual Procedure (ASTM D2488).

Groundwater depths were measured in the boreholes. The measured groundwater depths are shown in Table 1.

The SHWT depths at each location were estimated using the guidelines outlined in Field Indicators of Hydric Soils in the United States, Version 7.0, 2010, published by the United States Department of Agriculture, Natural Resources Conservation Service. Table 3 shows the estimated SHWT depth at each location.

Table 1
Groundwater and SHWT Depths

Test Location	Measured Groundwater Depth (in.)	SHWT Depth (in.)
SHWT-1	48	42
SHWT-2	42	39

LABORATORY TESTING

We performed soil mechanics laboratory tests on selected samples to aid in soil classification and to determine engineering properties for use in pavement design. The test name, test method, and number of tests that we performed are presented in Table 2. Results are included as attachments.

Table 2
Laboratory Testing Program

Test Name	Test Method	Number of Tests
Natural Moisture Content	ASTM D2216	12
Percent Finer than 75-μm sieve	ASTM D1140	12
Particle Size Analysis	ASTM D422	3
Standard Proctor	ASTM D698	1
California Bearing Ratio	ASTM D1833	1

BORING LOGS

SCI's geotechnical engineer developed the final log for each boring using DCP data, visual descriptions recorded during the field exploration, and visual classification of the recovered materials after return to the SCI laboratory. The boring logs attached to this report represent SCI's interpretation of stratigraphy and groundwater conditions at the explored locations based on visual classification of recovered samples. Transition boundaries between soil types noted on the boring logs are approximate. CBR values correlated from the DCP tests are also shown on the boring logs.

PAVEMENT AND SUBSURFACE CONDITIONS

The existing pavement and underlying soil and subsurface conditions encountered in our investigation are described in the following sections.

Pavement Materials

Observations of the pavement surfaces at the site indicated varying degrees of distress from minor cracking to severe cracking, rutting, and potholes in some areas of the sites. In addition, several areas of the pavement appeared to have been repaired (patched) in the past. It was noted, however, that the pavement surface in certain areas exhibited little to no cracking or other signs of distress.

The measured thicknesses of the asphalt course materials at the test locations are presented below in Table 3. Aggregate base course was not encountered in any of the core locations.

Table 3
Asphalt and Base Course Thicknesses

Boring Number	Asphalt Thickness (inches)
C-1	7¼
C-2	7½
C-3	7⅛
C-4	7¼
C-5	7¼

Subgrade and Subsurface Conditions

The hand-auger borings generally encountered fine-grained sands with varying amounts of silt to termination of the borings. Using the procedures outlined in the American Standard for Testing and Materials (ASTM) D 2488-09, "Description and Identification of Soils (Visual-Manual Procedure)," these soils are classified as SP-SM and SM in accordance with the USCS.

The groundwater table was encountered in Borings B-1 through B-3 at depths of approximately 2 feet and 3½ feet below the existing ground surface at the time of the exploration. In addition, the groundwater table was encountered in Boring C-3 at a depth of approximately 4½ feet below the existing pavement surface. The groundwater table was not encountered in any of the other borings at the time of the exploration. It must be noted that fluctuations in the level of groundwater may occur due to variations in ground elevation, rainfall, drainage, types of soil encountered, temperature, and other factors not evident at the time the measurement was made. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities, and

CONCLUSIONS AND CONSTRUCTION RECOMMENDATIONS

A study of the subsurface conditions encountered in the soil borings shows that, beneath the organic topsoil material in the proposed apron areas and beneath the existing pavement in the proposed taxilane areas, sands with varying amounts of silt were encountered to termination of the borings. Generally, these sandy soils are considered good to excellent for use as subgrade material and should be sufficiently firm to support the proposed pavements if the existing topsoil is fully removed in the proposed apron areas. Recommended design CBR values and general recommendations for site preparation are provided in the following paragraphs.

Design CBR Values

Near-surface soils within the proposed pavement areas predominantly consisted of sands with varying amounts of silt. Correlated CBR values for the sands encountered in the soil borings generally ranged from approximately 7 to 18. However, a CBR value of 4 was obtained in the near-surface soils in Boring B-2. Laboratory testing of the bulk sample of the near-surface sands collected in the vicinity of Boring B-2 indicated a CBR value of 18 when compacted to 100% of Standard Proctor. Therefore, if the in-situ near surface sands in these areas are densified during construction to 100% of Standard Proctor (ASTM D698) or greater, it is expected that these sands would have CBR values of 13 or greater. Therefore, if the site preparation procedures described

in this report are followed, the in-situ soils should be suitable for support of the proposed taxilane and apron pavements.

Site Preparation in Pavement Areas

The pavement performance will be directly affected by the quality of site preparation. Recommendations for site preparation are presented herein.

Drainage. The single most destructive element that the pavement will be subjected to is the presence of excess water. Evaluation of the drainage of the existing areas and proposed pavement areas should be performed by others to ensure adequate drainage for the proposed pavements. Pavements should be adequately sloped and sufficient drainage provided such that excess water is allowed to runoff before it can migrate into the pavement system. In addition, in areas where runoff is expected to accumulate, under drains should be installed, if necessary, to prevent continual saturation of the subgrade soils.

Removal of Existing Pavements. Site preparation should begin by removing all of the existing pavements that are planned for removal within the proposed taxilane and apron areas. Site preparation should also include removing and re-routing any remaining underground utilities that may be present within proposed construction footprints.

Unexpected Conditions. Unexpected conditions may occur on developed sites. These conditions may include, but not be limited to, active or abandoned utility lines, foundations or remnants of foundations from previous structures, areas of poorly compacted fill, and subsurface debris. Unexpected conditions, if encountered, are best handled by on-site engineering evaluations.

Compaction of Stripped Subgrade. After the existing pavement section and any soft or wet soils have been removed in areas of complete removal and before placement of fill material, the remaining surface soils within the pavement areas should be thoroughly and uniformly compacted in place. Exposed soil should be compacted to 12-inch depth to at least 100% of its maximum laboratory dry density, within ± 2% of its optimum moisture content determined in accordance with ASTM D698 (Standard Proctor). In-place field density tests should be performed to ensure that required density and moisture conditions are being achieved. We recommend testing on the stripped subgrade be performed at a frequency of 1 test per 5,000 square feet (sf) of pavement area, with a minimum of 3 tests performed before proofrolling.

Proofrolling. Following compaction, the proposed pavement areas should be proofrolled with a loaded dump truck or other similar rubber-tired, heavy construction equipment. SCI's geotechnical engineer or an SCI representative should monitor the proofrolling operations. Areas that pump, rut, or perform poorly during the proofrolling operations should be undercut and replaced with controlled backfill. After proofrolling and subsequent repairs, controlled fill should be placed to achieve the desired grade, if required.

Controlled Fill Material Criteria. Controlled fill, if needed to increase grade in the pavement areas, should be non-plastic and granular in nature with a maximum of 10% passing the No. 200 sieve. Backfill and controlled fill soils should be as approved by the project geotechnical engineer and should generally consist of sands classified as SP, SP-SC, or SP-SM soils according to the USCS. In addition, backfill and controlled fill should be free of roots, organics, and debris.

Controlled Fill Placement Criteria. Controlled fill should be placed in thin successive layers 8 to 10 inches thick loose measurement, and each layer should be compacted to at least 100% of its maximum laboratory dry density within ± 2% of its optimum moisture content determined in accordance with ASTM D698 (Standard Proctor). However, large vibrating compaction equipment should not be used immediately adjacent to existing or recently constructed facilities or structures. Hand operated compaction equipment may be used to compact soils in these areas. If hand-operated compaction equipment is used, the layer thickness should be reduced to approximately 6 inches thick loose measure.

Verification of In-Place Moisture and Density. In-place field density tests should be performed as controlled fill is being placed and compacted to ensure that required density and moisture conditions are being achieved. We recommend that in-place testing be performed at 1 test per lift per 2,500 sf of pavement area, with a minimum of 3 tests being performed per lift. Since these testing services are within the scope of services we provide, we urge that SCI be retained to provide testing services.

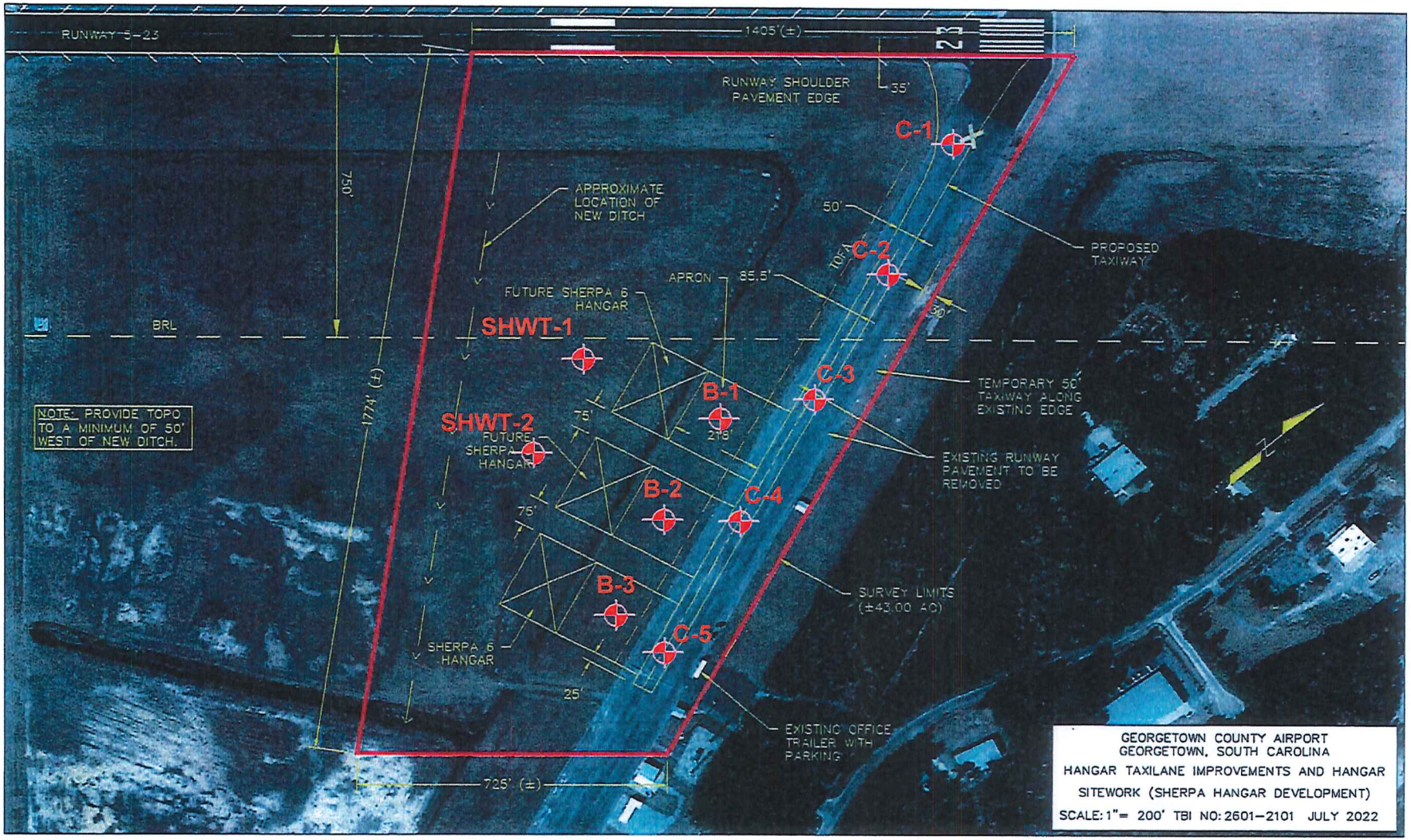
LIMITATIONS OF REPORT

This report was prepared as an instrument of service exclusively for Talbert & Bright, Inc. and the project design team in preparation of the roadway design, construction drawings, and construction specifications for the proposed hangar taxilane improvements and hangar sitework located at the Georgetown County Airport in Georgetown, SC. Recommendations and comments given in this report are based on the results of the soil borings, combined with interpolation of the subsurface conditions between borings, and the provided and assumed design data. If any changes occur in the design concept or if conditions are encountered during construction that appear to be different from those represented, the conclusions and recommendations contained in this report shall not be considered valid until the changes are reviewed by SCI and our findings and conclusions are verified in writing.

SCI should be given the opportunity to review the design and construction documents. The purpose of this review is to verify that our recommendations are properly incorporated into the project plans and specifications. Review of design and construction documents is not within the scope of authorized services outlined in our proposal; therefore, additional fees would apply.

SCI's report has been prepared in accordance with generally accepted geotechnical engineering practice with a degree of care and skill ordinarily exercised by reputable geotechnical engineers practicing in this area and the area of the site. Verification of subsurface conditions for the purpose of determining the difficulty of excavation, dewatering, and other construction issues is the responsibility of others specializing in those areas.

FIGURES



Reference: Base map provided by Client.
Note: Boring locations are approximate.

Legend: Test Boring Location

TEST LOCATION PLAN

Proposed Hangar Taxilane Improvements and Hangar Site Work
Georgetown County Airport
Georgetown, SC

Scale	Not to scale	Project No. 220110
Date	10/17/2022	Figure 1

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ATTACHMENTS

LOG OF BORING B-1

Project:	Hangar Taxilane Improvements and Hangar Sitework Georgetown County Airport, Georgetown, SC	**SCI Project:**	220110
Location:	See Boring Plan	**Date Drilled:**	9/12/2022
Total Depth:	4.25 ft	**Drill Rig:**	Hand Auger
Datum:	Ground Surface	**Driller:**	Floyd
Elevation:	Not known to SCI	**Drilling Method:**	Auger (3.5-in. diameter)
		Water Level:	3.5 ft (Time of Boring)

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	TOPSOIL: dark brown, moist, 6 inches thick				1						
0.5	POORLY GRADED SAND WITH SILT (SP-SM): pale brown to brownish yellow, fine, moist					19.9	7.7				10.0
					2						10.0
					3						
4.3											13.0

Boring terminated at 4.25 feet below referenced grade.

Remarks:
The Soil Consultants, Inc. Key to Boring Log Symbols and Terms contains explanations about symbols and terms used on the boring log.

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LOG OF BORING B-2

Project:	Hangar Taxilane Improvements and Hangar Sitework Georgetown County Airport, Georgetown, SC	**SCI Project:**	220110
Location:	See Boring Plan	**Date Drilled:**	9/12/2022
Total Depth:	4.25 ft	**Drill Rig:**	Hand Auger
Datum:	Ground Surface	**Driller:**	Floyd
Elevation:	Not known to SCI	**Drilling Method:**	Auger (3.5-in. diameter)
		Water Level:	2.0 ft (Time of Boring)

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	TOPSOIL: dark brown, moist, 6 inches thick				1						
0.5	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to yellow, fine, moist					22.1	8.5				4.0
					2						8.0
					3						
4.3											8.0

Boring terminated at 4.25 feet below referenced grade.

Remarks:
The Soil Consultants, Inc. Key to Boring Log Symbols and Terms contains explanations about symbols and terms used on the boring log.

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LOG OF BORING B-3

Project:	Hangar Taxilane Improvements and Hangar Sitework Georgetown County Airport, Georgetown, SC	**SCI Project:**	220110
Location:	See Boring Plan	**Date Drilled:**	9/12/2022
Total Depth:	4.25 ft	**Drill Rig:**	Hand Auger
Datum:	Ground Surface	**Driller:**	Floyd
Elevation:	Not known to SCI	**Drilling Method:**	Auger (3.5-in. diameter)
		Water Level:	2.0 ft (Time of Boring)

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	TOPSOIL: dark brown, moist, 6 inches thick				1						
0.5	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to yellow, fine, moist					16.8	9.6				7.0
					2						7.0
					3						
4.3											8.0

Boring terminated at 4.25 feet below referenced grade.

Remarks:
The Soil Consultants, Inc. Key to Boring Log Symbols and Terms contains explanations about symbols and terms used on the boring log.

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LOG OF BORING C-1

Project: Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport, Georgetown, SC
Location: See Boring Plan
Total Depth: 4.6 ft
Datum: Pavement Surface
Elevation: Not known to SCI

SCI Project: 220110
Date Drilled: 9/9/2022
Drill Rig: Hand Auger
Driller: Floyd
Drilling Method: Auger (3.5-in. diameter)
Water Level:

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	ASPHALT: 7.25 inches thick				1						
0.6											
	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to brown, fine, moist				2	9.9	8.9				18.0
					3	19.8	8.6				10.0
4.6											6.0

Boring terminated at 4.6 feet below referenced grade.

Remarks:
Groundwater not encoumntered at time of boring.
The Soil Consultants, Inc. Key to Boring Log Symbols and Terms contains explanations about symbols and terms used on the boring log.

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LOG OF BORING C-2

Project: Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport, Georgetown, SC
Location: See Boring Plan
Total Depth: 4.6 ft
Datum: Pavement Surface
Elevation: Not known to SCI

SCI Project: 220110
Date Drilled: 9/9/2022
Drill Rig: Hand Auger
Driller: Floyd
Drilling Method: Auger (3.5-in. diameter)
Water Level:

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	ASPHALT: 7.5 inches thick				1						
0.6											
	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to brown, fine, moist				2	14.1	9.3				13.0
					3						18.0
4.6											10.0

Boring terminated at 4.6 feet below referenced grade.

