CONTRACT DOCUMENTS
AND
SPECIFICATIONS
FOR
HANGAR DEVELOPMENT
AT
DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

PID T008616
GDOT Project No. AP023-9000-45(313) Whitfield County
Croy Engineering Project No. 2106.009

CROY

200 North Cobb Parkway, Suite 413
Marietta, Georgia 30062

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ADDENDUM NO. 1

TO

CONTRACT DOCUMENTS AND SPECIFICATIONS
FOR

HANGAR SITE DEVELOPMENT

FOR THE
DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

Croy Engineering Project #2106.009

Date Addendum Issued:
December 10, 2024

Bid Opening Date:
December 20, 2024

TO ALL BIDDERS: The original contract documents for the above reference project are amended as noted herein. This Addendum hereby becomes a part of said contract documents. Acknowledge receipt of this Addendum in the space provided in the bid package. Insofar as those documents are at variance with this Addendum, this Addendum will govern.

Notable changes for this addendum:

1. The Contract Time has been extended to **180 Calendar Days**. Lead time waiting on materials will not count against the Contract Time.

2. Regarding Site B, for the 60 x 60 hangar, the existing underground electrical cables running from the electrical vault to the airfield must either be protected in place or permanently moved out of the way at the Contractor's expense.

3. Contractor is responsible for coordinating with the utility companies and the airport for both power and water services to the buildings including service connection points, applications, and fees.

4. Contract will be awarded to one contractor based on lowest Grand Total for all bid schedules. The owner reserves the right to award all or some of the work to the contractor based on bid pricing and available funding.

5. The building specs were mistakenly not included/attached in the initial project bid specifications. Revised site and building specs, reflecting all changes above, are being provided in this addendum.

6. We are adding a deduct line item for removing the heater systems in the hangars on the Bid Form. This is where you will provide a credit dollar amount to remove the heater systems from the base bid for each building. If budget allows, and the airport wishes, they may add it back in.

7. The requirement for the Prime Contractor to perform 25% of the "work" has been **increased to 30%.**

Questions/RFI's:

1. On drawing A-2 the legend notes one hour and two hour rated fire partitions. However, the floor plan doesn't label certain walls.
    - Are these unlabeled walls supposed to be fire rated or are they supposed to be constructed of a different material?
        - *They are not intended to be considered "fire-rated" or "fire walls". Specifications for building construction have been provided in this addendum.*
    - If so, then could we receive more clarification on what these walls should be constructed of?
        - *Specifications for building construction have been provided in this addendum.*
    - If they are supposed to be rated walls, then could we please receive a more clearly marked drawing to identify which walls receive one or two hour ratings?
        - *They are not intended to be considered "fire-rated" or "fire walls". Specifications for building construction have been provided in this addendum.*

2. How will contractors who are not currently GDOT certified show proof that they have submitted their pre-qualification information within the 10-day time frame?
    - *There should be some sort of proof of submission showing the date at which the application was received. A printout of such proof should be included with your bid. We will follow up to make sure that it is accurate before making a recommendation for award.*

3. Will contractors who have not submitted their prequalification paperwork within the 10 day time frame have their numbers read off or will this disqualify their bid and it be rejected?
    - *All bids will be read aloud but no recommendation will be made at the bid opening. It takes too much time to go through and check each bid for completion, accuracy, and compliance to be done during the bid opening. All bids received and read aloud will then be reviewed at the Croy office and a certified bid tab will be issued to the City, along with reasoning for rejecting any bids, and Recommendation Letter. This process can take several days depending on bids received.*

4. 120 calendar days seems aggressive for this scope of work. Will the Owner allow us to delay the start date as long as necessary for metal building lead time to ensure that when the metal buildings arrive we will be able to start erecting immediately?
    - *The Contract Time has been extended to 180 days. The goal will be to begin as early as possible but we don't want the site left opened longer than it needs to be. We hope that the materials can be ordered immediately, and land disturbance can be scheduled so that the site will be ready as soon as the building materials arrive.*

5. How will contractors prove that they are completing a minimum of 25% of work with their own forces during the bid process? Will we need to fill out an additional form showing what scopes we are providing with our own employees?
    - *There is a section in the Proposal Documents where you list your subs and suppliers, the work to be performed, and the dollar amount. We'll be able to calculate the percentages from that information.*

6. Does a site superintendent supervising work, but not actually completing any work, count towards the 25%? GDOT has very specific guidelines for their prequalification process and supervising work does not count towards a work class/code.

- *25% was a federal requirement. Since there is only state and local funding, we have to increase this to meet GDOT's minimum of 30% and supervising work can not count towards a work class/code.*

7. Do all subcontractors for this project have to be GDOT certified if they are submitting pricing to us the General Contractor?
   - *Subs do not have to be GDOT prequalified/certified.*

8. Is bonding required for subcontractors, i.e. anything over 250k?
   - *No. The Prime Contractor will carry all bond for the project.*

9. The hangar doors manufacturer is not listed in the specs, are the specifications on the hangar doors available?
   - *Specifications for building construction have been provided in this addendum.*
     - *083416 covers the Hydraulic and rolling doors. The bifold for the T hangars are specified in the Metal building 133419 since those are normally furnished integral with the building*

10. The overhead coiling door manufacturer is not listed in the specs, is a manufacturer on the overhead coiling doors available?
    - *Specifications for building construction have been provided in this addendum, including hangar doors.*
      - *083416 covers the Hydraulic and rolling doors*

11. The pre-engineered metal building manufacturer is not listed in the specs, is the manufacturer available?
    - *PEMB Manufacturers have been provided in the building specs included in this addendum.*

12. The site plan sheets C101 and C300 show some overhead electrical to be removed by owner and sheet C301 and C102 show a vault and some underground electrical feeds called out as potentially needing to be moved.
    - Is this scope being handled prior to this phase starting?
      - *The overhead electrical shown on Site A is the only utility being moved by the Airport. The underground electrical going from the vault will not be relocated by the airport and must either be protected in-place or relocated so that it can function properly during and after construction.*
    - Does the cost need to be in our proposal for the new hangars?
      - *Yes. The only utility being relocated by the owner is the overhead electrical at Site A. Therefore, you need to include pricing to either protect or relocate existing utilities for each site in your building price.*

        Note: There could be additional utilities or communications that were not picked up by utility locate and/or shown on the survey. Price accordingly.

13. We are starting to dig into these hanger drawings, I was wondering if there was a spec for the hanger doors.
    - *Specifications for building construction have been provided in this addendum.*
      - *083416 covers the Hydraulic and rolling doors. The bifold for the T hangars are specified in the Metal building 133419 since those are normally furnished integral with the building.*

14. I can't find in the specs or plans the sealer we are to be pricing for the majority of the floor throughout, also it looks like the plans call for an alternate pricing for a fluid-applied floor, I was not able to locate that system either to price.
    - *Specifications for building construction have been provided in this addendum*
        - *The intended base bid product is one of the Cure and Seal products listed in 03300. The Alternate fluid applied flooring is specified in 096723. Both are referenced in my Alternates section 01230*.

15. It appears this time the Dalton Airport project includes the actual buildings correct?
    - *Correct. This bid package now includes both the sitework and the buildings.*

16. Is badging required to access the site?
    - *No. The Airport does not require badging or provide safety training prior to be allowed on-site. However, it is the Prime Contractor's responsibility to ensure that all personnel, including subs, and even truck drivers wear the proper PPE and adhere to the Construction Safety Phasing Plan (CSPP).*
    - *Once the Contract is awarded, a temporary code will be provided to access the site through the gates. The Prime Contractor is responsible to providing the access code to the subs and delivery drivers and making sure they stay within the limits of construction and follow the routes shown on the CSPP.*

This Addendum includes the following documents:

1. Addendum Summary (this document)
2. Revised Project Specifications
3. Revised Construction Safety Phasing Plan (CSPP)

END OF ADDENDUM NO. 1
THIS ADDENDUM MUST BE ACKNOWLEDGED IN BID.
QUESTIONS SHALL BE DIRECTED TO CHERYL GAYTON AT CGAYTON@CROYENG.COM.