Remarks:
Groundwater not encoumntered at time of boring.
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LOG OF BORING C-3

Project: Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport, Georgetown, SC
Location: See Boring Plan
Total Depth: 4.6 ft
Datum: Pavement Surface
Elevation: Not known to SCI

SCI Project: 220110
Date Drilled: 9/9/2022
Drill Rig: Hand Auger
Driller: Floyd
Drilling Method: Auger (3.5-in. diameter)
Water Level: 4.0 ft (Time of Boring)

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	ASPHALT: 7.125 inches thick				1						
0.6	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow, fine, moist				2	17.3	8.9				13.0
2.0	SILTY SAND (SM): brownish yellow, fine, moist				3	19.8	23.4				8.0
4.6											10.0

Boring terminated at 4.6 feet below referenced grade.

Remarks:
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LOG OF BORING C-4

Project:	Hangar Taxilane Improvements and Hangar Sitework Georgetown County Airport, Georgetown, SC	**SCI Project:**	220110
Location:	See Boring Plan	**Date Drilled:**	9/9/2022
Total Depth:	4.6 ft	**Drill Rig:**	Hand Auger
Datum:	Pavement Surface	**Driller:**	Floyd
Elevation:	Not known to SCI	**Drilling Method:**	Auger (3.5-in. diameter)
		Water Level:	

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	ASPHALT: 7.25 inches thick				1						
0.6	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to brown, fine, moist				2	12.4	9.9				13.0
					3						13.0
4.6											10.0

Boring terminated at 4.6 feet below referenced grade.

Remarks:
Groundwater not encoumntered at time of boring.
The Soil Consultants, Inc. Key to Boring Log Symbols and Terms contains explanations about symbols and terms used on the boring log.

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LOG OF BORING C-5

Project: Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport, Georgetown, SC
Location: See Boring Plan
Total Depth: 4.6 ft
Datum: Pavement Surface
Elevation: Not known to SCI

SCI Project: 220110
Date Drilled: 9/9/2022
Drill Rig: Hand Auger
Driller: Floyd
Drilling Method: Auger (3.5-in. diameter)
Water Level:

Depth (ft)	Material Description	Material Graphic	Sample Depth	Sample Type	Sample Number	Water Content (%)	Fines Content (%)	Atterberg Limits Liquid Limit (LL)	Atterberg Limits Plastic Limit (PL)	Atterberg Limits Plasticity Index (PI)	CBR
	ASPHALT: 7.25 inches thick				1						
0.6											
	POORLY GRADED SAND WITH SILT (SP-SM): brownish yellow to reddish yellow, fine, moist				2	6.9	10.0				13.0
2.0											
	SILTY SAND (SM): yellow, fine, moist				3	17.8	19.8				10.0
4.6											8.0

Boring terminated at 4.6 feet below referenced grade.

Remarks:
Groundwater not encoumntered at time of boring.
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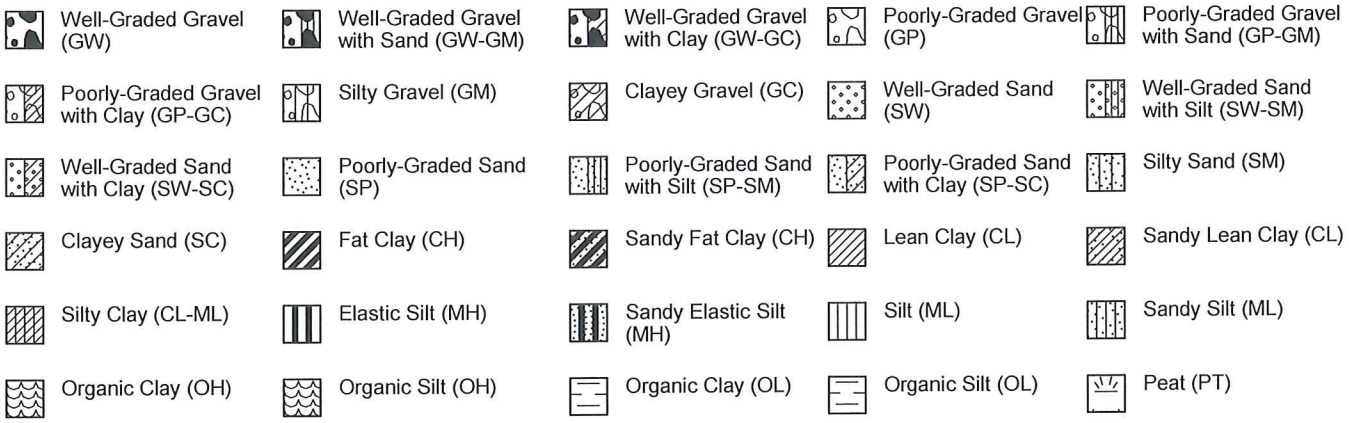
KEY TO BORING LOG SYMBOLS AND TERMS

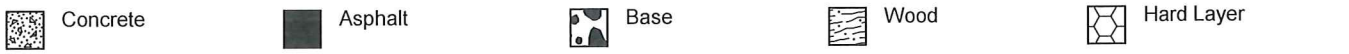
Soil Consultants, Inc.'s geotechnical engineer reviewed recovered samples, field data, and laboratory data to develop each boring log. Each log represents our interpretation of general soil and water conditions at the boring location. Soil classifications presented on the boring log are based on the Unified Soil Classification System (USCS) as outlined in ASTM D2487. The system is used to classify coarse-grained materials (boulders, cobbles, gravel, and sand) and fine-grained materials (silt and clay). Descriptors are added to describe additional constituents based on percentages of these constituents. In the absence of laboratory data required to classify soils in complete accordance with ASTM D2487, visual descriptions of the materials are provided with their interpreted USCS group name.

Subsurface conditions at the explored location(s) may not be indicative of subsurface conditions at other locations or at other times. Strata lines on the log may be transitional and are approximate in nature.

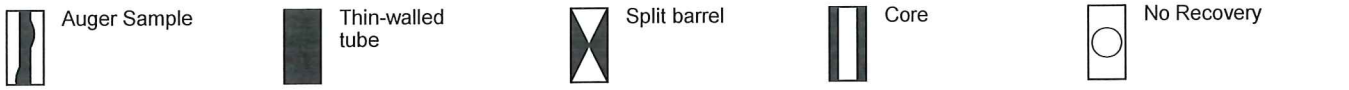
USCS MATERIAL TYPES AND SYMBOLS



LOCAL MATERIAL TYPES AND SYMBOLS



SAMPLER SYMBOLS



STANDARD PENETRATION TEST (SPT)

Within a desired sampling interval, the SPT test includes seating the split-barrel sampler to 6-in. depth with blows from a 140-lb hammer. The sampler is advanced through two additional 6-in. deep intervals with blow counts recorded for each interval. The "N" value is the sum of the blows for the final 12 in. of the 18-inch penetration.

WOR	The sampler penetrated the full 18-in. test depth under the weight of the drill rod.
WOH	The sampler penetrated the full 18-in. test depth under the weight of the hammer.
1/18"	The sampler was driven the full 18-in. test depth by 1 blow of the 140-lb hammer.
50/3"	50 blow limit was recorded with 3 in. penetration of the sampler.
$N_{corrected}$	Standard Penetration Resistance Value (N value) corrected to N_{60} for clays and to $(N_1)_{60}$ for sands.

RELATIVE DENSITY AND CONSISTENCY

DENSITY OF COARSE-GRAINED SOILS
(More than 50% retained on the No. 200 Sieve)
Gravels and Sands
Density determined by Standard Penetration Resistance.

Relative Density	SPT N Value
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

CONSISTENCY OF FINE-GRAINED SOILS
(50% or more passing the No. 200 Sieve)
Silts and Clays
Consistency determined by laboratory strength testing, standard penetration resistance, or field visual-manual procedures.

Unconfined Compressive Strength, tsf	Consistency	SPT N Value
< 0.25	Very Soft	0 - 2
0.25 to 0.50	Soft	3 - 4
0.50 to 1.00	Medium (Firm)	5 - 8
1.00 to 2.00	Stiff	9 - 15
2.00 - 4.00	Very Stiff	16 - 30
> 4.00	Hard	> 30

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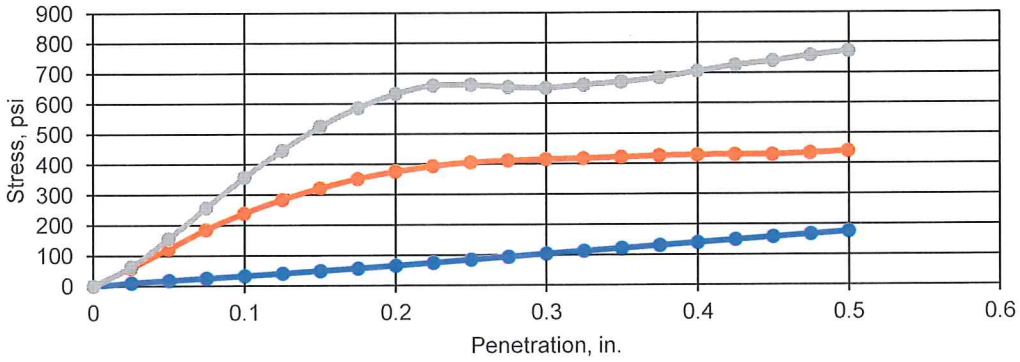
CALIFORNIA BEARING RATIO
ASTM D1833

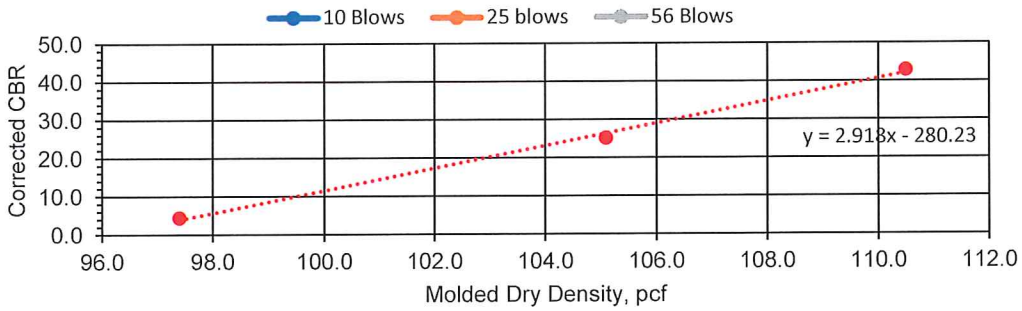
Client	Talbert & Bright		
Project Name	Hangar Taxilane Improvements & Sitework	**Test Date**	9/20/2022
Project Number	220110	**Work Order**	78319

Sample Data			
Sample	Depth (ft)	Type	Visual Description
#1		Bulk	On-site material orangish brown fine sand

Soil Properties								
As Received Moisture Content, %	Fines Content, %	Liquid Limit, LL	Plastic Limit, PL	Plasticity Index, PI	USCS Symbol	Moisture-Density Test Method ASTM	Maximum Dry Density, lb/ft^3	Optimum Moisture Content, %
14.6	10.9					ASTM D698 A	107.6	13.9

Specimen Number	1	2	3
Number of Blows	10	25	56
Dry Density (pcf) as compacted	97.4	105.1	110.5
Water Content (%) as compacted	13.8	14.1	13.4
Sample Type	soaked	soaked	soaked
Immersion Period (hours)	96	96	96
Water Content (%) top 1 in. after soaking	19.2	16.8	15.5
Swell (%)	-0.1	-0.1	0.0
Surcharge Weight, lb	10.0	10.0	10.0
Bearing ratio (corrected) @ 0.2 in. penetration	4.5	25.2	42.9
Corrected CBR at 95% maximum dry density		18.0	





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Acct. No:	**TA028**	**Project No: 220110**	**Date Sampled: 09/12/2022**
Report Date:	**09/14/2022**		**Sampled By: D. Floyd**
Project:	**Hangar Taxilane Improvements and Hangar Sitework, Georgetown County Airport, Georgetown, SC**		**By Order Of: Client**
Location:	**Bulk Sample**		**Order Number:**
Client:	**TALBERT & BRIGHT**		
REPORT:	**Proctor**		**LAB NO: 78319-1**
Material:	**Bulk sample (on site)**		**Test Method: See Below**

TEST RESULTS

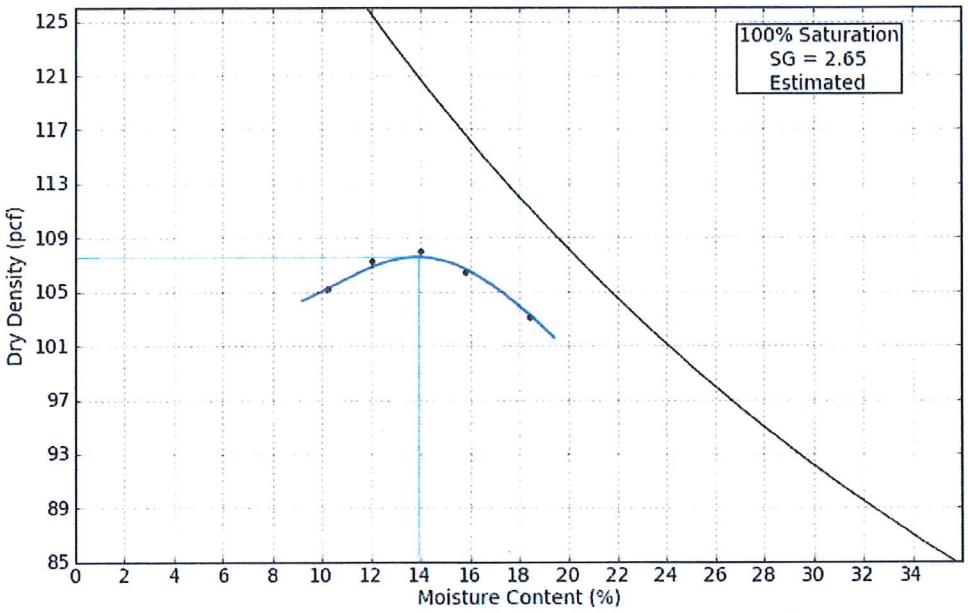
Report No: 78319-1
Page 1 of 1

Visual Classification: Orangish brown fine sand
Supplier: On Site Material
Material Application: Bulk sample (on site)

Rammer Type: Mechanical
Prep. Method: Dry

Test Results:
Maximum Dry Unit Weight: 107.6 pcf
Optimum Water Content: 13.9 %

Properties:
Liquid Limit:
Plastic Limit:
Plasticity Index:



Test Methods: ASTM D698 Method-A

Orig: TALBERT & BRIGHT Attn: Mr. Al Smith
E-Mail: asmith@tbiilm.com (1-ec copy)

Respectfully Submitted,
SOIL CONSULTANTS, INC.

AASHTO ACCREDITED

Ronald R. Austin, P.E.
Vice President

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.

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Acct. No: TA028 Project No: 220110 Date Sampled: 09/12/2022
Report Date: 09/26/2022 Sampled By: D.Floyd
Project: Hangar Taxilane Improvements and Hangar Sitework, Georgetown County Airport, Georgetown, SC By Order Of: Client
Location: Hand Auger Samples Order Number:

Client: TALBERT & BRIGHT
REPORT: Geotechnical Index Testing LAB NO: 78319-3

TEST RESULTS Report No: 78319-3
Page 1 of 1

Boring	Sample	Top of Interval, ft	Moisture Content, %	Organic Content, %	Finer than No. 200 Sieve, %	Liquid Limit, LL	Plastic Limit, PL	Plasticity Index, PI	USCS Symbol	AASHTO Symbol
B-1	S-1	0.0	19.9		7.7					
B-2	S-1	0.0	22.1		8.5					
B-3	S-1	0.0	16.8		9.6					
C-1	S-1	0.0	9.9		8.9					
C-2	S-1	0.0	14.1		9.3					
C-3	S-1	0.0	17.3		8.9					
C-4	S-1	0.0	12.4		9.9					
C-5	S-1	0.0	6.9		10.0					
C-1	S-2	2.0	19.8		8.6					
C-3	S-2	2.0	19.8		23.4					
C-5	S-2	2.0	17.8		19.8					
Bulk	#1		14.6		10.9					
Comments										

Test Method (As Applicable): ASTM D6913, ASTM D1140, ASTM D4318, ASTM D2216, ASTM D2437, AASHTO M145

Orig: TALBERT & BRIGHT Attn: Mr. Al Smith
E-Mail: asmith@tbiilm.com (1-ec copy)

Respectfully Submitted,
SOIL CONSULTANTS, INC.

AASHTO ACCREDITED

Ronald R. Austin, P.E.
Vice President

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Charleston, South Carolina 29402
P: 843.723.4539 F: 843.723.3648
www.SoilConsultantsInc.com

Construction Materials | Geotechnical | Nondestructive | Special Inspections

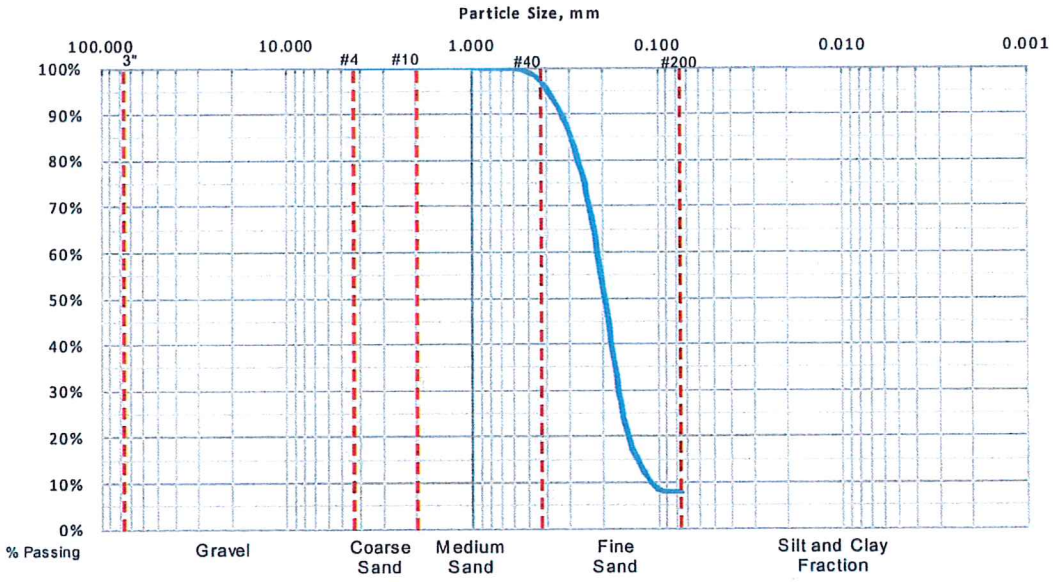
Acct. No: TA028 **Project No:** 220110 **Date Sampled:** 09/12/2022
Report Date: 09/26/2022 **Sampled By:** D. Floyd
Project: Hangar Taxilane Improvements and Hangar Sitework, Georgetown County Airport, Georgetown, SC **By Order Of:** Client
Location: Boring B-1, S-1 **Order Number:**

Client: TALBERT & BRIGHT
REPORT: Soil Classification (Gradation & Atterberg Limits) **LAB NO:** 78319-4

TEST RESULTS

Report No: 78319-4
Page 1 of 1

Sample Identification		
B-1, S-1, 0 ft		
Sieve	**Size, mm**	**% Passing**
3 in.		
2 in.		
1-1/2 in.		
1 in.		
3/4 in.		
1/2 in.		
3/8 in.		
No. 4	4.75	100
No. 10	2.00	100
No. 20	0.85	100
No. 40	0.425	97
No. 60	0.25	75
No. 100	0.18	22
No. 140	0.106	9
No. 200	0.075	7.7
Coefficient of curvature, Cc		2.0
Coefficient of uniformity, Cu		1.1
Material		**%**
Gravel		0.0
Total Sand		92.3
Coarse Sand		0.0
Medium Sand		3.2
Fine Sand		89.1
Silt and Clay		7.7
Plasticity Characteristics		
Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)



Classification	
ASTM	Atterberg limit required for classification
AASHTO	Atterberg data required for classification

Test Method (As Applicable): ASTM D6913, ASTM D1140, ASTM D4318, ASTM D2487, AASHTO M145

Orig: TALBERT & BRIGHT Attn: Mr. Al Smith
E-Mail: asmith@tbiilm.com (1-ec copy)

Respectfully Submitted,
SOIL CONSULTANTS, INC.

AASHTO ACCREDITED

Ronald R. Austin, P.E.
Vice President

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Construction Materials | Geotechnical | Nondestructive | Special Inspections

Acct. No: TA028 **Project No:** 220110 **Date Sampled:** 09/12/2022
Report Date: 09/26/2022 **Sampled By:** D. Floyd
Project: Hangar Taxilane Improvements and Hangar Sitework, Georgetown County Airport, Georgetown, SC **By Order Of:** Client
Location: Boring C-3, S-1 **Order Number:**

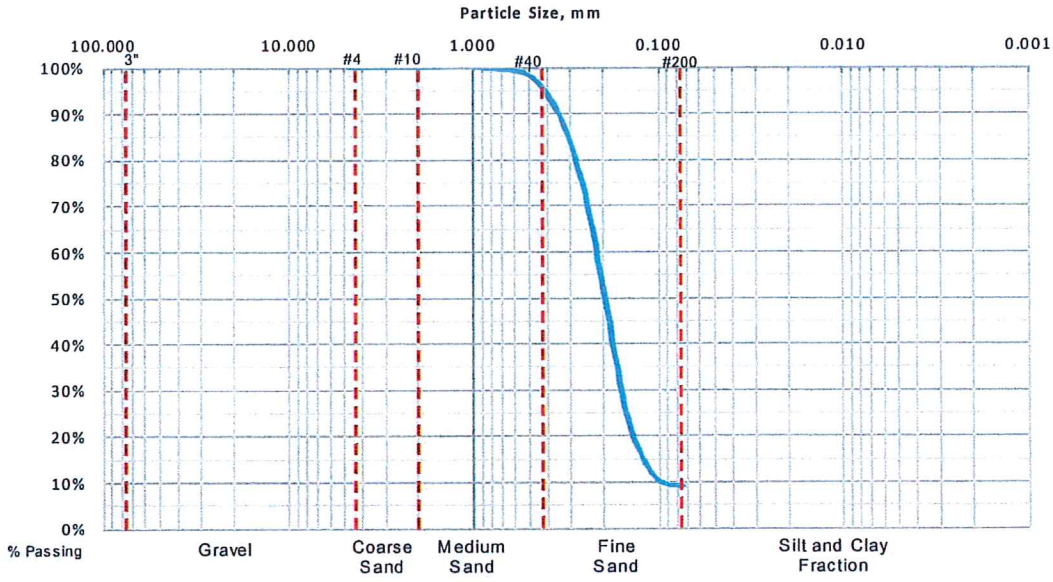
Client: TALBERT & BRIGHT

REPORT: Soil Classification (Gradation & Atterberg Limits) **LAB NO:** 78319-5

TEST RESULTS

Report No: 78319-5
Page 1 of 1

Sample Identification		
C-3, S-1, 0 ft		
Sieve	**Size, mm**	**% Passing**
3 in.		
2 in.		
1-1/2 in.		
1 in.		
3/4 in.		
1/2 in.		
3/8 in.		
No. 4	4.75	100
No. 10	2.00	100
No. 20	0.85	100
No. 40	0.425	96
No. 60	0.25	73
No. 100	0.18	24
No. 140	0.106	11
No. 200	0.075	8.9
Coefficient of curvature, Cc		2.5
Coefficient of uniformity, Cu		1.3
Material		**%**
Gravel		0.0
Total Sand		91.1
Coarse Sand		0.0
Medium Sand		4.3
Fine Sand		86.7
Silt and Clay		8.9
Plasticity Characteristics		
Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)



Classification	
ASTM	Atterberg limit required for classification
AASHTO	Atterberg data required for classification

Test Method (As Applicable): ASTM D6913, ASTM D1140, ASTM D4318, ASTM D2487, AASHTO M145

Orig: TALBERT & BRIGHT Attn: Mr. Al Smith
E-Mail: asmith@tbillm.com (1-ec copy)

Respectfully Submitted,
SOIL CONSULTANTS, INC.

AASHTO ACCREDITED

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Vice President

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Construction Materials | Geotechnical | Nondestructive | Special Inspections

Acct. No: TA028 **Project No:** 220110 **Date Sampled:** 09/12/2022
Report Date: 09/26/2022 **Sampled By:**
Project: Hangar Taxilane Improvements and Hangar Sitework, Georgetown County Airport, Georgetown, SC **By Order Of:** Client
Location: Bulk Sample #1 **Order Number:**

Client: TALBERT & BRIGHT

REPORT: Soil Classification (Gradation & Atterberg Limits) **LAB NO:** 78319-6

TEST RESULTS

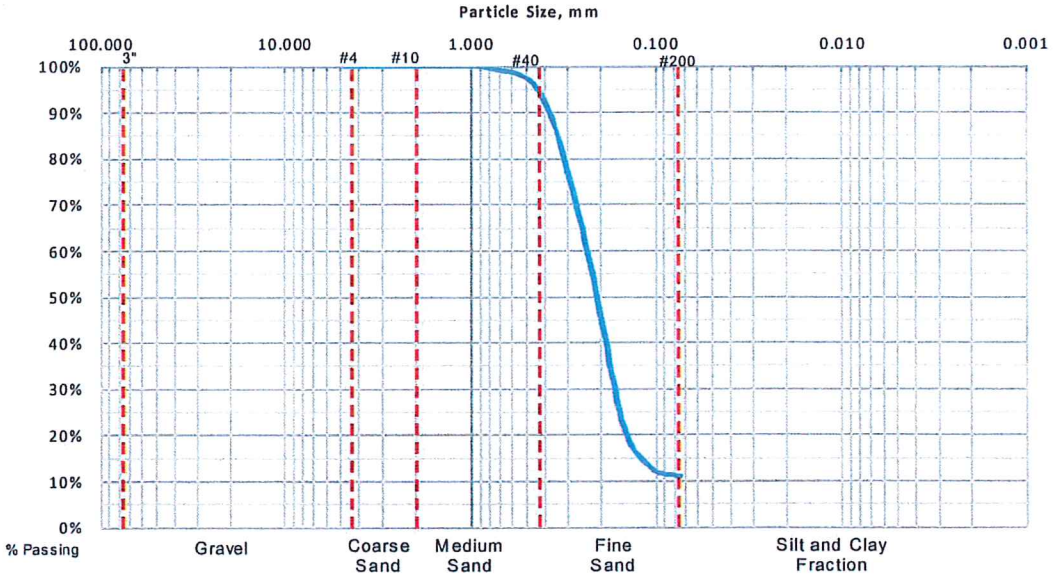
Report No: 78319-6
Page 1 of 1

Sample Identification
Bulk, #1

Sieve	Size, mm	% Passing
3 in.		
2 in.		
1-1/2 in.		
1 in.		
3/4 in.		
1/2 in.		
3/8 in.		
No. 4	4.75	100
No. 10	2.00	100
No. 20	0.85	100
No. 40	0.425	94
No. 60	0.25	65
No. 100	0.18	21
No. 140	0.106	13
No. 200	0.075	10.9
Coefficient of curvature, Cc		
Coefficient of uniformity, Cu		

Material	%
Gravel	0.0
Total Sand	89.1
Coarse Sand	0.0
Medium Sand	5.6
Fine Sand	83.4
Silt and Clay	10.9

Plasticity Characteristics		
Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)



Classification	
ASTM	Atterberg limit required for classification
AASHTO	Atterberg data required for classification

Test Method (As Applicable): ASTM D6913, ASTM D1140, ASTM D4318, ASTM D2487, AASHTO M145

Orig: TALBERT & BRIGHT Attn: Mr. Al Smith
E-Mail: asmith@tbiilm.com (1-ec copy)

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APPENDIX 'G'
CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK

SCAC PROJECT NO.: 21-008
EDA INVESTMENT NO.: 04-79-07837

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA

Prepared For:
GEORGETOWN COUNTY, SOUTH CAROLINA AND GEORGETOWN COUNTY AIRPORT COMMISION

In Cooperation With:
SOUTH CAROLINA AERONAUTICS COMMISION

Engineer:
TALBERT & BRIGHT, INC.
Engineering and Planning Consultants
4810 Shelley Drive
Wilmington, NC 28405
(910) 763-5350

TBI No. 2601-2101
February 2023
SC Engineering License No. C00386

SOUTH CAROLINA
TALBERT & BRIGHT, INC.
No. C00386
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 9779
10/10/23
ALAN M. SMITH

Construction Safety and Phasing Plan (CSPP)
Hangar Taxilane Improvements and Hangar Sitework
Georgetown County Airport

February 2023

INTRODUCTION

The Hangar Taxilane Improvements and Hangar Sitework project at the Georgetown County Airport includes construction of new apron (approximately 200' X 218') for an existing hangar, new taxiway from Runway 23 and hangar sitework for two future 200' X 150' hangars adjacent to the proposed taxiway. Work elements include erosion control installation, bituminous pavement removal, removal of existing pipe and drainage structures, grading, storm drainage installation, aggregate base course placement, bituminous paving (P-401 and SCDOT Type 'A' Base), marking, lighting and signage installation, sodding, seeding and mulching.

The project has been divided into two phases, each delineated to minimize the duration of runway and taxiway closures as well as impacts on airport operations and aircraft traffic.

This Construction Safety and Phasing Plan has been prepared in accordance with FAA Advisory Circular (AC) 150/5370-2G. The Plan is organized into 19 chapters corresponding to article 204 of Chapter 2 of the AC.

Chapter 1 - COORDINATION

a. **Pre-Bid Site Inspection.** There will not be a pre-bid conference, but bidders are encouraged to visit the site in person prior to bidding. Site inspections will be made available by PRIOR APPOINTMENT ONLY. Please contact Nancy Silver, Purchasing Officer at (843)545-3076 or by email at nsilver@gtcounty.org to schedule an appointment. A prior request is necessary because the Airport Director oversees more than one field and may not always be at the GGE Airport site. The Georgetown County Airport Terminal is located at 129 Airport Road, Georgetown, SC 29440.

b. **Pre-Construction Conference.** A pre-construction conference will be held following contract award and prior to Notice-to-Proceed. Invitees will include representatives of the Owner, Engineer, Contractor, key sub-contractors and suppliers, FAA-ADO, SCAC, and other interested parties.

c. **Construction Progress Meetings.** Progress meetings with representatives of the Owner and Engineer will be held throughout the project. Local SCAC personnel will be invited. These meetings will generally be held bi-weekly but may be more frequent during critical phases of the work. The purpose of these meetings will be scheduling and coordination of the work activities and discussion of operational, safety, and security matters. The Contractor will be required to have a qualified representative at each of these meetings. Safety, security, schedule, and local coordination (SCAC/Airport/NOTAMs, etc.) will be standing agenda items.

d. **Scope or Schedule Changes.** Any work scope changes contemplated will be discussed and coordinated at progress meetings and formally approved as appropriate prior to implementation. The contractor is required to prepare, submit, and regularly update a detailed construction progress schedule for the project. The schedule, and any contemplated changes, will be discussed at the pre-construction conference and all progress meetings.

e. **FAA ATO Coordination.** This project will involve nighttime closure of Runway 5-23 and partial closure of Taxiway A. Closures will be coordinated in advance with Airport representatives. The Airport will issue the appropriate NOTAMs for this closure.

Chapter 2 - PHASING

a. **Phase Elements.** The project involves erosion control installation, bituminous pavement removal, removal of existing pipe and drainage structures, grading, storm drainage installation, aggregate base course, bituminous paving (P-401 and SCDOT Type 'A' Base), marking, lighting and signage installation, sodding, seeding, and mulching. The Project Layout and Safety Plan (Sheets A1.2 and A1.3) shows detailed information about general operations and safety requirements, and barricade locations. The Phasing Plans (Sheets A1.4, A1.5, and A1.6) shows phasing plan layout, safety requirements, and proposed sequence of construction. The areas of operations affected by the construction activity and mitigation of the effects are listed in Chapter 3: Areas of Operations Affected by the Construction.

See the project Phasing Plans (Sheets A1.4, A1.5, and A1.6) for detailed descriptions and layout/limits of the work areas and phases. The unit of Contract Time for this project is the calendar day. The table below details the closures required for each construction phase and the allowable closure period for each phase. Failure to complete work in any of the specified phase within the specified contract time shall result in the assessment of liquidated damages. Contract times, allowable hours of operations and liquidated damages for each Phase are shown below:

TABLE 1 - CONTRACT TIME AND LIQUIDATED DAMAGES (SCHEDULE I)

Schedule I – Hangar Taxilane Improvements and Hangar Sitework			
Work Phase	**Contract Time**	**Allowable Hours of Operations**	**Liquidated Damages**
Schedule I – Hangar Taxilane Improvements and Hangar Sitework (Phase I and II)[1]	120 Calendar Days	24 Hours per Day	$1,500 per Calendar Day
Phase I (Work Area 1)[2]	30 Calendar Days	24 Hours per Day	$1,500 per Calendar Day

Phase II - Runway 5-23 Closure – Work in ROFA [3]	16 Contract Days	9:00 pm to 6:00 am	$1,500 per Calendar Day
Phase II - Runway 5-23 Closure – Work in ROFA [3]	Failure to Reopen by 6:00 am	---	$500 Per Hour or Portion Thereof
Phase II - Final Marking Application – Work in ROFA[4]	1 Contract Day	9:00 pm to 6:00 am	$1,500 per Hour or Portion Thereof
Removal of Erosion Control Items [5]	2 Calendar Days	24 Hours per Day	$1,500 per Calendar Day

Notes:

1. **Schedule I - Hangar Taxilane Improvements and Hangar Sitework.** The Contractor shall complete all work for Phase I and II of the Hangar Taxilane Improvements and Hangar Sitework within 120 calendar days of the Project Notice to Proceed. Failure to complete the project within the specified time will result in the assessment of liquidated damages in the amount of $1500.00 per calendar day.
2. **Phase I (Work Area 1).** Construction shall include demolition and removal of existing pavement, earthwork, locate and encase existing utilities, installation of lighting conduit and encased duct, installation of taxiway light bases, construction of aggregate base course and bituminous surface for the taxiway, apron, and driveway, and basic grading for shoulders adjacent to the pavement and within limits of the lighted barricades within the Phase I (Work Area 1) limits. The Contractor shall have 30 calendar days from the construction start in Work Area 1 to complete this work. The Contractor may schedule Work Area 1 construction during the 120-day contract time for Phase I at his discretion. The closure schedule for Work Area I shall be coordinated with the ENGINEER and Owner one week in advance of the closure. During this time frame the Contractor may also work in all areas of Phase I.