ADDENDUM NO. 2

TO

CONTRACT DOCUMENTS AND SPECIFICATIONS
FOR

HANGAR SITE DEVELOPMENT

FOR THE
DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

Croy Engineering Project #2106.009

Date Addendum Issued:
September 5, 2024

Revised Bid Opening Date:
September 9, 2024

TO ALL BIDDERS: The original contract documents for the above reference project are amended as noted herein. This Addendum hereby becomes a part of said contract documents. Acknowledge receipt of this Addendum in the space provided in the bid package. Insofar as those documents are at variance with this Addendum, this Addendum will govern.

Notable changes for this addendum:

1. Two of the sites have had significant shifts in proposed hangar locations to provide minimum clearance distance for aircraft using taxilanes.
    a. The 60'x60' Hangar site was shifted back about 15+/- feet.
    b. The T-Hangar site shifted back about 20+/- feet and additional paving was needed to meet FAA minimum standards.
2. Each of the three sites have been broken out into separate Bid Schedules (A, B, &C)
    a. Schedule A – 80x120 Hangar Site
    b. Schedule B – 60x60 Hangar Site
    c. Schedule C – T-Hanar Site
3. All bidders provide bids for each site. This is to provide flexibility to the owner if bids come in higher than funding without rebidding.

RFI's Received to date:

- The specs and pay items are not clear for the type of aggregate required for each asphalt mix type. Can you please clarify if GP1, BL1, or GP2 stone will be required for the 19mm and the 12.5mm asphalt mixes?
    - Group Blend
- The typical sections indicate that the concrete paving is to be 6" Concrete and 6" GAB and asphalt paving is to be 2" 12.5mm, 2" 19mm, and 8" GAB. The only two Pay Items for GAB are 4 inch – 2,500 SY and 6 inch – 950 SY. Are the Typical Section thicknesses correct or the Pay Item thicknesses?

  - The GAB Sections are to be 6” for the Reinforced Concrete Paving and 8” for Asphalt Paving
- Do Contractors have to be GDOT prequalified?
  - Since this project is utilizing GDOT funding and not Federal (FAA) funding, all prime contractors must be GDOT prequalified. Please refer to the project specifications and GDOT website for additional information and guidance.

END OF ADDENDUM NO. 2
THIS ADDENDUM MUST BE ACKNOWLEDGED IN BID.
QUESTIONS SHALL BE DIRECTED TO CHERYL GAYTON AT CGAYTON@CROYENG.COM.

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DIVISION 1 – ADVERTISEMENT

ADVERTISEMENT FOR BIDS

DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

Sealed bids will be received by the *City of Dalton, Dalton, Georgia* at City Hall 300 W. Waugh Street, Dalton, Georgia 30720 on **Friday, December 20, 2024, until 2:00 PM EST** and at that hour opened and publicly read aloud for the improvements to the Airport as listed herein.

A non-mandatory pre-bid meeting will be held on Wednesday, December 4, 2024 at 2:00 PM EST at the Dalton Municipal Airport 4483 Airport Rd Dalton, GA 30721.

PROJECT DESCRIPTION

The work consists of, but is not limited to, development of three hangar sites, furnishing all labor, equipment, and materials and performing all work in strict accordance with the plans and specifications for:

HANGAR DEVELOPMENT

The location of the work is at the *Dalton Municipal Airport, Dalton, Georgia*.

Prospective bidders should read the following instructions carefully before submitting their bids. For each item on the bid form there is a space provided for the price to be shown in numerals and words. All notations must be in ink. Totals read at the opening of bids are not guaranteed to be correct and no final award of contract will be made until the bid and extensions have been verified.

A Bidder's bond must be executed on the form furnished by the Sponsor, and the required bond, cash, cashier's check, or certified check must accompany each proposal, in the amount of 5% of the total amount of the proposal. A 100% performance bond and a 100% payment bond will be required of the Contractor at time of contract execution. A Georgia Resident Agent must countersign all bonds from a surety company authorized by law to do business in this State pursuant to a current certificate of authority to transact surety business by the Commissioner of Insurance; no bond shall be approved unless the surety is on the United States Department of Treasury's list of approved bond sureties.

The successful bidder will be required to provide the Sponsor with the affidavit required by OCGA 36-91-21 (e) *Competitive Award Requirements*.

All work under the contract shall be completed within **180 Calendar Days** from the issuance of the notice to proceed.

Liquidated Damages: Liquidated damages for delays in completion will be **$1,500** per calendar day.

Payment will be made monthly on completed work. Retainage will be held by the Sponsor to a maximum of ten percent (10%) of each progress payment.

Copies of the plans, specifications, and bid forms may be on file at the following locations:

the Document Processing Center, Construct Connect:
- 3825 Edwards Rd., Suite 800, Cincinnati, Ohio 45209

The City of Dalton, GA – City Hall:
- 300 W Waugh Street, Dalton, Georgia 30720

and the Engineer's office, Croy Engineering, LLC:
- 200 North Cobb Pkwy, Bldg. 400, Suite 413, Marietta, GA 30062

They may be examined at these offices without charge.

A non-refundable deposit of $150.00 is required for a hard copy of the plans and bid documents. A non-refundable deposit of $50.00 is required for an electronic copy of the plans and bid documents in pdf format sent via email. Please contact Cheryl Gayton to request plans and bid documents at cgayton@croyeng.com. All Contractor's must be on the plan holders list in order to be considered for work on the project.

Envelopes containing bids must be sealed, addressed to the undersigned, and marked as follows: "Bid for Construction at *Dalton Municipal Airport, Hangar Development, Dalton, Georgia.* Croy Engineering Project *2106.009*." Bids will be required to remain open for acceptance or rejection for **120 calendar days** after the date of opening of bids.

IMPORTANT NOTICE TO BIDDERS

IMPORTANT NOTICE TO BIDDERS:

Bidders are required to be either a GDOT registered subcontractor **or** GDOT prequalified contractor. Applications for new registration with GDOT must be submitted a minimum of 10 days prior to bid-opening.

THE RIGHT TO REJECT ANY OR ALL BIDS AND TO WAIVE INFORMALITIES IS RESERVED TO THE SPONSOR.

_____
Andrew Wiersma, Airport Manager/
City of Dalton, Georgia

END OF ADVERTISEMENT

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DIVISION 2 – INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

GENERAL

ALL PROVISIONS OF THE FEDERAL AVIATION ADMINISTRATION SPECIFICATIONS SHALL APPLY AS MODIFIED IN TECHNICAL SPECIFICATIONS SECTION, EXCEPT WHERE SPECIFIED THAT SECTION APPLIES TO GEORGIA STANDARD SPECIFICATIONS CONSTRUCTION OF TRANSPORTATION SYSTEM, 2021 EDITION.

The following requirements apply to the contract(s) for this project:

PREQUALIFICATIONS OF BIDDER

As per Rules 672-5-.04 and 672-5-.11 in the Rules and Regulations of the State of Georgia, All persons proposing to bid on Department work, except as otherwise provided in Rule 672-5-.05, for the performance of any contract in excess of $2,000,000, must submit an application under oath on forms to be furnished by the office of the Prequalification Committee. The application must be filed at least ten (10) days prior to the opening of any bids the prospective bidder proposes to submit. All persons proposing to bid on Department work for the performance of any contract below the requirements set forth in Rule 672-5-.04(1) must be registered as a subcontractor as provided for in Rule 672-5-.11. In order for the Department to maintain a register of subcontractors, any person desiring to perform work on Department projects as a subcontractor must submit a notification of such desire under oath to the Department on forms to be furnished by the Department. The original notification may be filed at any time, but in no case less than ten (10) days prior to the prime contractor's requesting approval of the subcontract to which the prospective subcontractor will be a party.