3. **Runway 5-23 Closure – Work in ROFA.** Work in the ROFA of Runway 5-23 will require closure of Runway 5-23. The Contractor will be allowed 16 contract days between the hours of 9:00 pm and 6:00 am to complete work within the ROFA area. The closures do not have to be completed on consecutive days, with the closures schedule dependent on work activities to be completed. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for a scheduled closure. Failure to reopen Runway 5-23 after 16 contract days will result in the assessment of liquidated damages of $1,500.00 per contract day or portion thereof. Failure to reopen Runway 5-23 by 6:00 am each morning will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for these activities is included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.
4. **Final Marking Application – Work in the ROFA.** Final Marking Application for work within the ROFA may begin after a 30 day curing period after final paving operations are completed. The Contractor will be allowed 1 contract day between the hours of 9:00 pm and 6:00 am to complete the final marking application within the ROFA area. The Contractor shall be required to provide a minimum 48 hour notice to the Airport and ENGINEER for the scheduled closure. Failure to reopen Runway 5-23 by 6:00 am will result in the assessment of liquidated damages of $500.00 per hour or portion thereof. The contract time for this activity is not included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework.
5. **Removal of Erosion Control Items.** The removal of erosion control items shall be scheduled after the site is stabilized with permanent grass. The Contractor shall periodically inspect the site until it is stabilized and notify the Engineer for a review. The work shall be scheduled after the Engineer has coordinated project closure with Georgetown County and has notified the Contractor to proceed. The contract time shown is not included in Total Contract Time shown for the Hangar Taxilane Improvements and Hangar Sitework

b. **Construction Safety Drawings.** The Project Layout and Safety Plan (Sheet A1.2), Project Layout and Safety Plan Notes and Details (SheetA1.3), and Phasing Plans (Sheets A1.4, A1.5, and A1.6) are included in Appendix 'A'. Information is also provided in Section PSP-5 of the Project Special Provisions.

Chapter 3 - AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY

a. **Identification of Affected Areas.** Each phase affects different areas on the airfield. The work will require the following closures:

Work Phase (Location)	Closure Required
Phase 1 (Hangar Taxilane Improvements and Hangar Sitework)	No closure required
Phase 2 (Runway 5-23 Closure – Work in ROFA)	Nighttime closure (between 9:00 PM to 6:00 AM) of Runway 5-23, Taxiway 'A' from Runway 5 end to Taxiway 'C' and from Runway 23 end to Connector Taxiway for Hangar Taxilane.
Final Marking Application (Work in ROFA)	Nighttime closure (between 9:00 PM to 6:00 AM) of Runway 5-23, Taxiway 'A' from Runway 5 end to Taxiway 'C' and from Runway 23 end to Connector Taxiway for Hangar Taxilane. 9 Hour nighttime closure (1 Day) for Final Marking.

b. **Mitigation of Effects.** Mitigation measures for each phase are described below:

Phase 1: All work will occur outside the safety areas. No closure is required for this phase.

Phase 2: During this phase, work will occur within Runway 5-23 ROFA. Nighttime closure of Runway 5-23 between 9:00 PM to 6:00 AM will be required. Runway 11-29, Taxiway 'B' and Taxiway 'C' will remain open.

Mitigation of impacts during all areas of construction will also be provided by careful scheduling of the sequence of the phases. As the work progresses and especially prior to nighttime closures, the Contractor will be required to communicate, coordinate and cooperate with the Engineer, Resident Project Representative (RPR), and Airport Management, regarding the work schedule and status.

Chapter 4 - PROTECTION OF NAVIGATION AIDS (NAVAIDs)

The work areas of this project will require the shutdown of the ODALs on Runway 5 end and the Runway 5 and 23 PAPIs for work requiring the closure of Runway 5-23. Shutdown of the ODALs will be coordinated closely with the FAA.

The requirements for protection of existing facilities are presented in Sections PSP-17, PSP-18, and PSP-19 of the Project Special Provisions.

Airport facilities staff will be invited to all project meetings to assure coordinated efforts to locate and protect the affected infrastructure.

Chapter 5 - CONTRACTOR ACCESS

a. **Location of Stockpiled Construction Materials.** All stockpiles of materials or equipment shall be located in the contractor staging area as shown on the plans or as coordinated with the Airport. The staging area is shown on plan sheets A1.2, A1.4, A1.5, and A1.6. Excess material stockpiles shall not exceed 8 feet in height. All loose items within the staging areas shall be secured at all times. Prior to leaving work each day, the Contractor shall return all construction materials and equipment to the staging areas. No stockpiles will be permitted within ROFA as part of this project.

   The contractor shall dispose all excess soil and debris from construction operations off Airport property in a properly permitted location.

b. **Vehicle and Pedestrian Operations**

   1) **Construction Site Parking.** Personal cars shall be parked outside of secured airfield areas.

   2) **Construction Equipment Parking.** Prior to leaving work each day, Contractor shall return all equipment to the staging areas. For location of staging area, see Sheets A1.2, A1.4, A1.5, and A1.6 of the Plans.

   3) **Access and Haul Roads.** Access roads to be used under this Contract shall be those shown on Sheets A1.2, A1.4, A1.5, and A1.6 of the Plans. The Contractor shall confine his equipment and hauling where practical to existing roads on the Airport. If existing pavement or road surface is damage by the Contractor's operations, it shall be repaired to its original condition. Metal track vehicles will not be permitted to operate on or across existing pavement without protective matting to prevent marring of the pavement surface.

      The Contractor shall conduct his operations in such a manner as to assure that such operations do not impede access to any area of the airfield at any time by the emergency vehicles. Emergency vehicle access shall be a standing agenda item for all progress meetings. The Contractor shall cooperate fully and immediately with any directives issued by Airport Management relative to emergency access.

   4) **Marking and Lighting of Vehicles.** All vehicles operating in the AOA shall be lighted or flagged in accordance with FAA Advisory Circular 150/5210-5D, "Painting, Marking, and Lighting of Vehicles Used on an Airport". Copies of the Advisory Circular will be made available upon request.

5) **Description of Proper Vehicle Operations.** All construction vehicles must be cleared for access by the Airport Management.

6) **Required Escorts.** All Contractor personnel, including but not limited to, general laborers, subcontractors, drivers, and journeymen working within active air operations areas must at all times remain within visual and voice range of Contractor supervisory personnel. For the purposes of this project, the air operations areas (AOA) refer to all areas within the airport security fence.

7) **Situational Awareness.** Men, equipment, or other construction-related material are not allowed within the RSA of an open Runway or TSA of an open Taxiway at any time.

   Movement of construction vehicles will be restricted to construction areas by placement of lighted barricades. See Sheet A1.2 through Sheet A1.6 for barricade locations.

   Contractor will be required to ensure that no construction employees, employees of subcontractors or suppliers, or other persons enter any part of the Air Operations Areas (AOA) from the construction site unless authorized.

   During construction, adjacent apron areas, taxilanes, taxiways, and runway will be open to aircraft unless otherwise noted. Aircraft will have the right of way at all times. Contractor shall be aware of the aircraft movements and the jet blast and/or prop-wash associated with these aircraft. The Contractor shall secure loose items.

c. **Two-Way Radio Communications**

1) **General.** Radios for two way communication will be provided by the Contractor for their use.

2) **Areas Requiring Two-Way Radio Communication with the ATCT.** Not Applicable.

3) **Frequency to be Used.** Communication with the Airport Management shall be by phone, (843) 545-3638.

   When required, the Contractor flagmen shall monitor aircraft traffic by UNICOM frequency 123 MHz when construction vehicles and/or equipment are entering or crossing the Runway and Taxiway Safety Areas.

4) **Proper Radio Usage, Including Read Back Requirements will be Covered in Driver's Training Course by PSO.** Not Applicable.

5) **Proper Phraseology, Including the International Phonetic Alphabet will be Covered in Driver's Training Course by PSO.** Not Applicable.

6) **Light Gun Signs.** Not Applicable.

d. **Airport Security**

1) **Fencing and gates.** The Contractor shall coordinate ingress-egress requirements with the Airport Management. All open gates to secured airport areas shall be monitored continuously by Contractor's personnel to control access to secured area or shall be closed and locked. Contractor personnel shall not allow any unauthorized personnel or animals to enter through the construction gate. The Contractor shall be responsible for securing and locking all gates when not in use and at the end of each day's operations.

   Prior to entering the secured AOA of the airport each day, the Contractor shall check in with the Airport. Close coordination for access to work areas and schedules between the Contractor, other Contractors working in the project area, and Airport will be required throughout the project. Contractor shall provide a list of all key holders for Contractor's locks seven days prior to construction.

2) Airports subject to 49 CFR Part 1542, Airport Security, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

Chapter 6 - WILDLIFE MANAGEMENT

a. **Trash.** The Contractor shall clean all construction areas of litter, loose papers, debris, etc. on a daily basis, or as directed by the Engineer/Airport. Food scraps must be collected and properly disposed of by construction personnel. Prior to the close of daily operations, Contractor shall inspect all active Air Operations Areas and construction areas for litter. All debris shall be cleaned up and properly disposed of prior to release of crews from each shift.

b. **Standing Water.** If wet conditions are encountered during construction, Contractor is responsible for dewatering areas to remove standing water.

c. **Tall Grass and Seeds.** All seeding shall comply with the Seeding Specifications (T-901) to avoid seed mixtures that will attract wildlife. The Contractor shall protect seeded areas against traffic. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

d. **Poorly Maintained Fencing and Gates.** The airport perimeter fencing and gates shall be carefully protected by the Contractor. Any facilities damaged by the Contractor will be repaired immediately and restored to original condition at Contractor's cost.

e. **Disruption of Existing Wildlife Habitat.** The airport actively manages wildlife. This project is not expected to disrupt any existing wildlife habitat.

Contractor shall notify Airport Management and Engineer immediately of any wildlife encounters and/or sightings.

Chapter 7 - FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

1. Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. During construction operations, Contractor is responsible for monitoring and controlling FOD to the satisfaction of Airport Management and the Engineer. Prior to the close of daily operations, Contractor shall inspect all construction areas to ensure that they are clear of FOD.

2. Prior to reopening any construction work area, Contractor must perform a walk through with Airport Management and the Engineer to confirm that the areas are free of FOD or other hazards.

Chapter 8 - HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

1. Contractor shall be responsible for oil management and for expeditious containment and clean-up of spills on the Airport property resulting from fuel, lubricant or hydraulic fluid leaks from construction vehicles and/or equipment.

2. The Contractor shall furnish to the Engineer and Airport maintenance and safety staff, MSDS sheets for all chemicals used during construction, including but not limited to lime products.

3. Transport and handling of other hazardous materials on an Airport also requires special procedures. See AC 150/5320-15A, Management of Airport Industrial Waste.

Chapter 9 - NOTIFICATION OF CONSTRUCTION ACTIVITIES

a. Maintenance of a List of Responsible Representatives/Points of Contact

1) The Contractor and all subcontractors shall designate a representative and alternate to contact on a 24-hour basis should problems arise. The point of contact provided must be able to coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the Airport. The Contractor shall provide a listing of all contact persons of all supervisory personnel and all subcontractors.

2) The Contractor must also provide a safety/construction inspector familiar with airport safety to monitor construction activities.

3) The Contractor shall coordinate with airport management when working in areas containing airfield lighting cable.

Contacts are:
Airport Management (843) 545-3638

b. **Notices to Airmen (NOTAM).** The Owner will issue the necessary NOTAMS to reflect hazardous and operational conditions. The Contractor shall work with the Engineer and Owner to schedule NOTAM issuance and Airport Operations Area (AOA) closures and shall provide the Owner and Engineer with advance notice of the need to issue or close a NOTAM. It is important that NOTAMS be kept current and reflects the actual conditions with respect to construction situations. Active NOTAMS shall be reviewed periodically and revised to reflect the current conditions.

The Contractor shall not begin work unless and until 72 hours prior notice has been given to the Engineer and Airport Management. Crossing of runways or taxiways is not allowed. Contractor is prohibited from entering the runway safety areas, taxiway safety areas, and NAVAID critical areas at any time unless the runway or taxiway are closed or Contractor is under radio control (See Chapter 5, (c)).

c. **Emergency Notification Procedures.** In an emergency situation the Contractor is to call 911 and notify the Airport Management immediately. The Airport Management can be reached by phone at (843) 545-3638.

d. **Coordination with ARFF Personnel.** Emergency access routes will be coordinated with Airport Management and modified to work around proposed construction areas. See Sheet A1.2 for construction work areas. The airport safety staff will be invited to all project meetings for coordination of safety and security matters.

e. **Notification to the FAA**

1) **Part 77.** If Contractor utilizes cranes, bucket trucks, or other equipment exceeding 25 feet in height, Contractor is responsible for filing a "Notice of Proposed Construction or Alteration" (FAA Form 7460) with FAA prior to erecting equipment. Contractor should allow at least 45 business days for FAA review. Detailed instructions can be found on the FAA website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

2) **NAVAIDs.**

a) See Chapter 4 for Shutdown of NAVAIDs.

Chapter 10 - INSPECTION REQUIREMENTS

a. Daily Inspections

1) A daily start-up and shut-down checklist will be jointly prepared by the Contractor and Airport Management. The checklist will be followed throughout the project. This checklist shall include, but not be limited to, barricades, haul routes, securing of access gates, clean up, etc. The Contractor's site supervisor and labor crew shall not leave the work site until such time as the Airport has inspected the area and signed off on the daily checklist.

2) Frequent inspections will be made by the Airport Management during critical phases of the work to ensure that the Contractor is following the recommended airfield safety procedures.

b. Final Inspections

1) Prior to reopening the Runways, and Taxiways, the Contractor must perform a walkthrough of the construction area with Airport Management and the Engineer to confirm that the apron areas are free of FOD or other hazards.

2) Contractor shall be required to remedy any deficiencies immediately, whether caused by negligence, oversight, or project scope change to the satisfaction of Airport Management and the Engineer.

Chapter 11 - UNDERGROUND UTILITIES

1. Underground utilities are known to be located in the project areas. Existing underground utilities including but not limited to underground runway and taxiway lighting and ground systems, and other utilities are located near the construction. Locations of utilities if shown on the Plans are approximate only. All utilities and facilities are not necessarily indicated on Plans. It shall be the Contractor's responsibility to locate and protect existing utilities and facilities from damage. Utility contact information is listed in Chapter 9.(a)(3).

2. All existing facilities will be carefully protected by the Contractor. Any facilities damaged by the Contractor will be repaired immediately and restored to original condition at the Contractor's expense. All facilities to remain in service shall be protected by suitable means. If damaged by the Contractor, these and any other above or below ground facilities shall be repaired at the Contractor's expense, to the satisfaction of the Engineer and the Owner.

3. Special attention is directed to the presence of existing airfield lighting circuits, NAVAIDs, and the associated power and control cables within the project area. Other facilities in the area include but are not limited to storm drain pipes, water and sanitary sewer pipes, and power and fiber optic cables. The Contractor shall be solely responsible for location and protecting all existing above and underground facilities and shall bear all associated costs within the Item "Mobilization". The Contractor shall employ a private utility locator service or shall obtain and utilize cable locating equipment in order to locate existing cable runs not to be disturbed/replaced by this project.

4. 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 his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

5. Should the Contractor damage or interrupt the operations of a utility service or facility outside the project limits by accident or otherwise, he 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.

6. The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his/her operations whether or not due to negligence or accident. The Contract Owner reserves the right to deduct such costs from any monies due or which may become due to the Contractor.

Chapter 12 - PENALTIES

1. Crossing or entering active Air Operations Area without prior approval from Airport will subject Contractor personnel loss of privilege of moving across active Air Operations Areas and will be subject to Contractor's offending employee to being removed from the project.

Chapter 13 - SPECIAL CONDITIONS

1. The Contractor's supervisory personnel are expected to become knowledgeable regarding the airport's operational, safety and security requirements, actively participate in project meetings, establish effective communications with the Resident Project Representative, Airport Management and Safety Personnel. The Contractor shall cooperate with the airport in operational matters and during emergency response situations.

2. The Georgetown County Airport does not have an Airport Traffic Control Tower (ATCT). Aircraft pilots operating on the airfield must rely on NOTAMs, temporary markings, barricades, etc. to navigate safely around construction zones. This perspective should be considered when implementing closures.

3. The Contractor and Engineer will coordinate with Airport Management staff to disseminate taxi route information to all tenants/operators and hangar tenants.