Bidders that are not pre-qualified and have submitted an application with the above stated rules shall also furnish the Sponsor satisfactory evidence of his/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 Sponsor satisfactory evidence of his/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 Contractor’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/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 his/her (bidder’s) true financial condition at the time such qualified statement or report is submitted to the Sponsor.

Unless otherwise specified, a bidder may submit evidence that he is prequalified with the Georgia DOT and is on the current “bidder’s list” of the state in which the proposed work is located. Such evidence of Georgia DOT prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports hereinbefore specified.

Each bidder shall submit “evidence of competency” and “evidence of financial responsibility” to the Sponsor at the time of bid opening.

Bids will only be considered by those bidders and subcontractors currently pre-qualified with the Georgia DOT for work in the vicinity of the proposed work.

BID GUARANTEE BOND OF 5%

(49 CFR Part 18.36 (h)(1)) Each Bidder shall post a proposal guarantee bond in the amount of 5% of the bid price. No bids shall be read or considered without a proper form of security.

PERFORMANCE BOND OF 100%

(49 CFR Part 18.36 (h)(2)), Bidder shall post a performance bond in the amount of 100% of the bid price if awarded the contract. Such bond(s) are due prior to contract execution as a guarantee of timely delivery and that equipment, materials and /or goods are delivered according to specifications.

PAYMENT BOND OF 100%

(49 CFR Part 18.36 (h)(3)), Bidder shall post a payment bond payable to the SPONSOR in the amount of 100% of the bid price if awarded the contract. Such bond(s) are due prior to contract execution to guarantee timely payment of invoices to any subcontractors.

AUTHORITY TO SIGN

If an individual makes a Proposal, his name and post office address must be shown. If made by a firm or partnership, the name and post office address of each member of the firm or partnership must be shown. If made by a corporation, the person or persons signing the Proposal must show the name of the State under the laws of which the corporation is chartered and his, or their, authority for signing same, and the names, titles and addresses of the President, Secretary and Treasurer, and the corporate authority for doing business in this State. In the case of a Limited Liability Corporation a Certificate of Authority shall be executed by the Chief Officer certifying that he/she has the authority to execute contracts between the LLC and SPONSOR. A bid executed by an attorney or agent on behalf of the Bidder shall be accompanied by an authenticated copy of the Power of Attorney or other evidence of authority to act on behalf of the Bidder.

NON-CONCLUSION

By submitting a bid in response to this solicitation, the Bidder represents that in the preparation and submission of this bid, said Bidder did not either directly or indirectly, enter into any combination or arrangement with any person, Bidder, Corporation or enter into any agreement, participate in any collusion, or otherwise take any action in the restraint of free, competitive bidding in violation of the Sherman Act (15 U.S.C. Section I or Section 59.1-9.1 through 59.1-9.17 or Sections 59.1 – 68.6 through 59.68.8). Collusion and fraud in bid preparation shall be reported to the State of Georgia Attorney General and the United States Justice Department.

DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

(49 CFR Part 29), The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offeror/Contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

BUY AMERICAN PREFERENCES (Not Applicable to this Project)

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in

Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/SPONSOR will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean 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 used in the project are manufactured in the U.S.

FOREIGN TRADE RESTRICTION (Not Applicable to this Project)

(49 CFR Part 30), Denial of Public Works Contracts to Suppliers of Goods and Services of Countries that Deny Contracts to Suppliers of Goods and Services of Countries that Deny Procurement Market Access to U. S. Contractors. The successful bidder must comply with 49 CFR Part 30 and submit the Certification Regarding Foreign Participation provided in the proposal documents.

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 SPONSOR 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 SPONSOR cancellation of the contract or subcontract for default at no cost to the SPONSOR or the FAA.

CERTIFICATION OF NONSEGREGATED FACILITIES (Not Applicable to this Project)
(41 CFR Part 60-1.8), The successful bidder must comply with 41 CFR Part 60-1.8 and submit the Certification of Nonsegregated Facilities provided in the proposal documents.

EQUAL EMPLOYMENT OPPORTUNITY(Not Applicable to this Project)
(Executive Order 11246 & 41 CFR Part 60), The successful bidder must comply with 41 CFR Part 60 and submit the Equal Opportunity Report Statement provided in the proposal documents.

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 identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive 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 by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, 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 the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency 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 such 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 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 provisions of paragraphs (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 may be directed by the Secretary of Labor 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, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

NONDISCRIMINATION

Notwithstanding any other provision of this Agreement, during the performance of this Agreement CONTRACTOR, for itself, its heirs, personal representatives, successors in interest and assigns, as part of the consideration of this Agreement does hereby covenant and agree, as a covenant running with the land, that:

1. No person on the grounds of race, color, religion, sex or national origin shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination.
2. In the production of the vehicle(s), and the furnishing of services therein or thereon, no person on the grounds of race, color, religion, sex or national origin shall be excluded from participation in, or denied the benefits of, such activities, or otherwise be subjected to discrimination.

DISADVANTAGED BUSINESS ENTERPRISE(Not Applicable to this Project)

(49 CFR Part 26) The Contractor and/or its subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. The overall DBE goal for this project is **0.00%.**

Bid Information Submitted as a matter of **responsiveness**:

The SPONSOR's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

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

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the SPONSOR's project goal
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Bid Information submitted as a matter of responsibility:

The SPONSOR's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the SPONSOR's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Contract Assurance
The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29; acceptable/sample text provided) –
The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 10 days from the receipt of each payment the prime contractor receives from Sponsor. The prime contractor agrees further to return retainage payments to each subcontractor within 10 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Sponsor. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f); acceptable/sample text provided) –
The prime contractor must not terminate a DBE subcontractor listed in response to this Bid Solicitation (or an approved substitute DBE firm) without prior written consent of Sponsor. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent Sponsor. Unless Sponsor consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

Sponsor may provide such written consent only if Sponsor agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to Sponsor its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to Sponsor, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise Sponsor and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why Sponsor should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), Sponsor may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to pre-award deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

DAVIS BACON ACT(Not Applicable to this Project)
(29 CFR Part 5) This project is partially funded by the U. S. Department of Transportation under the Federal Aviation Administration's Airport Improvement Program. Therefore, the project is subject to

minimum wages ad determined by the U. S. Dept. of Labor. The applicable Wage Determination is a part of Section 130.

DRUG FREE WORKPLACE CERTIFICATION

The CONTRACTOR must certify that they are in full compliance with the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act". The undersigned further certifies that:

a. A drug-free workplace will be provided for the CONTRACTOR'S employees during performance of the contract; and
b. Each CONTRACTOR who hires a subcontractor to work in a drug-free work place shall secure from that subcontractor the following written certification:
   "As part of the subcontracting agreement with (CONTRACTOR's name), (Subcontractor's name) certifies to the CONTRACTOR that a drug-free workplace will be provided for the subcontractor's employees during the performance of this Contract pursuant to Paragraph (7) of Sub-section (b) of Code Section 50-24-3".
c. The CONTRACTOR further certifies that he will not engage in the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.
d. CONTRACTOR may be suspended, terminated, or debarred if it is determined that:
   (1) The CONTRACTOR has made false certification hereinabove; or
   (2) The CONTRACTOR has violated such certification by failure to carry out the requirements of the Official Code of Georgia Section 50-24-3.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

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

SUBCONTRACTORS, SUPPLIERS AND OTHERS

All BIDDERS shall submit as part of their BID on the prescribed schedules a list of all subcontractors and other persons and organizations (including those who are to furnish principle items of material and equipment) proposed for those portions of the Work as to which such identification is required. If requested by SPONSOR, the low BIDDER shall submit an experience statement with pertinent information as to similar projects and other evidence of qualification for each subcontractor, other person or organization. If SPONSOR after due investigation has reasonable objection to any proposed subcontractor, other person or organization, the SPONSOR may before giving the NOTICE OF AWARD require the apparent Successful BIDDER to submit an acceptable substitute without an increase in Bid Price. If the apparent Successful BIDDER declines to make any such substitution, the Contract shall not be awarded to such BIDDER, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any subcontractor, other person, or organization so listed and to whom the SPONSOR does not make written objection prior to giving the NOTICE OF AWARD will be deemed acceptable to SPONSOR.

GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT

Pursuant to the Georgia Security and Immigration Compliance Act of 2006, the successful CONTRACTOR understands and agrees that compliance with the requirements of O.C.G.A.13-10-91 and Georgia Department of Labor Rule 300-10-02 are conditions of this bid and contract document. The CONTRACTOR further agrees that such compliance shall be attested by the CONTRACTOR and any of his Subcontractors by execution of the appropriate Affidavit and Agreement which will be included and become a part of the Agreement between the SPONSOR

and the successful CONTRACTOR. The Affidavits must be provided to the SPONSOR within five (5) business days of the Subcontractor being hired to work on the project.

SYSTEMATIC ALIEN VERIFICATION FOR ENTITLEMENTS (SAVE) PROGRAM

Since a contract has been deemed a "public benefit," the CONTRACTOR or other party to the contract must be run through the federal Systematic Alien Verification for Entitlements (SAVE) Program. This program requires that local government verify the legal status of non-U.S. citizens who apply for certain benefits. The CONTRACTOR must execute a SAVE affidavit attesting that either he or she is a U.S. citizen or legally qualified to receive the benefit. If the contractor is not a U.S. citizen, then the local government has to run that contractor through the SAVE system. Only non-U.S. citizens can be processed through the SAVE program.

BID FORM AND SCHEDULES

One copy of the Bid Form and Schedules is included with the Bidding Documents.

All blanks on the Bid Forms and schedules must be completed by permanent marking. Each Bid must be submitted on the prescribed form. The Bid Price must be stated in words and numerals or as indicated in the BID FORM.

BIDS by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or assistant secretary of the corporation. The corporate address and state of incorporation shall be shown in the space provided.

BIDS by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature. The address and telephone numbers to which communications regarding the BID are to be directed must be shown on the Bid Form.

All names must be typed or printed below the signatures. The individual OWNER and the terms "doing business" must sign BIDS by individuals or "sole OWNER" must appear under the signature.

The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of all addenda and the date each was received shall be filled in on the BID form).

ADDENDA AND INTERPRETATIONS

All questions about the meaning or intent of the Contract Documents are to be directed to ENGINEER. Requests for interpretations of drawings and specifications must be made in writing to the Engineers not later than **five (5) days** (weekends and holidays not included) prior to receipt of Proposals. Any interpretations made to bidders will be issued in the form of Addenda to the specifications and furnished to all bidders. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Only questions answered by formal written Addenda will be binding. Oral explanations and interpretations made prior to the bid opening shall not be binding and without legal effect. Addenda may also be issued to modify the Bidding Documents as deemed advisable by SPONSOR and ENGINEER.

Failure of any BIDDER to receive and/or acknowledge any such Addendum or interpretation shall not relieve BIDDER from any obligation under this BID as submitted.

EXCEPTIONS AND OMISSIONS

If exceptions are taken to any portion of these specifications, such exception must accompany the

bid and must be in writing. If any feature normally included in a complete job of this nature is omitted from these specifications, it too must be so stated in writing and be included with the bid.

PREPARATION OF BIDS

Negligence on the part of the Bidder in preparing the bid confers no right for withdrawal or modification in any way after the deadline for the bid opening.

Unit price must be shown on the Bid Cost Submittal Form in this document. All bids should be tabulated, totaled and checked for accuracy. The unit price will prevail in case of errors.

All product, equipment, article or material must be new and unused or current production. No reconditioned or used item(s) will be accepted except as specifically requested herein. Units that are classified as prototype or discontinued models are not acceptable.

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. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as 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 as to the conditions to be encountered in performing the work and as to 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 Sponsor'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 he may make or obtain from his/her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Sponsor.

ESTIMATED QUANTITIES

Estimated Quantities: Where quantities of work are given in the BID they are approximate and are assumed solely for comparison of the BIDS. They are not guaranteed to be accurate statements or estimates of quantities of work that are to be performed under the contract, it being presumed that the BIDDER has verified the quantities necessary to complete the Work of the contract as intended, and any departure therefrom will not be accepted as valid grounds for any claim for damages, for extension of time or for loss of profits; not with any additional payment be made, regardless of the actual quantities required or ordered to complete the Work.

SUBMISSION OF BIDS

BIDS shall be submitted at the time and place indicated in the Advertisement. Each BID shall be enclosed in a sealed envelope and marked and addressed as required in the below and in the Advertisement and shall be accompanied by the Bid Security and other required documents. If the BID is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED for (Project Name)" on the face thereof. Submit original and one copy of the Bid Form, Schedules and other required documents.

Indicate the following information on the outside of the sealed envelope containing the bid:

a. Project Name as stated on page one of the Bid Forms
b. Project Number
c. Location of Airport

d. Bidder's Name and Address

Submit Bids to: **City of Dalton**
300 W. Waugh Street
Dalton, GA 30722

The Submittal Checklist must be reviewed, and the bidder is to comply with the order of the submittal of documents. This document is to be included with the bid.

Bids may be submitted by mail, common carrier or delivered in person. Fax or electronic bids are not acceptable. It shall be the duty of each Bidder to ensure that their bid is delivered within the time and at the place prescribed in this document. Bids received prior to the time fixed in this bid document will be securely kept unopened. Any bid received at the office designated in this document after the exact time and date specified, will not be considered. If a late bid is received via carrier, it will be marked “late bid” and will not be opened. If a late bid is hand delivered, it will be returned unopened to the presenter.

At the date and time specified for the opening of the bid, the bid shall be publicly opened and read aloud for the information of Bidders and others present.

If descriptive literature is attached to the bid, your firm’s name must be on all sheets submitted.

Each bid submitted shall be deemed to have been made with full knowledge of all terms, conditions, and requirements contained in this Bid request. The failure or omission of any Bidder to examine any form, instrument or document shall in no way relieve any Bidder from obligations in respect to the bid submittal or the compliance of the terms, conditions and requirements of the bid.

Individual contractors shall provide their Social Security number and proprietorships; partnerships and corporations shall provide their Federal Employer Identification number and provide a completed W9 form to be submitted with the bid.

The authorized representative whose signature will appear on the bid submitted certifies that the Bidder has carefully examined the instructions of this bid and the terms and specifications applicable to and made a part of this bid. The Bidder further certifies that the prices shown on the Bid Price Submittal Form is in accordance with the conditions, terms and specifications of the bid and that any exception taken thereto may disqualify the bid.

Bids shall be made on the enclosed form if a form is provided.

Any documentation submitted with or in support of a bid or bid shall become subject to public inspection under the Georgia Open Records Act. Labeling such information “Confidential”, “Proprietary”, or in any other manner shall not protect this material from public inspection upon request. All records become subject to public inspection only after award of the contract or purchase order.