Chapter 14 - RUNWAY AND TAXIWAY VISUAL AIDS

a. **General.** Runway and taxiway visual aids include marking, lighting, and signs. The runway and taxiway visual aids ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including but not limited to closed runways and taxiways. Throughout the duration of the construction project, the Contractor shall verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual aids remain in place and operational. All must be secured in place to prevent movement by prop wash, jet blast, and other wind currents and be constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. All markings, lights, signs and visual NAVAIDs shall be mounted with a frangible fitting or be flexible. Signs adjacent to areas used by aircraft must comply with the Frangibility Requirements of AC 150/5220-23. For requirements, see sheets A1.2 thru A1.6 in the Plans.

b. **Markings.** Markings must be in compliance with the standards of AC 150/5340-1M, Standards for Airport Markings.

   1) **Temporarily closed runways.** A runway closure marker (X) shall be placed at each end of the runway directly on the runway designation numerals or just off then end of the runway when not able to place on the designation numerals.

   2) **Temporarily closed taxiways.** Temporary closed taxiways will be marked with low-profile lighted barricades and closed taxiway markers as required.

c. **Lighting and Visual Aids.** Lighting must be in conformance with AC 150/5340-30J Design and Installation Details for Visual Aids and AC 150/5345-53D Airport Lighting Certification Program. Runway and taxiway lighting must be de-energized or obscured on all closed airfield pavements.

   1) **Temporarily closed runways.** A lighted runway closure cross (X) shall be placed on both ends of the runway facing the approach during the night and day. Cross will be lit during nighttime and IFR conditions. See AC 150/5345-55A, Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure. See detail on Sheet A1.3 of the Plans. The runway lighting circuits or secure switches shall be disconnected to prevent inadvertent activation.

   2) **Temporarily closed taxiways.** If possible, contractor shall deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), contractor shall cover the light fixture in such a way as to prevent light leakage, or provide a temporary jumper to maintain circuit in operation for the open area. Low profile lighted barricades, traffic cones, and closed taxiway crosses shall be provided outside of the runway

safety areas (RSA) to prevent construction personnel and equipment from entering the RSA.

d. **Signs.** Signs must be in conformance with AC 150/5345-44K, Specification for Runway and Taxiway Signs and AC 150/5340-18G, Standard for Airport Sign Systems and AC 150/5345-53D Airport Lighting Certification Program. Any time a sign does not serve its normal function it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed.

Chapter 15 - MARKING AND SIGNS FOR ACCESS ROUTES

1. Pavement marking and signs intended for construction personnel shall conform to AC 150/5340-18G, Standards for Airport Sign Systems and, to the extent possible, with MUTCD.

2. The Contractor access routes are shown on Sheet A1.2 of the Plans. Access points and on-airport access routes shall be discussed at the pre-construction conference and at progress meetings to address construction needs and airport operational safety and security considerations. Access route physical conditions shall be regularly reviewed. The Contractor is expected to maintain the haul routes in safe, clean, orderly condition at all times. Many of the routes are also used for maintenance access, security checks and emergency response; these routes must be passable at all times and in all weather conditions.

3. The Contractor shall provide signs and markings for access routes on the airport as needed to control and guide the construction traffic. All signs and markings shall be coordinated with the RPR and airport staff and reviewed for aircraft safety, and security.

Chapter 16 - HAZARD MARKINGS AND LIGHTING

a. **Purpose.** The hazard marking and lighting prevents pilots from entering areas closed to aircraft, and prevents construction personnel from entering areas open to aircraft. Hazard marking and lighting shall also identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Hazard markings shall be used to identify FAA, Airport, and National Weather Bureau Service facilities, cable, and powerlines; and Airport surfaces such as RSA, ROFA, and OFZ to make it easier for Contractor personnel to avoid these areas.

b. **Equipment**

1) **Lighted Barricades.** Low profile barricades are specified to indicate construction locations in which no part of an aircraft can enter. Careful consideration must be given to selecting 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. Low profile aviation barricades shall be prefabricated as approved by the Engineer. Spacing shall be 5 feet apart or as directed by the Engineer. See detail on Sheet A1.3 of the Plans.

2) **Lights Must be Ded.** A steady burning red light shall be centered on each lighted barricade and must meet the luminance requirements of the State Highway Department. Lights must be securely mounted on barricades and spaced at no more than 10 feet. Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations.

3) **Air Operations Area - General.** Barricades are not permitted in any active safety area. Within runway or taxiway object free areas, steady burning red lights mounted on barricades marked with diagonal, alternating orange and white stripes as noted above, shall be provided to separate all construction/maintenance areas from the movement area. All barricades adjacent to any open runway or taxiway/taxilane safety area must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights. Barricades must be of low mass; easily collapsible upon contact with an 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. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inches above the ground.

4) **Air Operations Area - Runway/Taxiway Intersections.** Highly reflective barricades with lights will be placed outside of the runway safety area leading to active runway.

5) **Maintenance.** The Contractor must have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor must file the contact person's information with the airport operations. Lighting should be checked for proper operation at least once per day, preferably at dusk.

Chapter 17 – WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION

1. If construction is to be performed during nighttime hours, lighting equipment shall adequately illuminate the work area. Minimum illumination levels must conform to AC 150/5370-10H for nighttime construction efforts.

2. All support equipment, with the exception of haul trucks, shall be equipped with lights to safely illuminate the immediate area.

3. All light towers shall be positioned and adjusted to aim away from active runways to prevent blinding effects. Shielding may be necessary to achieve this. Light towers shall be removed from the work area when reopened to aircraft

Chapter 18 - PROTECTION

All the affected safety and object free areas for the project are shown on Sheet A1.2 in the Plans. Dimensions, location and protection of the safety areas and areas of open facilities will be discussed at the pre-construction conference and progress meetings.

a. **Runway Safety Area (RSA).** A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13A). At GGE, the RSA is 150 feet wide for both Runways, centered on the runway, and extending 300' beyond each runway end. Construction activities within the existing RSA are subject to the following conditions:

   1) **No construction may occur within the existing RSA** while the runway is open for aircraft operations.

   2) **Excavations.**

      a) Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

      b) Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

   3) **Drop-offs**. Contractor will be required to limit drop-offs in the safety area to no more than 2".

   4) **Erosion Control.** Soil erosion must be controlled to maintain RSA standards, this is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

b. **Runway Object Free Area (ROFA).** Construction, including excavations, may be permitted in the ROFA. At GGE, the ROFA is 500 feet wide for both Runways, centered on the runway, and extends 300' beyond each runway end. However, equipment must be removed from the ROFA when not in use, and material should

not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

c. **Taxiway Safety Area (TSA).** A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway (See AC 150/5300-13A). The taxiway safety area width for GGE is Group II – 79' wide. Construction activities within the TSA are subject to the following conditions:

   1) **No construction may occur within the existing TSA** while the taxiway is open for aircraft operations. TSA width may be adjusted if required and coordinated.

   2) **The airport operator must coordinate** the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

   3) **Excavations.**

      a) Open trenches or excavations are not permitted within the TSA while the taxiway is open. If possible, backfill trenches before the taxiway is opened. If the taxiway must be opened before excavations are backfilled, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.

      b) Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

   4) **Erosion Control.** Soil erosion must be controlled to maintain TSA standards, this is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

d. **Taxiway & Taxilane Object Free Area (TOFA).** Unlike the Runway Object Free Area, aircraft wings regularly penetrate *(extend into)* the taxiway or taxilane object free area during normal operations. Thus, the restrictions are more stringent. Barricades and cones will be used to segregate construction zones from areas open to aircraft. The taxiway object free area width for GGE is Group II – 124' wide. Construction activities within the TOFA are subject to the following conditions:

1) **No construction may occur within the existing TOFA** while the taxiway is open for aircraft operations. The TOFA dimensions may be temporarily adjusted.

2) **The airport operator must coordinate** the adjustment of the TOFA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

3) **Five-foot clearance** is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). In these situations, flaggers must be used to direct construction equipment, and wing walkers will be necessary to guide aircraft. Wing walkers should be airline/aviation personnel rather than construction workers.

e. **Obstacle Free Zone (OFZ).** All personnel, materials, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. At GGE the OFZ is 400 feet wide for both runways centered on the runway centerline.

f. **Runway Approach/Departure Surfaces.** No work is proposed in the runway approaches for this project. Therefore, all personnel, materials, and/or equipment shall remain clear of the applicable threshold siting surfaces, as defined in Table 3-3, and Table 3-4 of AC 150/5300-13B.

Chapter 19 - OTHER LIMITATIONS ON CONSTRUCTION

a. Prohibitions

1) **No use of tall equipment.** If Contractor utilizes cranes, bucket trucks, concrete pumps or other equipment exceeding 25 feet in height, Contractor is responsible for filing a "Notice of proposed Construction" (7460) with FAA prior to erecting equipment. Contractor should allow at least 45 business days for FAA review. Detailed instructions can be found on the FAA website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

2) **No use of open flame welding or torches.**

3) **No use of electrical blasting caps** on or within 1,000 feet of the airport property.

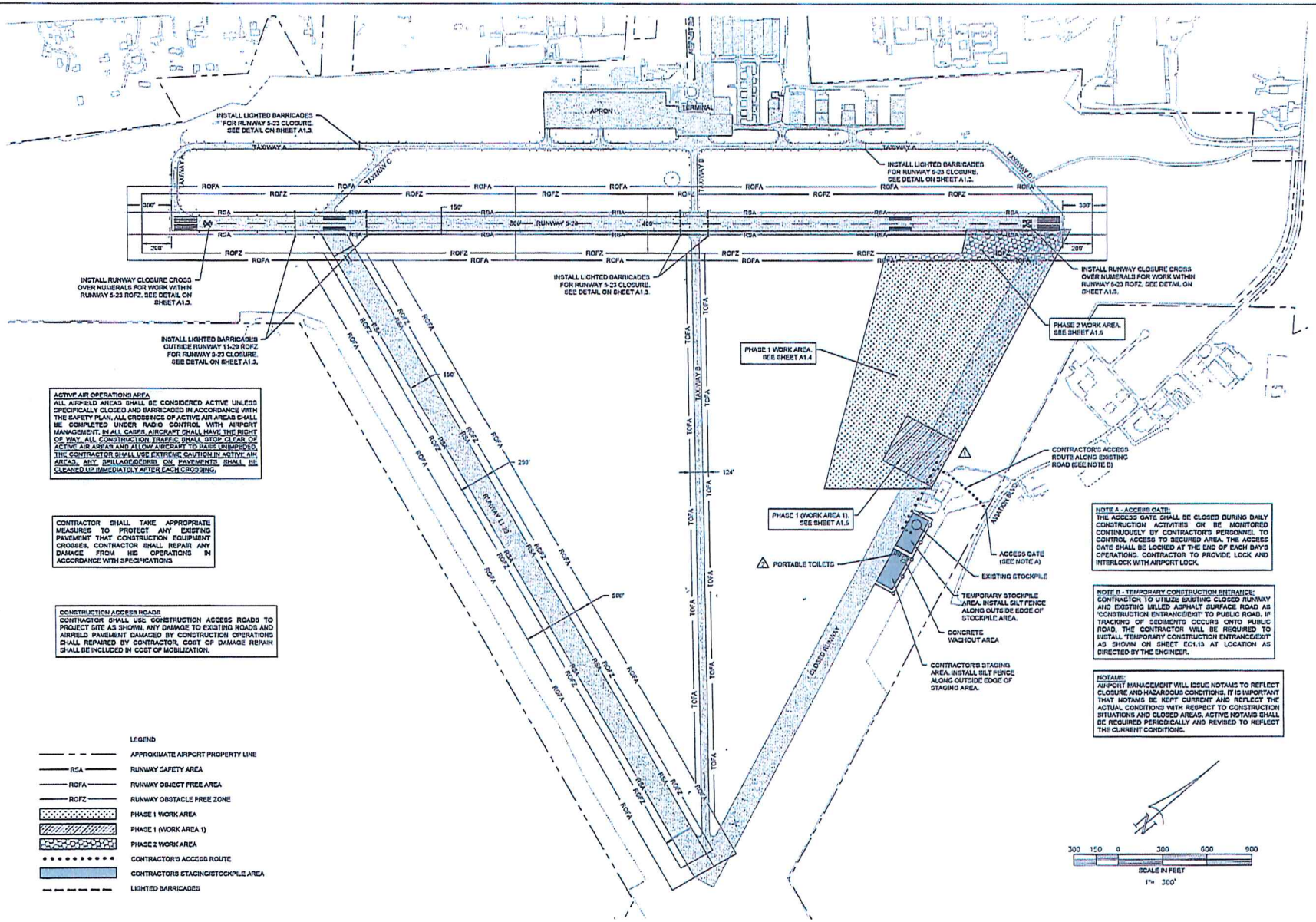
4) **No use of flare pots** within the AOA.

b. Restrictions

1) **Night time construction.** No restrictions for basic construction operations.

APPENDIX 'A'

Project Layout and Safety Plan
(Sheets A1.2 and A1.3)
and
Phasing Plans
(Sheets A1.4. A1.5, and A1.6)



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SEQ. NO.	REVISIONS	DATE
2	ADDED FENCE NOTE & REVISED WORK AREA 1 LIMITS	10/27/23
1	REVISIONS	9/7/23

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA
HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK
PROJECT LAYOUT AND SAFETY PLAN

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 9779 ALAN M. SMITH

Date	FEBRUARY 2023
Scale	1" = 300'
Drawn	MT
Checked	AMS
Project No.	2601-2101
Sheet No.	A1.2

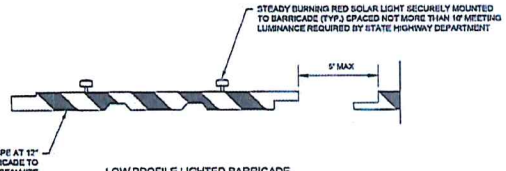
SAFETY PLAN REQUIREMENTS

THE INTENT OF THIS PLAN IS TO ESTABLISH CERTAIN SAFETY REQUIREMENTS THAT MUST BE ADHERED TO BY THE CONTRACTOR DURING CONSTRUCTION OF THIS PROJECT. RUNWAY 5-23 AND PARTIAL CLOSURE OF TAXIWAY 'A' WILL BE REQUIRED FOR WORK WITHIN RUNWAY 5-23 ROFZ. RUNWAY 5-23 SHALL BE CLOSED AT 9:00 PM AND REOPENED BY 6:00 AM THE FOLLOWING MORNING. RUNWAY 11-29 SHALL REMAIN OPEN AT ALL TIMES. SEE PROJECT SPECIAL PROVISIONS FOR CLOSURE REQUIREMENTS AND DETAILS. THE AIRPORT WILL REMAIN OPEN TO AIR TRAFFIC AT ALL OTHER TIMES. SEE SEQUENCE OF CONSTRUCTION ON PHASING PLANS

1. THE PROJECT AREA IS LOCATED WITHIN AND ADJACENT TO THE AIRCRAFT OPERATIONS AREA (AOA). THIS IS A CLOSELY MAINTAINED SECURITY AREA WITH RESTRICTED ACCESS. THE CONTRACTOR WILL BE REQUIRED TO MEET ALL REQUIREMENTS FOR ENTERING AND OPERATING IN THIS AREA AT ALL TIMES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH ALL REQUIREMENTS FOR ENTERING AND OPERATING IN THE AOA. FURTHER, IT WILL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO KEEP HIMSELF ADVISED OF ANY CHANGES IN REQUIREMENTS, TO ADHERE TO CURRENT REGULATIONS. THE CONTRACTOR SHALL ALSO HAVE PERSONNEL TRAINED TO OPERATE AND MONITOR AIRPORT SECURITY GATES USED DURING THE PROJECT.
2. THE CONTRACTOR SHALL NOT BEGIN WORK UNLESS AND UNTIL 72 HOURS PRIOR NOTICE HAS BEEN GIVEN TO THE ENGINEER AND AIRPORT MANAGEMENT. CROSSING OF RUNWAYS OR TAXIWAYS IS ALLOWED ONLY IF THE RUNWAY OR TAXIWAY IS CLOSED AND SHOWN ON THIS PLAN. CONTRACTOR IS PROHIBITED FROM ENTERING THE RUNWAY 5-23 OBSTACLE FREE ZONE AT ANY TIME UNLESS THE RUNWAY IS CLOSED. SEE GENERAL NOTE 1. THE CONTRACTOR SHALL PROVIDE A MINIMUM 48 HOUR NOTICE TO THE ENGINEER AND AIRPORT MANAGEMENT PRIOR TO THE NIGHTLY CLOSING OF RUNWAY 5-23.
3. IN AN EMERGENCY SITUATION THE CONTRACTOR SHALL CALL 911 AND NOTIFY THE AIRPORT MANAGEMENT IMMEDIATELY. THE AIRPORT CAN BE REACHED BY PHONE AT 843-545-3638.
4. SEE GENERAL NOTE 4 FOR AIRPORT ENTRY AND DEPARTURE PROCEDURES AND FOR VEHICLE MARKING REQUIREMENTS.
5. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL DESIGNATE A REPRESENTATIVE AND ALTERNATE TO CONTACT ON A 24 HOUR BASIS SHOULD PROBLEMS ARISE. THE CONTRACTOR SHALL PROVIDE A CONTACT LIST FOR ALL SUPERVISORY PERSONNEL AND ALL SUBCONTRACTORS TO THE ENGINEER.
6. A DAILY START-UP AND SHUT-DOWN CHECKLIST WILL BE JOINTLY PREPARED BY THE CONTRACTOR AND AIRPORT MANAGEMENT. THE CHECKLIST WILL BE FOLLOWED THROUGHOUT THE PROJECT. THIS CHECKLIST SHALL INCLUDE, BUT NOT BE LIMITED TO BARRICADES, FLAGMEN, HAUL ROUTES, SECURING OF ACCESS GATES, CLEAN UP, ETC. THE CONTRACTOR'S SITE SUPERVISOR AND LABOR CREW SHALL NOT LEAVE THE WORK SITE UNTIL SUCH TIME AS THE AIRPORT HAS INSPECTED THE AREA AND SIGNED OFF ON THE DAILY CHECKLIST.
7. UNDERGROUND UTILITIES ARE KNOWN TO BE LOCATED IN THE PROJECT AREAS. EXISTING UNDERGROUND UTILITIES INCLUDING BUT NOT LIMITED TO AIRFIELD LIGHTING, NAVAID POWER AND CONTROL CABLES, WATER, SANITARY SEWER, ELECTRICAL AND FIBER OPTIC CABLE MAY BE IN THE PATH OF CONSTRUCTION. LOCATIONS OF UTILITIES IF SHOWN ON THE PLANS ARE APPROXIMATE ONLY. ALL UTILITIES AND FACILITIES ARE NOT NECESSARILY INDICATED ON PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT EXISTING UTILITIES AND FACILITIES FROM DAMAGE. SEE PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT MANAGEMENT WHEN WORKING IN AREAS CONTAINING AIRFIELD LIGHTING, NAVAID CABLE, OR OTHER UTILITIES.