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 Sponsor in writing or by telegram 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.

PUBLIC OPENING OF PROPSALS

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

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 price written in words shall govern.

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

a. If the proposal is irregular as specified in the subsection titled IRREGULAR PROPOSALS.

b. If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS.

In addition, until the award of a contract is made, the Sponsor reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Sponsor 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 Sponsor's best interests.

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 SPONSOR, or if the SPONSOR'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 guarantee specified by the SPONSOR.

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

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 Sponsor until any such participating bidder has been reinstated by the Sponsor as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in the subsection titled ISSUANCE OF PROPOSAL FORMS of this section.

RETURN OF PROPOSAL GUARANTY

All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Sponsor has made a comparison of bids. Proposal guaranties of the two lowest bidders will be retained by the Sponsor 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 Sponsor receives the contracts bonds.

RIGHTS RESERVED

SPONSOR reserves the right to reject any and all Proposals, to waive any and all informalities not involving price, time or changes in the work, and to negotiate contract terms with the Successful BIDDER, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional Proposals. Discrepancies between words and figures will be resolved in favor of words. Also, SPONSOR reserves the right to reject the Proposals of any BIDDER if SPONSOR believes that it would not be in the best interest of the Project to make any award to that BIDDER, whether because the Proposal is not responsive or the BIDDER is unqualified or of doubtful financial ability or fails to meet any other pertinent standards or criteria established by SPONSOR. Discrepancies between the indicated sum or any column of figures and the correct sum thereof will be resolved in favor of the correct sum. On contract where unit prices are required, the right is reserved to increase or decrease the quantities specified, without changing the unit prices bid.

SUBSTITUTE OR "OR-EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" Items. Whenever it is indicated on the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement.

AWARD OF CONTRACT

Responsiveness - The determination of the Bidder's responsiveness will be made by the SPONSOR based on a consideration of whether the Bidder has submitted the following:

- Complete bid documents meeting bid requirements without irregularities, obviously unbalanced unit prices, excisions, special conditions, or alternatives bids for any item unless specifically requested in the bid solicitation.
- A properly executed Bid Bond.

In evaluation of Proposals, SPONSOR will consider qualifications of the BIDDERS and whether or not the Proposals comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Proposal form or prior to the Notice of Award.

SPONSOR may consider the qualifications and experience of subcontractors, other persons or organizations (including those who are to furnish the principle items of materials and equipment) proposed for those portions of the work as to which the identity of subcontractors and other persons and organizations must be submitted. SPONSOR may also consider operating costs, maintenance considerations, performance data and guarantees of materials may also be considered by SPONSOR, when such data is submitted prior to Notice of Award.

SPONSOR may conduct such investigations as he deems necessary to assist in the evaluation of any Proposal and to establish the responsibility, qualifications and other persons and organizations to do the work in accordance with the contract documents to Sponsor's satisfaction within the prescribed time.

Responsibility - The determination of the Bidder's responsibility will be made by the SPONSOR based on whether the Bidder meets the following minimum standard requirements:

- Maintains a physical location presence and permanent place of business.
- Has the appropriate and adequate technical experience required.
- Has adequate personnel and equipment to perform the work expeditiously
- Able to comply with the required or proposed delivery and installation schedule.
- Has a satisfactory record of performance.
- The ability of Bidder to provide future maintenance and service for the use of the contract under consideration.
- Has adequate financial means to meet obligations incidental to the work.
- Such other factors as appear to be pertinent to either the bid or the contract.

In considering BIDS for this Work, particular attention will be given to the method of construction which the BIDDER plans to follow; the available experienced and skilled men which he plans to use in the prosecution of Work; the types of equipment and materials he plans to install; and, he shall prepare and furnish this information in writing at the SPONSOR's request.

Furthermore, the successful BIDDER must, prior to the award of the Contract, be prepared to discuss in detail all manners relating to any special features of the Work with the end view of obtaining high-grade workmanship and proper performance of the Contract.

SPONSOR reserves the right to reject the BID of any BIDDER who does not pass any evaluation to Sponsor's satisfaction.

If a contract is to award, it will be awarded to the lowest BIDDER whose evaluation by SPONSOR indicates to SPONSOR that the award will be in the best interests of the Project.

If the lowest or the best BID exceeds the funds available for the work, the SPONSOR may reject all BIDS, or reduce the Scope of Work as necessary to diminish the total cost of the project to a sum compatible with the funds available for the specified work.

Award of the Contract, if awarded, will be made by the SPONSOR, upon the recommendation of the ENGINEER to the lowest responsible, responsive BIDDER, whose Proposal meets the requirement of the SPONSOR, and complies with the applicable laws of the State of Georgia.

If a contract is to be awarded, SPONSOR will give the Successful BIDDER a NOTICE OF AWARD within **120 calendar days** after the day of bid Opening, or such mutually agreeable extension of time.

CANCELLATION OF AWARD

The SPONSOR 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 SPONSOR.

SIGNING OF AGREEMENT

After the SPONSOR gives a NOTICE OF AWARD to the successful BIDDER, they will submit **three (3)** unsigned counterparts of the Agreement and all other required Contract Documents. Within **fifteen (15) days** following the effective date of "Award" CONTRACTOR shall sign and deliver all executed counterparts of the Agreement to the SPONSOR with all other Contract Documents including insurance certificates and executed bonds attached thereto. SPONSOR will identify those

portions of the Contract Documents not fully signed by the SPONSOR and CONTRACTOR and such identification shall be binding on all parties.

FAILURE TO EXECUTE CONTRACT

Failure to execute contract and file acceptable bonds as provided herein within **fifteen (15) days** from the date of award shall cause forfeiture of the Proposal Guaranty to the SPONSOR not as a penalty, but in liquidation of damages sustained. At the discretion of the SPONSOR, the award may then be made to the next lowest responsible BIDDER, or the work may be re-advertised.

CONTRACT ASSURANCE

The BIDDER/OFFERER certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the BIDDER/OFFERER/CONTRACTOR or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

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

PROMPT PAYMENT

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

INDEMNIFICATION

The vendor that is selected as the contractor shall, at its own expense, protect, defend, indemnify, save and hold harmless the SPONSOR and its elected and appointed officers, employees, servants and agents from all claims, damages, lawsuits, costs and expenses including, but not limited to, all costs from administrative proceedings, court costs and attorney fees that the SPONSOR and its elected and appointed officers, employees, servants and agents may incur as a result of the acts, omissions or negligence of the contractor or its employees, servants, agents or subcontractors that may arise out of the agreement.

The CONTRACTOR’s indemnification responsibility under this section shall include the sum of damages, costs and expenses which are in excess of the sum of damages, costs and expenses which are paid out in behalf of or reimbursed to the SPONSOR, its officers, employees, servants and agents by the insurance coverage obtained and/or maintained by the CONTRACTOR.

CONTRACT TIME

The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Bid Form and the Agreement. Contract Time for this project is **180 Calendar Days** from issuance of notice to

proceed.

LIQUIDATED DAMAGES
Liquidated damages for the delays in completion will be **$1,500** per calendar day.

PROJECT SCHEDULE
A project schedule showing the work in the order proposed by the CONTRACTOR and the time required to complete each phase will be required before the signing of contract. This schedule shall include the dates for beginning and completion of all phases of the work. If, in the opinion of the ENGINEER, the CONTRACTOR falls behind in his schedule or will not be able to complete the project in the time limits, he may require the CONTRACTOR to revise his schedule and put additional manpower and equipment on the project if so ordered.

Notice to Proceed shall not be issued until the ENGINEER has approved the schedule in writing. Failure of the CONTRACTOR to comply with the schedule may be cause for withholding payments due the CONTRACTOR.