   CONTACTS ARE:
   AIRPORT DIRECTOR — MR. JIM TAYLOR — 843-545-3638

   FOR ADDITIONAL REQUIREMENTS RELATED TO PROTECTION OF EXISTING UTILITIES, INCLUDING CABLES, CONTROLS, NAVAIDS, WATER, SANITARY SEWER, ELECTRICAL AND FIBER OPTIC CABLE. SEE PROJECT SPECIAL PROVISIONS.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS IN REGARD TO CONSTRUCTION NOISE AND EROSION CONTROL DURING CONSTRUCTION.
9. THE CONTRACTOR SHALL CLEAN ALL CONSTRUCTION AREAS OF LITTER, LOOSE PAPERS, DEBRIS, ETC. ON A DAILY BASIS, OR AS DIRECTED BY THE ENGINEER. PRIOR TO THE CLOSE OF DAILY OPERATIONS, CONTRACTOR SHALL INSPECT ALL ACTIVE AIR OPERATIONS AREAS AND CONSTRUCTION AREA FOR FOD AND LITTER. ALL DEBRIS SHALL BE CLEANED UP AND PROPERLY DISPOSED OF PRIOR TO RELEASE OF CREWS FROM EACH SHIFT.
10. MEN, EQUIPMENT OR OTHER CONSTRUCTION-RELATED MATERIAL ARE NOT ALLOWED WITHIN THE RUNWAY OBJECT FREE AREA (ROFA) OF AN OPEN RUNWAY AT ANY TIME UNLESS THE RUNWAY IS CLOSED OR THE TAXIWAY OBJECT FREE AREA (TOFA) UNLESS THE SECTION OF TAXIWAY IS CLOSED (SEE GENERAL NOTE 1). MEN, EQUIPMENT OR OTHER CONSTRUCTION-RELATED MATERIAL WILL NOT BE PERMITTED CLOSER THAN 200 FEET FROM THE EDGE OF THE RUNWAY OR 50 FEET FROM THE EDGE OF ANY TAXIWAY WITHOUT PRIOR PERMISSION FROM THE AIRPORT MANAGEMENT.
11. DURING CONSTRUCTION, ADJACENT TAXIWAYS AND THE RUNWAY WILL BE OPEN TO AIRCRAFT UNLESS OTHERWISE NOTED. AIRCRAFT HAVE THE RIGHT OF WAY AT ALL TIMES. CONTRACTOR SHALL BE AWARE OF THE AIRCRAFT MOVEMENTS AND THE JETBLAST AND/OR PROP-WASH ASSOCIATED WITH THESE AIRCRAFT. THE CONTRACTOR SHALL SECURE LOOSE ITEMS AT ALL TIMES AND SHALL LOCATE STOCKPILES OF MATERIALS OR EQUIPMENT AWAY FROM AIRCRAFT OPERATION AREAS.
12. INSPECTION - FREQUENT INSPECTIONS WILL BE MADE BY AIRPORT MANAGEMENT DURING CRITICAL PHASES OF THE WORK TO ENSURE THAT THE CONTRACTOR IS FOLLOWING THE RECOMMENDED AIRFIELD SAFETY PROCEDURES.
13. EXCAVATIONS - CONTRACTOR MUST PROMINENTLY MARK OPEN TRENCHES AND EXCAVATIONS AT THE CONSTRUCTION SITE WITH RED OR ORANGE FLAGS, AS APPROVED BY THE AIRPORT, AND BACKFILL OR LIGHT THEM WITH RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY OR DARKNESS. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN 250 FEET OF THE RUNWAY CENTERLINE WHILE THE RUNWAY IS OPEN. IF THE RUNWAY MUST BE OPENED BEFORE EXCAVATIONS ARE BACKFILLED, COVER OR BACKFILL THE EXCAVATIONS APPROPRIATELY. COVERINGS FOR OPEN TRENCHES OR EXCAVATIONS MUST BE OF SUFFICIENT STRENGTH TO SUPPORT THE WEIGHT OF THE HEAVIEST AIRCRAFT OPERATING ON THE RUNWAY.
14. ALL AIRFIELD LIGHTING AND LIGHTED SIGNS OUTSIDE AREAS CLOSED FOR CONSTRUCTION SHALL BE KEPT OPERATIONAL THROUGHOUT THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL DISABLE TAXIWAY LIGHTING IN CLOSED SECTIONS OF TAXIWAYS BY INSTALLING TEMPORARY JUMPER CABLE OR COVERING LIGHTS. ALL GUIDANCE SIGNS WITHIN CLOSED AREAS AND LEADING TO CLOSED AREAS SHALL BE COVERED.
15. NO WORK OR CONSTRUCTION ACTIVITY IS ALLOWED WITHIN THE RUNWAY OBJECT FREE AREA OF AN ACTIVE RUNWAY OR TAXIWAY OBJECT FREE AREA OF AN ACTIVE TAXIWAY. ANY WORK WITHIN AN ACTIVE RUNWAY OBJECT FREE AREA WILL REQUIRE CLOSURE OF THE RUNWAY. NO WORK OR CONSTRUCTION ACTIVITY IS ALLOWED WITHIN THE TAXIWAY OBJECT FREE AREA. ANY WORK WITHIN A ACTIVE TAXIWAY OBJECT FREE AREA WILL REQUIRE CLOSURE OF THE EFFECTED SECTION OF TAXIWAY. PULLBACKS FOR MEN AND EQUIPMENT WITHIN THE RUNWAY OBSTACLE FREE ZONE WILL NOT BE ALLOWED (SEE GENERAL NOTE 1).



LOW PROFILE LIGHTED BARRICADE
NOT TO SCALE

AVIATION BARRICADE NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AVIATION BARRICADES IN SUFFICIENT QUANTITIES TO COMPLETE THE WORK FOR THIS CONTRACT.
2. LOW PROFILE LIGHTED BARRICADES SHALL BE MULTI-BARRIER AIRPORT RUNWAY BARRICADE AR100X96 AND SOLAR LIGHTS SHALL BE PROVIDED FOR THE BARRICADES AS MANUFACTURED BY ONF THE WALL PRODUCTS, LLC. OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE WATER NECESSARY TO FILL THE BARRICADES AND ENSURE ADEQUATE WATER HAS BEEN PROVIDED TO ANCHOR THE BARRICADES IN PLACE.
3. CONTRACTOR SHALL CHECK LIGHTS DAILY TO VERIFY THAT THEY ARE IN WORKING CONDITION AND SHALL REPLACE LIGHTS AS REQUIRED.
4. CONTRACTOR SHALL INSTALL BARRICADES AT LOCATIONS SHOWN ON INDIVIDUAL PLAN SHEETS. BARRICADES SHALL BE MOVED AND RELOCATED AS REQUIRED. BARRICADES SHALL BE INSTALLED WITH MAXIMUM 5' SPACE BETWEEN BARRICADE AND CONTRACTOR SHALL LEAVE ONE 15' SPACE FOR EMERGENCY VEHICLES. PROVIDE HOLD DOWN AND LATERAL SUPPORT TO PREVENT OVERTURNING FROM PROP WASH AND JET BLAST.

GENERAL NOTES:

1. IT IS THE INTENT OF THE OWNER THAT THE GEORGETOWN COUNTY AIRPORT WILL REMAIN OPEN TO AIR TRAFFIC AT ALL TIMES WITH THE EXCEPTION FOR SCHEDULED NIGHTLY CLOSURES WHEN WORKING WITHIN THE RUNWAY OBJECT FREE AREA. TEMPORARY CLOSURE OF RUNWAY 5-23 AND PARTIAL CLOSURE OF TAXIWAY 'A' WILL BE REQUIRED. CONTRACTOR SHALL PROVIDE A MINIMUM 7 BUSINESS DAYS NOTICE TO AIRPORT MANAGEMENT AND ENGINEER PRIOR TO ANY PROPOSED CLOSURE DATES, PRIOR TO REOPENING ANY PAVEMENT, CONTRACTOR MUST REMOVE BARRICADES AND PERFORM A WALK THROUGH OF THE CONSTRUCTION AREA WITH AIRPORT MANAGEMENT, THE RESIDENT PROJECT REPRESENTATIVE, AND ENGINEER TO CONFIRM THAT THE PAVEMENT AND SAFETY AREAS ARE FREE OF FOD OR OTHER HAZARDS.
2. PRIOR TO LEAVING WORK EACH DAY, CONTRACTOR SHALL RETURN HIS EQUIPMENT AND MATERIALS TO THE STAGING AREA IDENTIFIED ON THE PLANS.
3. ALL CONTRACTOR PERSONNEL, INCLUDING BUT NOT LIMITED TO, GENERAL LABORERS, SUBCONTRACTORS, DRIVERS, AND JOURNEYMEN WORKING WITHIN ACTIVE AIR OPERATIONS AREAS MUST AT ALL TIMES REMAIN WITHIN VISUAL AND VOICE RANGE OF CONTRACTOR SUPERVISORY PERSONNEL. FOR THE PURPOSES OF THIS PROJECT, THE AIR OPERATIONS AREA (AOA) REFERS TO ALL AREAS WITHIN THE AIRPORT SECURITY FENCE.
4. PRIOR TO ENTERING THE SECURED AOA OF THE AIRPORT EACH DAY, THE CONTRACTOR SHALL CHECK IN WITH THE AIRPORT. CLOSE COORDINATION FOR ACCESS TO WORK AREAS AND SCHEDULES BETWEEN THE CONTRACTOR, AND AIRPORT WILL BE REQUIRED THROUGHOUT THE PROJECT.

   THE CONTRACTOR SHALL COORDINATE INGRESS-EGRESS REQUIREMENTS WITH THE AIRPORT MANAGEMENT AND RESIDENT PROJECT REPRESENTATIVE (RPR). ALL OPEN GATES TO SECURED AIRPORT AREAS SHALL BE MONITORED CONTINUOUSLY BY CONTRACTORS PERSONNEL TO CONTROL ACCESS TO SECURED AREA OR SHALL BE CLOSED AND LOCKED. CONTRACTOR PERSONNEL SHALL NOT ALLOW ANY UNAUTHORIZED PERSONNEL TO ENTER THROUGH THE CONSTRUCTION GATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING AND LOCKING ALL GATES WHEN NOT IN USE AND AT THE END OF EACH DAY'S OPERATIONS. CONTRACTOR SHALL PROVIDE INTERLOCK AT PADLOCKED GATES. CONTRACTOR SHALL PROVIDE A COPY OF ALL GATE KEYS TO THE AIRPORT AND RPR. CONTRACTOR SHALL PROVIDE A LIST OF ALL KEY HOLDERS WHICH SHALL BE KEPT UPDATED THROUGHOUT THE PROJECT.

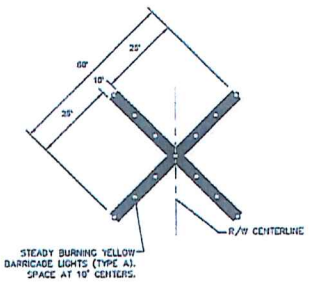
   ALL CONSTRUCTION VEHICLES MUST BE CLEARED FOR ACCESS BY THE AIRPORT MANAGEMENT AND RESIDENT PROJECT REPRESENTATIVE. PERSONAL CARS SHALL BE PARKED IN STAGING AREA. ALL VEHICLES OPERATING IN THE AOA SHALL BE LIGHTED OR FLAGGED IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5370-2G. COPIES OF THE ADVISORY CIRCULAR WILL BE MADE AVAILABLE UPON REQUEST.
5. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ASSURE THAT SUCH OPERATIONS DO NOT IMPEDE ACCESS TO ANY AREA OF THE AIRFIELD AT ANY TIME FOR THE AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) VEHICLES AND OTHER EMERGENCY VEHICLES. EMERGENCY VEHICLE ACCESS SHALL BE A STANDING AGENDA ITEM FOR ALL PROGRESS MEETINGS. THE CONTRACTOR SHALL COOPERATE FULLY AND IMMEDIATELY WITH ANY DIRECTIVES ISSUED BY AIRPORT MANAGEMENT RELATIVE TO EMERGENCY ACCESS.
6. ACCESS ROADS TO BE USED UNDER THIS CONTRACT SHALL BE THOSE DESIGNATED AND APPROVED BY THE ENGINEER. IN GENERAL, THE CONTRACTOR SHALL CONFINE HIS EQUIPMENT AND HAULING WHERE PRACTICAL TO EXISTING ROADS ON THE AIRPORT. IF EXISTING PAVEMENT OR ROAD SURFACE IS DAMAGED BY THE CONTRACTOR'S HAULING OPERATIONS, IT SHALL BE REPAIRED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. HAUL ROADS ACROSS TURFED AREAS SHALL BE REPAIRED, SCARIFIED, SEEDED, MULCHED, AND FERTILIZED AT THE CONTRACTOR'S EXPENSE. METAL TRACK VEHICLES WILL NOT BE PERMITTED TO OPERATE ON OR ACROSS EXISTING PAVEMENT WITHOUT PROTECTIVE MATTING TO PREVENT MARRING OF THE PAVEMENT SURFACE. ACCESS ROADS SHALL BE CONSTRUCTED BY CONTRACTOR AS REQUIRED. ALL COSTS ASSOCIATED WITH SUPPLYING, CONSTRUCTING, MAINTAINING AND RESTORING TEMPORARY HAUL AND ACCESS ROADS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "TEMPORARY CONSTRUCTION ITEMS"
7. ALL EXISTING FACILITIES WILL BE CAREFULLY PROTECTED BY THE CONTRACTOR. ANY FACILITIES DAMAGED BY THE CONTRACTOR WILL BE REPAIRED IMMEDIATELY AND RESTORED TO ORIGINAL CONDITION AT CONTRACTOR'S COST.
8. CONTRACTOR WILL, BY WATERING, CHEMICALS, VEGETATION, OR OTHER MEANS, PREVENT THE OCCURRENCE OF DUST WHICH WILL BE OBJECTIONABLE TO THE RESIDENTS OF THE AREA, VIOLATE EXISTING LAWS OR REGULATION, OR CAUSE HAZARDS TO AIR TRAFFIC.
9. CONTRACTOR MAY ENCOUNTER WET CONDITIONS DURING CONSTRUCTION. ALL COST FOR DEWATERING IS CONSIDERED INCIDENTAL TO COST OF ITEMS OF WORK BID UPON.
10. SEE PROJECT SPECIAL PROVISIONS FOR PROTECTION OF UTILITIES.

CONSTRUCTION CONTRACTOR'S RESPONSIBILITIES

1. CONTRACTOR SHALL HAVE AVAILABLE A COPY OF THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) AND PROJECT AIRPORT SAFETY PLAN ON SITE AT ALL TIMES. SEE APPENDIX 'G' OF THE SPECIFICATIONS.
2. CONTRACTOR SHALL COMPLY WITH THE AIRPORT SAFETY PLAN ASSOCIATED WITH THE CONSTRUCTION PROJECT AND ENSURE THAT CONSTRUCTION PERSONNEL ARE FAMILIAR WITH SAFETY PROCEDURES AND REGULATIONS ON THE AIRPORT.
3. CONTRACTOR SHALL PROVIDE A POINT OF CONTACT WHO WILL COORDINATE AN IMMEDIATE RESPONSE TO CORRECT ANY CONSTRUCTION-RELATED ACTIVITY THAT MAY ADVERSELY AFFECT THE OPERATIONAL SAFETY OF THE AIRPORT.
4. CONTRACTOR SHALL PROVIDE A SAFETY/CONSTRUCTION INSPECTOR FAMILIAR WITH AIRPORT SAFETY TO MONITOR CONSTRUCTION ACTIVITIES AT ALL TIMES DURING CONSTRUCTION.
5. CONTRACTOR SHALL RESTRICT MOVEMENT OF CONSTRUCTION VEHICLES TO CONSTRUCTION AREAS BY FLAGGING AND BARRICADING, ERECTING TEMPORARY FENCING, OR PROVIDING FLAGMEN OR ESCORTS AS APPROPRIATE.
6. CONTRACTOR SHALL ENSURE THAT NO CONSTRUCTION EMPLOYEES, EMPLOYEES OF SUBCONTRACTORS OR SUPPLIERS, OR OTHER PERSONS ENTER ANY PART OF THE ACTIVE AIR OPERATIONS AREAS (AOA) FROM THE CONSTRUCTION SITE UNLESS AUTHORIZED.
7. IF ARCHEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THE PROCEDURES CODIFIED AT 36 CFR 800.13(b) WILL APPLY AND, EDA AND THE SOUTH CAROLINA DEPARTMENT OF ARCHIVES AND HISTORY SHALL BE CONTACTED IMMEDIATELY. CONSTRUCTION OPERATIONS ARE TO CEASE IMMEDIATELY WITHIN A 100' RADIUS OF THE DISCOVERY AND TAKE STEPS TO PROTECT THE DISCOVERY. ARCHEOLOGICAL MATERIALS CONSIST OF ANY ITEMS, FIFTY YEARS OR OLDER WHICH WERE MADE OR USED BY MAN. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, STONE PROJECTILE POINTS (ARROWHEADS), CERAMIC SHERDS, BRICKS, WORKED WOOD, BONE AND STONE, METAL AND GLASS OBJECTS, AND HUMAN SKELETAL REMAINS.

NOTAMS (NOTICE TO AIRMEN)

THE AIRPORT MANAGEMENT WILL ISSUE THE NECESSARY NOTAMS TO REFLECT HAZARDOUS CONDITIONS. IT IS IMPORTANT THAT NOTAMS BE KEPT CURRENT AND REFLECT THE ACTUAL CONDITIONS WITH RESPECT TO CONSTRUCTION SITUATIONS. ACTIVE NOTAMS SHALL BE REVIEWED PERIODICALLY AND REVISED TO REFLECT THE CURRENT CONDITIONS.



RUNWAY CLOSURE CROSS
NOT TO SCALE

RUNWAY CLOSURE CROSS NOTES

1. PLACE RUNWAY CLOSURE CROSSES ON THE RUNWAY NUMERALS ON THE RUNWAY CENTERLINE OR OFF THE END OF THE RUNWAY PAVEMENT WITHIN THE RUNWAY SAFETY AREA BEFORE BEGINNING WORK IN A CLOSED OPERATION AREA.
2. CROSSES SHALL BE AVIATION YELLOW IN COLOR AND CONSTRUCTED OF FABRIC, PLASTIC OR OTHER MATERIAL APPROVED BY THE ENGINEER. CONTRACTOR SHALL PROVIDE A MEANS OF SECURING CROSSES IN PLACE.
3. CONTRACTOR SHALL INSPECT CROSSES FREQUENTLY AND MAKE ANY NECESSARY REPAIRS. ALL LIGHTS SHALL BE INSPECTED FREQUENTLY AND BATTERIES REPLACED AS NECESSARY.
4. RUNWAY CLOSURE SHALL BE REQUIRED WHEN WORKING WITHIN THE RUNWAY OBSTACLE FREE ZONE (ROFZ) AND RUNWAY SAFETY AREA (RSA). CONTRACTOR SHALL INSTALL CLOSURE CROSSES PRIOR TO COMMENCING WORK AND SHALL REMOVE CROSSES AT THE END OF EACH CLOSURE PERIOD.
5. ALL WORK ASSOCIATED WITH SUPPLYING CLOSURE CROSSES AND LIGHTED BARRICADES, INSTALLING AND REMOVING THEM WHEN WORKING WITHIN ROFZ, MAINTAINING THE CLOSURE CROSSES & BARRICADES AND ALL OTHER INCIDENTALS NECESSARY SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR "RUNWAY CLOSURE CROSSES AND LIGHTED BARRICADES".

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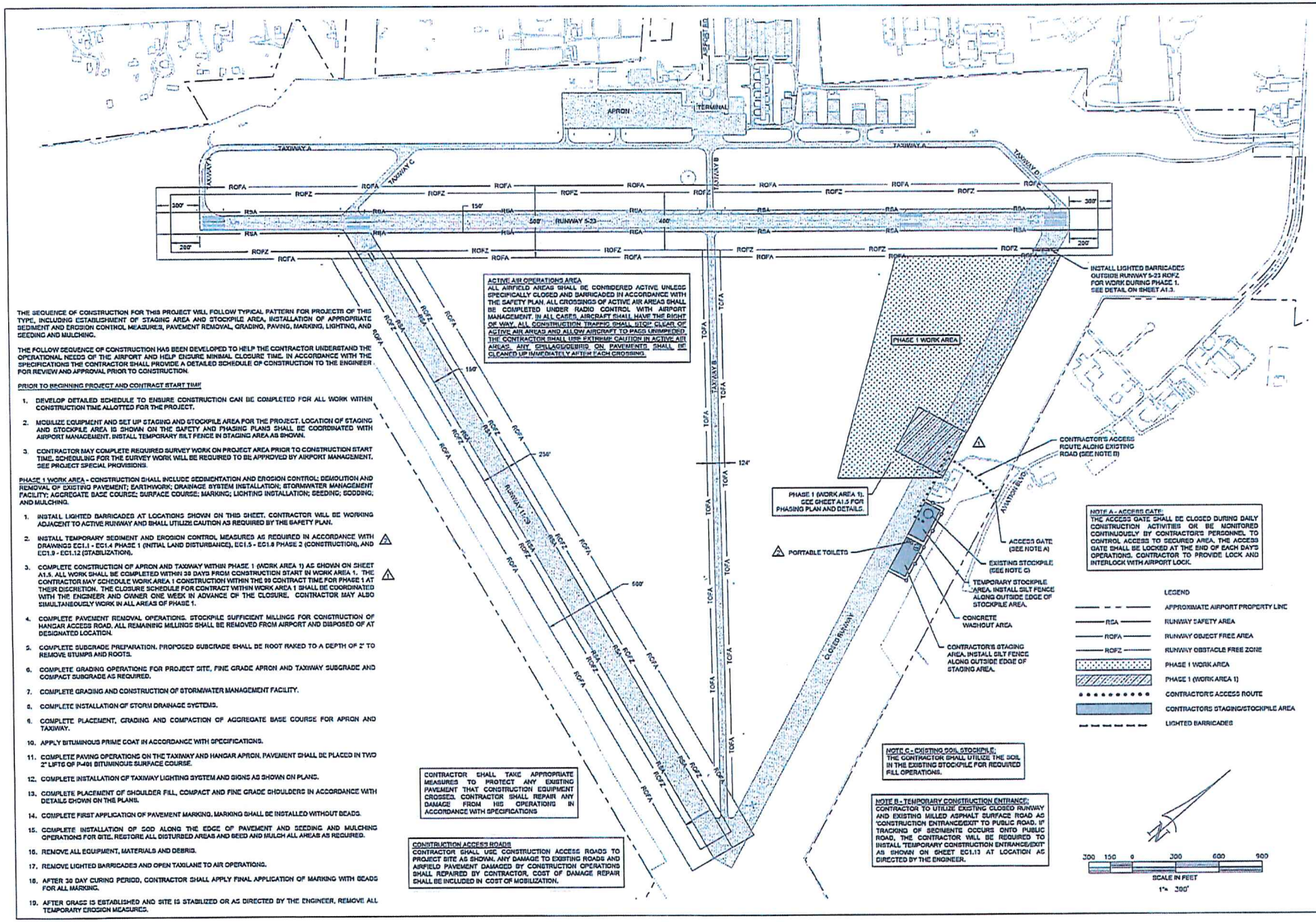
C-2233

REV. NO	REVISIONS	DATE
	RESPONSE	

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA
HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK
PROJECT LAYOUT AND SAFETY PLAN NOTES AND DETAILS

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 9779 — ALAN M. SMITH — 1/10/23

Date	FEBRUARY 2023
Scale	NONE
Drawn	HT
Checked	AMS
Project No.	2601-2101
Sheet No.	A1.3



THE SEQUENCE OF CONSTRUCTION FOR THIS PROJECT WILL FOLLOW TYPICAL PATTERN FOR PROJECTS OF THIS TYPE, INCLUDING ESTABLISHMENT OF STAGING AREA AND STOCKPILE AREA, INSTALLATION OF APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES, PAVEMENT REMOVAL, GRADING, PAVING, MARKING, LIGHTING, AND SEEDING AND MULCHING.

THE FOLLOW SEQUENCE OF CONSTRUCTION HAS BEEN DEVELOPED TO HELP THE CONTRACTOR UNDERSTAND THE OPERATIONAL NEEDS OF THE AIRPORT AND HELP ENSURE MINIMAL CLOSURE TIME. IN ACCORDANCE WITH THE SPECIFICATIONS THE CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE OF CONSTRUCTION TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

PRIOR TO BEGINNING PROJECT AND CONTRACT START TIME

1. DEVELOP DETAILED SCHEDULE TO ENSURE CONSTRUCTION CAN BE COMPLETED FOR ALL WORK WITHIN CONSTRUCTION TIME ALLOTTED FOR THE PROJECT.
2. MOBILIZE EQUIPMENT AND SET UP STAGING AND STOCKPILE AREA FOR THE PROJECT. LOCATION OF STAGING AND STOCKPILE AREA IS SHOWN ON THE SAFETY AND PHASING PLANS SHALL BE COORDINATED WITH AIRPORT MANAGEMENT. INSTALL TEMPORARY SILT FENCE IN STAGING AREA AS SHOWN.
3. CONTRACTOR MAY COMPLETE REQUIRED SURVEY WORK ON PROJECT AREA PRIOR TO CONSTRUCTION START TIME. SCHEDULING FOR THE SURVEY WORK WILL BE REQUIRED TO BE APPROVED BY AIRPORT MANAGEMENT. SEE PROJECT SPECIAL PROVISIONS.

PHASE 1 WORK AREA - CONSTRUCTION SHALL INCLUDE SEDIMENTATION AND EROSION CONTROL; DEMOLITION AND REMOVAL OF EXISTING PAVEMENT; EARTHWORK; DRAINAGE SYSTEM INSTALLATION; STORMWATER MANAGEMENT FACILITY; AGGREGATE BASE COURSE; SURFACE COURSE; MARKING; LIGHTING INSTALLATION; SEEDING; SODDING; AND MULCHING.

1. INSTALL LIGHTED BARRICADES AT LOCATIONS SHOWN ON THIS SHEET. CONTRACTOR WILL BE WORKING ADJACENT TO ACTIVE RUNWAY AND SHALL UTILIZE CAUTION AS REQUIRED BY THE SAFETY PLAN.
2. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED IN ACCORDANCE WITH DRAWINGS EC1.1 - EC1.4 PHASE 1 (INITIAL LAND DISTURBANCE), EC1.5 - EC1.8 PHASE 2 (CONSTRUCTION), AND EC1.9 - EC1.12 (STABILIZATION). ⚠
3. COMPLETE CONSTRUCTION OF APRON AND TAXIWAY WITHIN PHASE 1 (WORK AREA 1) AS SHOWN ON SHEET A1.5. ALL WORK SHALL BE COMPLETED WITHIN 30 DAYS FROM CONSTRUCTION START IN WORK AREA 1. THE CONTRACTOR MAY SCHEDULE WORK AREA 1 CONSTRUCTION WITHIN THE 90 CONTRACT TIME FOR PHASE 1 AT THEIR DISCRETION. THE CLOSURE SCHEDULE FOR CONTRACT WITHIN WORK AREA 1 SHALL BE COORDINATED WITH THE ENGINEER AND OWNER ONE WEEK IN ADVANCE OF THE CLOSURE. CONTRACTOR MAY ALSO SIMULTANEOUSLY WORK IN ALL AREAS OF PHASE 1. ⚠
4. COMPLETE PAVEMENT REMOVAL OPERATIONS. STOCKPILE SUFFICIENT MILLINGS FOR CONSTRUCTION OF HANGAR ACCESS ROAD. ALL REMAINING MILLINGS SHALL BE REMOVED FROM AIRPORT AND DISPOSED OF AT DESIGNATED LOCATION.
5. COMPLETE SUBGRADE PREPARATION. PROPOSED SUBGRADE SHALL BE ROOT RAKED TO A DEPTH OF 2" TO REMOVE STUMPS AND ROOTS.
6. COMPLETE GRADING OPERATIONS FOR PROJECT SITE, FINE GRADE APRON AND TAXIWAY SUBGRADE AND COMPACT SUBGRADE AS REQUIRED.
7. COMPLETE GRADING AND CONSTRUCTION OF STORMWATER MANAGEMENT FACILITY.
8. COMPLETE INSTALLATION OF STORM DRAINAGE SYSTEMS.
9. COMPLETE PLACEMENT, GRADING AND COMPACTION OF AGGREGATE BASE COURSE FOR APRON AND TAXIWAY.
10. APPLY BITUMINOUS PRIME COAT IN ACCORDANCE WITH SPECIFICATIONS.
11. COMPLETE PAVING OPERATIONS ON THE TAXIWAY AND HANGAR APRON. PAVEMENT SHALL BE PLACED IN TWO 2" LIFTS OF P-401 BITUMINOUS SURFACE COURSE.
12. COMPLETE INSTALLATION OF TAXIWAY LIGHTING SYSTEM AND SIGNS AS SHOWN ON PLANS.
13. COMPLETE PLACEMENT OF SHOULDER FILL, COMPACT AND FINE GRADE SHOULDERS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
14. COMPLETE FIRST APPLICATION OF PAVEMENT MARKING. MARKING SHALL BE INSTALLED WITHOUT BEADS.
15. COMPLETE INSTALLATION OF SOD ALONG THE EDGE OF PAVEMENT AND SEEDING AND MULCHING OPERATIONS FOR SITE. RESTORE ALL DISTURBED AREAS AND SEED AND MULCH ALL AREAS AS REQUIRED.
16. REMOVE ALL EQUIPMENT, MATERIALS AND DEBRIS.
17. REMOVE LIGHTED BARRICADES AND OPEN TAXILANE TO AIR OPERATIONS.
18. AFTER 30 DAY CURING PERIOD, CONTRACTOR SHALL APPLY FINAL APPLICATION OF MARKING WITH BEADS FOR ALL MARKING.
19. AFTER GRASS IS ESTABLISHED AND SITE IS STABILIZED OR AS DIRECTED BY THE ENGINEER, REMOVE ALL TEMPORARY EROSION MEASURES.