CODES, PERMITS, FEES, LICENSES, AND LAW
All permits, fees, arrangements for inspections, licenses, and costs incurred for the same shall be the sole responsibility of the successful Bidder. All materials, labor and construction must comply with all applicable rules and regulations of local, state and/or national codes, laws and ordinances of all authorities having jurisdiction over the project, shall apply to the contract throughout and will be deemed to be included in the contract the same as though herein written out in full.

Effective July 1, 2008: All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law, O.C.G.A. Section 43-41-17.

COPIES FURNISHED
The ENGINEERs shall furnish the successful CONTRACTOR, free of charge**, two (2) copies** of the plans and specifications. If additional copies are the CONTRACTOR requests copies, they will be furnished at the price specified elsewhere in these documents.

DRAWINGS AND SPECIFICATIONS ON THE SITE
The CONTRACTOR shall keep one copy of all drawings and specifications on the site of the work in good order, available to the ENGINEERS and to their representatives.

SANITARY PROVISIONS
The CONTRACTOR shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the regulations of the State Board of Health and all local ordinances. No nuisance will be permitted.

SAFETY
All vendors and subcontractors performing services are required and shall comply with all Occupational Safety and Health Administration (OSHA), State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also, all contractors and subcontractors shall be held responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site area under this Contract.

RESPONSIBILITY
The CONTRACTOR shall be responsible for all material and work until they are finally accepted by

the SPONSOR and shall repair at his own expense any damage they sustain before their final acceptance. The CONTRACTOR shall be responsible for all damages caused by him of whatever nature and must settle all claims arising from such damage without cost to the SPONSOR; he shall act as defendant in, and bear the expense of each and every suit, if any, and of every nature, which may be brought against him or the SPONSOR by reason of, or connected with the work under the contract; should any claim arise, the SPONSOR may hold back sufficient money to meet said claims until the CONTRACTOR has satisfied the SPONSOR that all claims against him as the result of his work have been adjusted. He must also show that there are no claims or liens whatsoever outstanding at the completion of the contract before final payment is made.

TESTING - GENERAL

The CONTRACTOR shall use an independent testing laboratory for Quality Control project tests. A separate independent testing laboratory will be selected by the SPONSOR for the Quality Assurance Testing. The CONTRACTOR is responsible for Quality Control Testing, including costs. (See General Provisions Section 100-07 Quality Control Testing Plan.)

When the CONTRACTOR has prepared an item of work to the stage where testing is required, he shall notify the ENGINEER what portion of the project he desires to have tested. The ENGINEER shall initiate the tests required by the contract specifications.

However, the payment of the tests by the SPONSOR and scheduling by the ENGINEER does not relieve the CONTRACTOR of any responsibility in regards to meeting the job specification. If the CONTRACTOR desires additional tests, he may provide same for his own information.

Major testing to be done during construction is listed for each item in the Construction Details for that item.

DESIGN, STANDARDS AND PRACTICES

Design, strength, quality of materials and workmanship must conform to the highest standards of engineering practices and/or professional services.

CLAIMS

The SPONSOR reserves the right to refuse to issue any vouchers and to direct that no payment shall be made to the CONTRACTOR in case the SPONSOR has reason to believe that said CONTRACTOR has neglected or failed to pay any subcontractor, materialmen, workmen, or employee for work performed on or about the work included in these specifications until the SPONSOR is satisfied that such subcontractors, materialmen, workmen, or employees have been fully paid.

MANUFACTURER'S CERTIFICATION AND DELIVERY TICKETS

The CONTRACTOR shall furnish a manufacturer's certificate of compliance with the Specifications on all materials furnished. A delivery ticket on all material delivered to job site shall be furnished to the ENGINEER.

STATEMENT OF WARRANTY

A Statement of Warranty should include all applicable manufacturers' warranty as well as the manufacturer's required minimum 1 year warranty in regard to equipment, materials and workmanship. This statement shall include the terms, conditions and the period of warranty coverage. Any exclusion(s) must be clearly stated.

CONSTRUCTION OPERATIONS PLANS

Specific guidelines for working on the airport apply to this project. These minimum guidelines are

set forth on the Plans and in Section 01030 "Airport Project Procedures".

CONSTRUCTION AS INDEPENDENT CONTRACTOR

In conducting its business hereunder, CONTRACTOR acts as an independent contractor and not as an employee or agent of the SPONSOR. The selection, retention, assignment, direction and payment of CONTRACTOR's employees shall be the sole responsibility of CONTRACTOR.

ASSIGNMENT

The Agreement, in whole or any part hereof, created by the award to the successful CONTRACTOR shall not be sold, not be assigned or transferred by CONTRACTOR by process or operation of law or in any other manner whatsoever, including intra-corporate transfers or reorganizations between or among a subsidiary of CONTRACTOR, or with a business entity which is merged or consolidated with CONTRACTOR or which purchases a majority or controlling interest in the ownership or assets of CONTRACTOR without the prior written consent of the SPONSOR.

PERFORMANCE OF CONTRACT

The SPONSOR reserves the right to enforce the CONTRACTOR's performance of this Agreement in any manner prescribed by law or deemed to be in the best interest of the SPONSOR in the event of breach or default or resulting contract award. It will be understood that time is of the essence in the Bidder's performance.

The successful CONTRACTOR shall execute the entire work described in the Contract Documents, except to the extent specifically indicated in the Contract documents to be the responsibility of others.

The CONTRACTOR accepts the relationship of trust and confidence established by the award of this bid solicitation. The CONTRACTOR covenants with the SPONSOR to utilize the CONTRACTOR's best skill, efforts and judgment in furthering the interest of the SPONSOR; to furnish efficient business administration and supervision; to make best efforts to furnish at all times an adequate supply of workers and materials; and to perform the work in the best way and most expeditious and economical manner consistent with the interest of the SPONSOR.

All purchases for goods or services are subject to the availability of funds for this particular purpose.

FAILURE TO COMPLY WITH PROVISIONS

Failure to comply with the terms of these contract provisions may be sufficient grounds to:

1) Withhold progress payments or final payment,

2) Terminate the contract,

3) Seek suspension/debarment, or

4) Any other action determined to be appropriate by the sponsor or the FAA.

DEFAULT AND TERMINATION

Termination by CONTRACTOR: The agreement resulting from this bid shall be subject to termination by CONTRACTOR in the event of any one or more of the following events: The default by SPONSOR in the performance of any of the terms, covenants or conditions of this Agreement, and the failure of SPONSOR to remedy, or undertake to remedy such default, for a period of thirty

(30) days after receipt of notice from CONTRACTOR to remedy the same.

Termination by SPONSOR: The agreement resulting from this bid shall be subject to termination by the SPONSOR at any time in the opinion of the SPONSOR; the CONTRACTOR fails to carry out the contract provisions of any one or more of the following events:

1. The default by CONTRACTOR in the performance of any of the terms, covenants or conditions of the Agreement, and the failure of CONTRACTOR to remedy, or undertake to remedy with sufficient forces and to the SPONSOR's reasonable satisfaction, the SPONSOR shall provide the vendor with notice of any conditions which violate or endanger the performance of the Agreement. If after such notice the CONTRACTOR fails to remedy such conditions within thirty (30) days to the satisfaction of the SPONSOR, the SPONSOR may exercise their option in writing to terminate the Agreement without further notice to the CONTRACTOR and order the CONTRACTOR to stop work immediately and vacate the premises, to cancel ordered products and/or services with no expense to the SPONSOR.
2. CONTRACTOR files a voluntary petition in bankruptcy, including a reorganization plan, makes a general or other assignment for the benefit of creditors, is adjudicated as bankrupt or if a receiver is appointed for the benefit of creditors, is adjudicated as bankrupt or if a receiver is appointed for the property or affairs of CONTRACTOR and such receivership is not vacated within thirty (30) days after the appointment of such receiver.
3. CONTRACTOR'S failure to conduct services according to the approved bid specifications.
4. CONTRACTOR'S failure to keep, perform, or observe any other term or condition of this Agreement.
5. CONTRACTOR'S performance of the contract is unreasonably delayed.
6. Should the successful Bidder fail to provide the commodities or services when ordered, and in accordance with the General Terms and Conditions, specifications and any other requirements contained herein are not met, the SPONSOR reserves the right to purchase commodities or services covered by this contract elsewhere if available from an alternate source.
7. The CONTRACTOR agrees by its bid submission that the SPONSOR's decision is final and valid.

Force Majeure: Neither party shall be held to be in breach of the Agreement resulting from this bid, because of any failure to perform any of its obligations hereunder if said failure is due to any act of God, fire, flood, accident, strike, riot, insurrection, war, or any other cause over which that party has no control. Such party shall give notice and full particulars of such Force Majeure in writing to the other party within a reasonable time after occurrence of the event and the obligation of the party giving such notice shall endeavor to remove or overcome such inability with all reasonable dispatch.

Waiver: The waiver of any breach, violation or default in or with respect to the performance or observance of the covenants and conditions contained herein shall not be taken to constitute a waiver any subsequent breach, violation or default in or with respect to the same or any other covenant or condition hereof.

END OF INSTRUCTIONS TO BIDDERS

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DIVISION 3 – PROPOSAL DOCUMENTS

PROPOSAL

IMPROVEMENTS TO DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

Failure to furnish all requested data will be cause for considering Bidder nonresponsive and may render this Bid invalid on that basis.

BID FOR: **HANGAR DEVELOPMENT**

SUBMITTED TO: **CITY OF DALTON**
300 W. Waugh Street
Dalton, GA 30722

SUBMITTED BY: Integrated Builds, LLC
Bidder's Name

1310 East End Avenue
Address

Chattanooga, TN 37412
City, State and Zip Code

423-643-8448 JClinard@integratedbuilds.com
Telephone email

The undersigned bidder has carefully examined the site of the work described herein, has become familiar with local conditions and the character and extent of the work, has carefully examined the drawings, the Advertisement, Proposal, Proposal Bond, Contract, Performance and Payment Bonds, Instructions to Bidders, General Conditions, General Provisions, and Special Provisions; and thoroughly understands their stipulations, requirements and provisions.

The undersigned bidder has determined the quality and quantity of materials required; has investigated the location and determined the sources of supply of the materials required; has investigated labor conditions; and has arranged for the continuous prosecution of the work herein described.

The undersigned bidder hereby agrees to be bound by the award of the contract and, if awarded the contract on this Proposal, to execute within **fifteen** calendar days after notice of award, the required Contract and the Performance Bond and Payment Bond, of which Contract this Proposal, the Plans for the work, and the Standard Specifications, with subsequent revisions shall be a part.

The undersigned bidder further agrees if awarded the contract on this proposal to begin work within **ten** days after the date of issuance of the Notice to Proceed unless otherwise authorized by the Engineer, and further agrees that within **fifteen** days after the date of the notice to proceed to have at work all the equipment specified, along with such other necessary equipment as set out in the specifications.

The undersigned bidder further agrees to provide all necessary equipment, tools, labor, incidentals and other means of construction to do all the work, and furnish all the materials of the specified requirements which are necessary to complete the work in accordance with the Proposal, the Plans and the Specifications and set forth in the Proposal and to all "extra work" which may be required in connection with the construction and completion of the work as required by the Specifications Plans and Special Provisions.

For construction, the undersigned bidder has confirmed that the bidder's organization and equipment are available to perform the project. The bidder agrees, if deemed necessary by the Engineer, to increase this schedule of operations in order to complete the work within the time stated and to the satisfaction of the Engineer.

The bidder understands that the quantities of work shown herein are approximate only and are subject to increase or decrease and agrees that all quantities of work, whether increased or decreased, are to be performed at the unit prices stated in the following estimate of quantities and schedule of prices for the work described.

The undersigned bidder declares that this proposal is made without connection with any other person or persons making proposals for the same work, and is in all respects fair and without collusion or fraud. The bidder also declares that he/she will perform a minimum of **30%** of the contract work by his/her own forces.

The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offer/Contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

Contract Time: Bidder agrees that:

(A) The Project Work will be completed within **180 Calendar Days** from the date when the Contract Time commences.

(B) He will commence work with an adequate force and equipment at the time stated in the Notice to Proceed, and complete all work in the number of days stipulated from the date stated in said notice.

(C) The quantities of work listed in the Bid Schedule are approximate and are assumed solely for comparison of Bids. Compensation will be based upon the price bid and actual quantities of work performed in accordance with the Contract Documents.

(D) Liquidated damages for the delay in completion will be **$1,500** per calendar day.

The undersigned bidder submits herewith proposal guarantee in an amount of not less than five percent (5%) of the total amount of the proposal offered and agrees and consents that the proposal guarantee shall be forfeited to the Sponsor as liquidated damages if the required Contract, Performance Bond and Payment Bond are not executed within fifteen (15) calendar days from the Notice of Award and work has not started as required in the previous statements.

Integrated Builds, LLC

NAME OF BIDDER

BY: 

NAME

Vice President

TITLE

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PROPOSAL BID FORM

IMPROVEMENTS TO DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

HANGAR DEVELOPMENT

BID FORM

SCHEDULE A-1

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
1	151	Mobilization @_____	1	LS	$57,900.00	$57,900.00
2	163	Construction and Removal of Temporary Sediment Basin, Type 1, SBC @_____	1	EA	$5,443.00	$5,443.00
3	163	Construct Entrance/Exit, including installation and removal @_____	1	EA	$3,060.00	$3,060.00
4	163	Construct and Remove Check Dam - Hay @_____	6	EA	$170.00	$1,020.00
5	163	Dust Control @_____	1.00	AC	$1,700.00	$1,700.00
6	163	Temporary Grassing @_____	1.00	AC	$1,445.00	$1,445.00
7	163	Mulching @_____	6.00	TN	$2,550.00	$15,300.00
8	165	Maintenance of Temporary Silt Fence (NS) @_____	300	LF	$3.40	$1,020.00
9	165	Maintenance of Check Dams, all types @_____	6	EA	$127.50	$765.00
10	165	Maintenance of Temporary Sediment Basin, SBC @_____	1	EA	$850.00	$850.00
11	165	Maintenance of Construction Entrance/Exit @_____	3	EA	$1,020.00	$3,060.00

12	167	Water Quality Monitoring @_____	4	MO	$420.00	$1,680.00
13	171	Installation and Removal of Silt Fence (NS) @_____	300	LF	$6.80	$2,040.00
14	205	Excavation (Cut) @_____	1,000	CY	$15.00	$15,000.00
15	208	Embankment (Fill) @_____	325	CY	$8.57	$2,785.25
16	310	GR AGGR BASE CRS, 6 INCH, INCL MATL @_____	275	SY	$27.25	$7,493.75
17	441	6" Reinforced Conc Paving @_____	275	SY	$187.25	$51,493.75
18	441	4" Reinforced Conc Ditch Paving @_____	300	SY	$139.00	$41,700.00
19	603	Rip Rap 18" Depth @_____	60	SY	$60.00	$3,600.00
20	615	Directional Bore Pipe (3/4" Water Service) @_____	50	LF	$80.33	$4,016.50
21	660	San Sewer Pipe, 4in PVC @_____	40	LF	$32.13	$1,285.20
22	660	San Sewer Cleanout @_____	1	EA	$1,606.50	$1,606.50
23	670	3/4" Domestic Water Service to 80x120 Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete @_____	1	LS	$5,200.00	$5,200.00
24	700	Permanent Seeding @_____	1.00	AC	$3,060.00	$3,060.00
25	716	Erosion Control Mats, Slopes @_____	550	SY	$6.80	$3,740.00