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REV NO	DESCRIPTION	DATE/CYCLE	BY/ID
1	REVISIONS PER ADO COMMENTS	10/13/23	EVE
2	ADDED PORTABLE TOILETS	10/13/23	EVE
3	REVISED WORK AREA 1 PHASING	3/7/23	EVE

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA

HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK

PHASING PLAN – PHASE 1

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 31775 ALAN M. SMITH
2/1/23

Date	FEBRUARY 2023
Scale	1" = 300'
Drawn	NT
Checked	AMS
Project No.	2601-2101
Sheet No.	A1.4

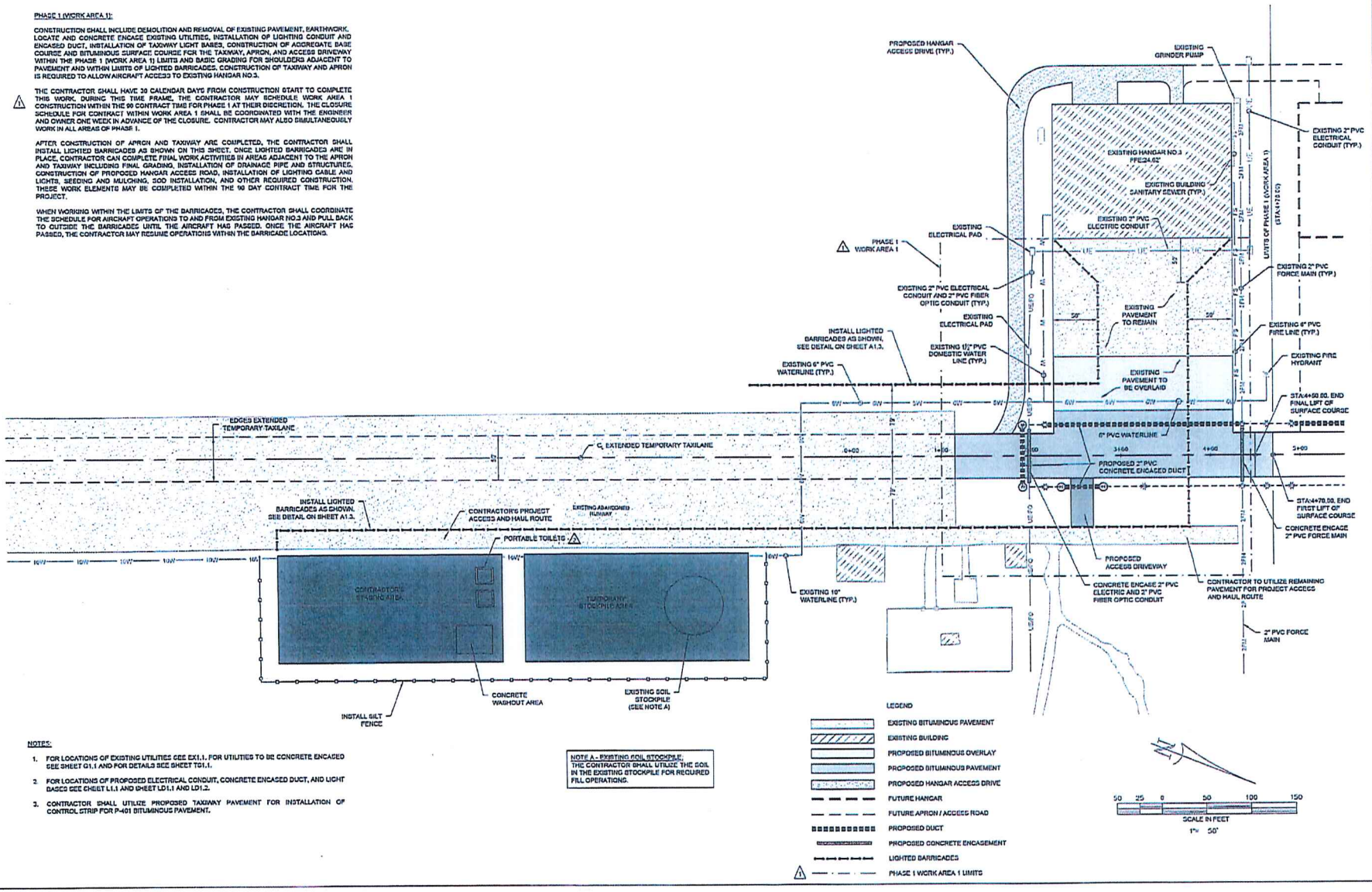
PHASE 1 (WORK AREA 1):

CONSTRUCTION SHALL INCLUDE DEMOLITION AND REMOVAL OF EXISTING PAVEMENT, EARTHWORK, LOCATE AND CONCRETE ENCASE EXISTING UTILITIES, INSTALLATION OF LIGHTING CONDUIT AND ENCASED DUCT, INSTALLATION OF TAXIWAY LIGHT BASES, CONSTRUCTION OF AGGREGATE BASE COURSE AND BITUMINOUS SURFACE COURSE FOR THE TAXIWAY, APRON, AND ACCESS DRIVEWAY WITHIN THE PHASE 1 (WORK AREA 1) LIMITS AND BASIC GRADING FOR SHOULDERS ADJACENT TO PAVEMENT AND WITHIN LIMITS OF LIGHTED BARRICADES. CONSTRUCTION OF TAXIWAY AND APRON IS REQUIRED TO ALLOW AIRCRAFT ACCESS TO EXISTING HANGAR NO.3.

⚠1 THE CONTRACTOR SHALL HAVE 30 CALENDAR DAYS FROM CONSTRUCTION START TO COMPLETE THIS WORK DURING THIS TIME FRAME, THE CONTRACTOR MAY SCHEDULE WORK AREA 1 CONSTRUCTION WITHIN THE 90 CONTRACT TIME FOR PHASE 1 AT THEIR DISCRETION. THE CLOSURE SCHEDULE FOR CONTRACT WITHIN WORK AREA 1 SHALL BE COORDINATED WITH THE ENGINEER AND OWNER ONE WEEK IN ADVANCE OF THE CLOSURE. CONTRACTOR MAY ALSO SIMULTANEOUSLY WORK IN ALL AREAS OF PHASE 1.

AFTER CONSTRUCTION OF APRON AND TAXIWAY ARE COMPLETED, THE CONTRACTOR SHALL INSTALL LIGHTED BARRICADES AS SHOWN ON THIS SHEET. ONCE LIGHTED BARRICADES ARE IN PLACE, CONTRACTOR CAN COMPLETE FINAL WORK ACTIVITIES IN AREAS ADJACENT TO THE APRON AND TAXIWAY INCLUDING FINAL GRADING, INSTALLATION OF DRAINAGE PIPE AND STRUCTURES, CONSTRUCTION OF PROPOSED HANGAR ACCESS ROAD, INSTALLATION OF LIGHTING CABLE AND LIGHTS, SEEDING AND MULCHING, SOD INSTALLATION, AND OTHER REQUIRED CONSTRUCTION. THESE WORK ELEMENTS MAY BE COMPLETED WITHIN THE 90 DAY CONTRACT TIME FOR THE PROJECT.

WHEN WORKING WITHIN THE LIMITS OF THE BARRICADES, THE CONTRACTOR SHALL COORDINATE THE SCHEDULE FOR AIRCRAFT OPERATIONS TO AND FROM EXISTING HANGAR NO.3 AND PULL BACK TO OUTSIDE THE BARRICADES UNTIL THE AIRCRAFT HAS PASSED. ONCE THE AIRCRAFT HAS PASSED, THE CONTRACTOR MAY RESUME OPERATIONS WITHIN THE BARRICADE LOCATIONS.



NOTES:

1. FOR LOCATIONS OF EXISTING UTILITIES SEE EX1.1. FOR UTILITIES TO BE CONCRETE ENCASED SEE SHEET G1.1 AND FOR DETAILS SEE SHEET TG1.1.
2. FOR LOCATIONS OF PROPOSED ELECTRICAL CONDUIT, CONCRETE ENCASED DUCT, AND LIGHT BASES SEE SHEET L1.1 AND SHEET LD1.1 AND LD1.2.
3. CONTRACTOR SHALL UTILIZE PROPOSED TAXIWAY PAVEMENT FOR INSTALLATION OF CONTROL STRIP FOR P-401 BITUMINOUS PAVEMENT.

NOTE A - EXISTING SOIL STOCKPILE:
THE CONTRACTOR SHALL UTILIZE THE SOIL IN THE EXISTING STOCKPILE FOR REQUIRED FILL OPERATIONS.

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REV NO	DESCRIPTION	DATE
2	ADDED PERIMETER FENCES	10/20/23
1	REVISED WORK AREA 1 LIMITS/NOTE	9/27/23

REVISIONS

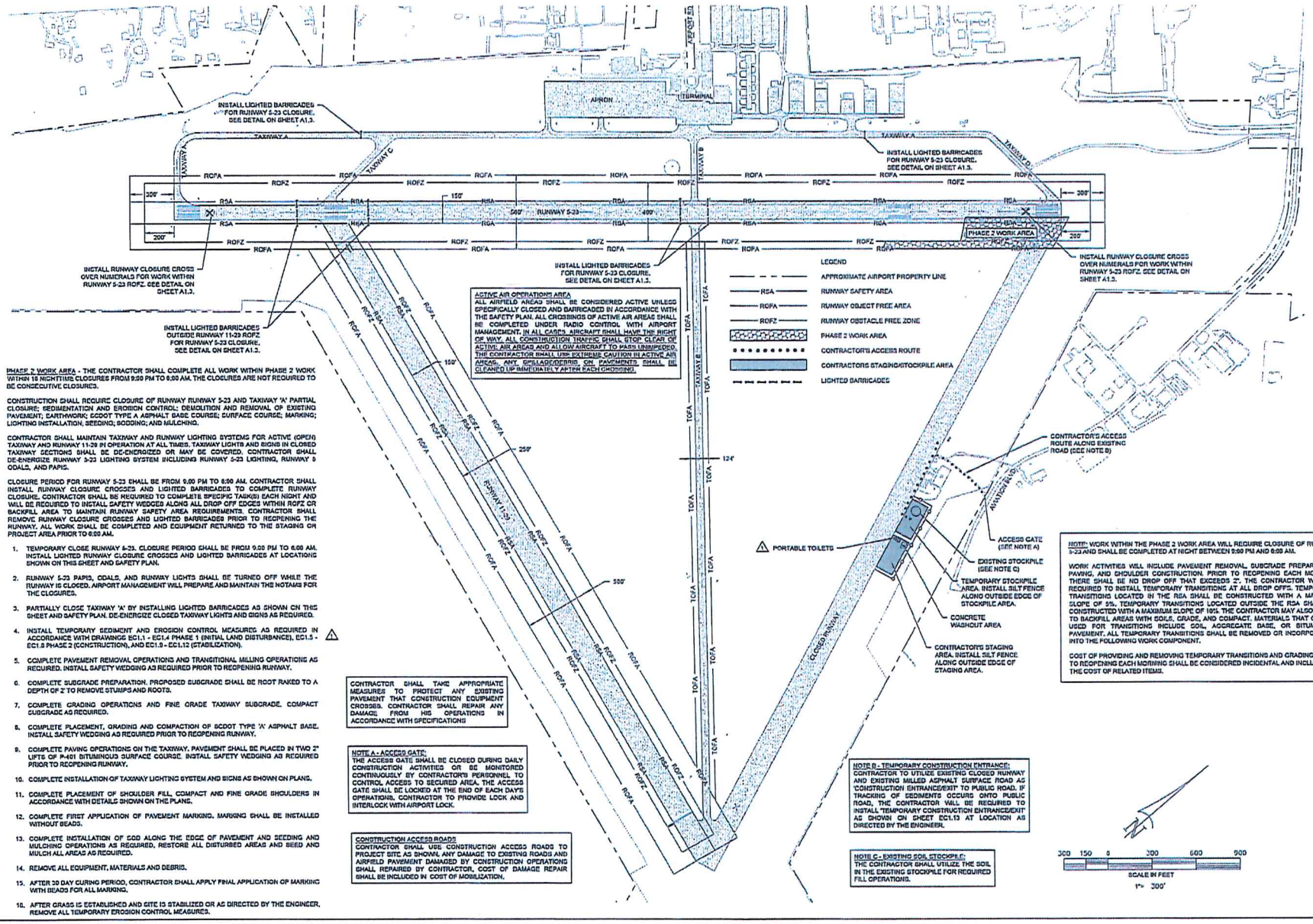
GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA

HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK

PHASING PLAN – PHASE 1 (WORK AREA 1)

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 9770 JOHN M. SMITH
10/19/23

Date	FEBRUARY 2023
Scale	1" = 50'
Drawn	HT
Checked	JMS
Project No.	2021-2101
Sheet No.	A1.5



PHASE 2 WORK AREA - THE CONTRACTOR SHALL COMPLETE ALL WORK WITHIN PHASE 2 WORK WITHIN 10 NIGHTTIME CLOSURES FROM 9:00 PM TO 6:00 AM. THE CLOSURES ARE NOT REQUIRED TO BE CONSECUTIVE CLOSURES.

CONSTRUCTION SHALL REQUIRE CLOSURE OF RUNWAY RUNWAY 5-23 AND TAXIWAY 'A' PARTIAL CLOSURE; SEDIMENTATION AND EROSION CONTROL; DEMOLITION AND REMOVAL OF EXISTING PAVEMENT; EARTHWORK; SCDOT TYPE A ASPHALT BASE COURSE; SURFACE COURSE; MARKING; LIGHTING INSTALLATION, SEEDING; SODDING; AND MULCHING.

CONTRACTOR SHALL MAINTAIN TAXIWAY AND RUNWAY LIGHTING SYSTEMS FOR ACTIVE (OPEN) TAXIWAY AND RUNWAY 11-29 IN OPERATION AT ALL TIMES. TAXIWAY LIGHTS AND SIGNS IN CLOSED TAXIWAY SECTIONS SHALL BE DE-ENERGIZED OR MAY BE COVERED. CONTRACTOR SHALL DE-ENERGIZE RUNWAY 5-23 LIGHTING SYSTEM INCLUDING RUNWAY 5-23 LIGHTING, RUNWAY 5 ODALS, AND PAPIS.

CLOSURE PERIOD FOR RUNWAY 5-23 SHALL BE FROM 9:00 PM TO 6:00 AM. CONTRACTOR SHALL INSTALL RUNWAY CLOSURE CROSSES AND LIGHTED BARRICADES TO COMPLETE RUNWAY CLOSURE. CONTRACTOR SHALL BE REQUIRED TO COMPLETE SPECIFIC TASK(S) EACH NIGHT AND WILL BE REQUIRED TO INSTALL SAFETY WEDGES ALONG ALL DROP OFF EDGES WITHIN ROFZ OR BACKFILL AREA TO MAINTAIN RUNWAY SAFETY AREA REQUIREMENTS. CONTRACTOR SHALL REMOVE RUNWAY CLOSURE CROSSES AND LIGHTED BARRICADES PRIOR TO REOPENING THE RUNWAY. ALL WORK SHALL BE COMPLETED AND EQUIPMENT RETURNED TO THE STAGING OR PROJECT AREA PRIOR TO 6:00 AM.

1. TEMPORARY CLOSE RUNWAY 5-23. CLOSURE PERIOD SHALL BE FROM 9:00 PM TO 6:00 AM. INSTALL LIGHTED RUNWAY CLOSURE CROSSES AND LIGHTED BARRICADES AT LOCATIONS SHOWN ON THIS SHEET AND SAFETY PLAN.
2. RUNWAY 5-23 PAPIS, ODALS, AND RUNWAY LIGHTS SHALL BE TURNED OFF WHILE THE RUNWAY IS CLOSED. AIRPORT MANAGEMENT WILL PREPARE AND MAINTAIN THE NOTAMS FOR THE CLOSURES.
3. PARTIALLY CLOSE TAXIWAY 'A' BY INSTALLING LIGHTED BARRICADES AS SHOWN ON THIS SHEET AND SAFETY PLAN. DE-ENERGIZE CLOSED TAXIWAY LIGHTS AND SIGNS AS REQUIRED.
4. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED IN ACCORDANCE WITH DRAWINGS EC1.1 - EC1.4 PHASE 1 (INITIAL LAND DISTURBANCE), EC1.5 - EC1.8 PHASE 2 (CONSTRUCTION), AND EC1.9 - EC1.12 (STABILIZATION).
5. COMPLETE PAVEMENT REMOVAL OPERATIONS AND TRANSITIONAL MILLING OPERATIONS AS REQUIRED. INSTALL SAFETY WEDGING AS REQUIRED PRIOR TO REOPENING RUNWAY.
6. COMPLETE SUBGRADE PREPARATION. PROPOSED SUBGRADE SHALL BE ROOT RAKED TO A DEPTH OF 2' TO REMOVE STUMPS AND ROOTS.
7. COMPLETE GRADING OPERATIONS AND FINE GRADE TAXIWAY SUBGRADE. COMPACT SUBGRADE AS REQUIRED.
8. COMPLETE PLACEMENT, GRADING AND COMPACTION OF SCDOT TYPE 'A' ASPHALT BASE. INSTALL SAFETY WEDGING AS REQUIRED PRIOR TO REOPENING RUNWAY.
9. COMPLETE PAVING OPERATIONS ON THE TAXIWAY. PAVEMENT SHALL BE PLACED IN TWO 2" LIFTS OF P-401 BITUMINOUS SURFACE COURSE. INSTALL SAFETY WEDGING AS REQUIRED PRIOR TO REOPENING RUNWAY.
10. COMPLETE INSTALLATION OF TAXIWAY LIGHTING SYSTEM AND SIGNS AS SHOWN ON PLANS.
11. COMPLETE PLACEMENT OF SHOULDER FILL, COMPACT AND FINE GRADE SHOULDERS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
12. COMPLETE FIRST APPLICATION OF PAVEMENT MARKING. MARKING SHALL BE INSTALLED WITHOUT BEADS.
13. COMPLETE INSTALLATION OF SOD ALONG THE EDGE OF PAVEMENT AND SEEDING AND MULCHING OPERATIONS AS REQUIRED. RESTORE ALL DISTURBED AREAS AND SEED AND MULCH ALL AREAS AS REQUIRED.
14. REMOVE ALL EQUIPMENT, MATERIALS AND DEBRIS.
15. AFTER 30 DAY CURING PERIOD, CONTRACTOR SHALL APPLY FINAL APPLICATION OF MARKING WITH BEADS FOR ALL MARKING.
16. AFTER GRASS IS ESTABLISHED AND SITE IS STABILIZED OR AS DIRECTED BY THE ENGINEER, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

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NO.	REVISIONS	DATE
1	ADDED PORTABLE TOILETS	10/25/23
	NOTE 4 (NOTE B)	
	ADDED NOTE C	
REV. NO.	REVISIONS	DATE

GEORGETOWN COUNTY AIRPORT
GEORGETOWN, SOUTH CAROLINA
HANGAR TAXILANE IMPROVEMENTS AND HANGAR SITEWORK
PHASING PLAN – PHASE 2

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 9710
ALAN M. SMITH

Date	FEBRUARY 2023
Scale	1" = 300'
Drawn	NT
Checked	AMS
Project No.	2021-2101
Sheet No.	A1.6