Total Cost (SCHEDULE A-1) = $236,263.95

SCHEDULE A-2

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
26	151	Mobilization @_____	1	LS	$16,065.00	$16,065.00
27	797	Supply and construction 86' x 120' PEMB including foundation, stone base, all finishes, hardware, doors, mechanical , plumbing, etc., complete per plans and specifications @_____	1	LS	$978,115.00	$978,115.00
28	N/A	Deduct - Removing heater system @_____	1	LS	- ~~$(5,880.00)~~ - $(13,629.00)	- ~~$(5,880.00)~~ - $(13,629.00)

Total Cost (SCHEDULE A-2) = _____ ~~$988,300.00~~ $980,551.00

SCHEDULE B-1

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
29	151	Mobilization @_____	1	LS	$55,635.00	$55,635.00
30	163	Construct Entrance/Exit, including installation and removal @_____	1	EA	$3,060.00	$3,060.00
31	163	Construct and Remove Check Dam - Hay @_____	2	EA	$170.00	$340.00
32	163	Dust Control @_____	0.50	AC	$1,700.00	$850.00
33	163	Temporary Grassing @_____	0.50	AC	$1,445.00	$722.50
34	163	Mulching @_____	3.00	TN	$2,550.00	$7,650.00
35	165	Maintenance of Temporary Silt Fence (NS) @_____	400	LF	$3.40	$1,360.00
36	165	Maintenance of Check Dams, all types @_____	2	EA	$127.50	$255.00
37	165	Maintenance of Construction Entrance/Exit @_____	1	EA	$1,020.00	$1,020.00
38	167	Water Quality Monitoring @_____	4	MO	$420.00	$1,680.00
39	171	Installation and Removal of Silt Fence (NS) @_____	400	LF	$6.80	$2,720.00
40	205	Excavation (Cut) @_____	250	CY	$15.00	$3,750.00

41	208	Embankment (Fill) @_____	300	CY	$8.57	$2,571.00
42	310	GR AGGR BASE CRS, 6 INCH, INCL MATL @_____	250	SY	$27.25	$6,812.50
43	441	6" Reinforced Conc Paving @_____	250	SY	$187.25	$46,812.50
44	610	Open Cut Asphalt Trench and Repair (incl material) @_____	80	SY	$91.00	$7,280.00
45	615	Jack and Bore 8" DIP in 16" Steel Casing @ _____	50	LF	$428.40	$21,420.00
46	615	Directional Bore Pipe (3/4" Water Service) @_____	50	LF	$80.33	$4,016.50
47	660	San Sewer Pipe, 4in PVC @_____	150	LF	$32.13	$4,819.50
48	660	6" Steel Casing / Sleeve (for 4" SS lateral) @_____	20	LF	$53.55	$1,071.00
49	660	San Sewer Cleanout @_____	2	EA	$535.00	$1,070.00
50	670	3/4" Domestic Water Service to 60x60 Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete @_____	1	LS	$3,000.00	$3,000.00
51	670	8" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.) @_____	150	LF	$55.70	$8,355.00
52	670	Fire Hydrant Assembly (incl. fittings, valves, blocking, etc.) Complete @_____	1	EA	$4,925.00	$4,925.00
53	700	Permanent Seeding @_____	0.50	AC	$3,060.00	$1,530.00
54	716	Erosion Control Mats, Slopes @_____	300	SY	$6.80	$2,040.00

Total Cost (SCHEDULE B-1) = $194,765.50

SCHEDULE B-2

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
55	151	Mobilization @_____	1	LS	$13,785.00	$13,785.00

56	797	Supply and construction 60' x 60' PEMB including foundation, stone base, all finishes, hardware, doors, mechanical, plumbing, etc., complete per plans and specifications @_____	1	LS	$434,665.00	$434,665.00
57	N/A	Deduct - Removing heater system @_____	1	LS	- ~~$(2,300.00)~~ - $(7,581.00)	- ~~$(2,300.00)~~ - $(7,581.00)

Total Cost (SCHEDULE B-2) = _____ ~~$446,150.00~~ $440,869.00

SCHEDULE C-1

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
58	151	Mobilization @_____	1	LS	$78,406.00	$78,406.00
59	163	Construct Entrance/Exit, including installation and removal @_____	1	EA	$3,060.00	$3,060.00
60	163	Construct and Remove Check Dam - Hay @_____	3	EA	$170.00	$510.00
61	163	Construct and Remove Stone Filter Ring @_____	1	EA	$425.00	$425.00
62	163	Construct and Remove Inlet Sediment Trap @_____	4	EA	$425.00	$1,700.00
63	163	Dust Control @_____	3.00	AC	$1,700.00	$5,100.00
64	163	Construct and Remove Retrofit Outlet Structure @_____	1	EA	$6,805.00	$6,805.00
65	163	Temporary Grassing @_____	3.00	AC	$1,445.00	$4,335.00
66	163	Mulching @_____	12.00	TN	$2,550.00	$30,600.00
67	165	Maintenance of Temporary Silt Fence (NS) @_____	1,250	LF	$3.40	$4,250.00
68	165	Maintenance of Check Dams, all types @_____	3	EA	$127.50	$382.50
69	165	Maintenance of Retrofit Outlet Structure @_____	1	EA	$1,360.00	$1,360.00
70	165	Maintenance of Construction Entrance/Exit @_____	1	EA	$1,020.00	$1,020.00
71	165	Maintenance of Inlet Sediment Traps @_____	4	EA	$170.00	$680.00

72	165	Maintenance Stone Filter Ring @_____	1	EA	$340.00	$340.00
73	167	Water Quality Monitoring @_____	6	MO	$420.00	$2,520.00
74	171	Installation and Removal of Silt Fence (NS) @_____	1,200	LF	$6.80	$8,160.00
75	202	Clearing and Stripping @_____	3	AC	$3,750.00	$11,250.00
76	205	Excavation (Cut) @_____	2,000	CY	$15.00	$30,000.00
77	208	Embankment (Fill) @_____	2,000	CY	$8.57	$17,140.00
78	310	GR AGGR BASE CRS, 8 INCH, INCL MATL @_____	3,350	SY	$32.35	$108,372.50
79	310	GR AGGR BASE CRS, 6 INCH, INCL MATL @_____	425	SY	$27.25	$11,581.25
80	402	2" Recycled Asphaltic Concrete, 12.5mm, Superpave, Group Blend, including Bituminous Materials and Hydrated Lime @_____	380	TON	$195.00	$74,100.00
81	402	2" Recycled Asphaltic Concrete, 19mm, Superpave, Group Blend, including Bituminous Materials and Hydrated Lime @_____	380	TON	$190.65	$72,447.00
82	413	Bitum. Tack Coat @_____	465	GL	$8.57	$3,985.05
83	441	6" Reinforced Conc Paving @_____	425	SY	$245.00	$104,125.00
84	441	36" Concrete Valley Gutter @_____	100	LF	$94.30	$9,430.00
85	668	24" Concrete Headwalls @_____	1	EA	$1,553.00	$1,553.00
86	550	Reinforced Concrete Pipe, 18" dia., Class III @_____	165	LF	$64.25	$10,601.25
87	550	Reinforced Concrete Pipe, 24" dia., Class III @_____	450	LF	$96.40	$43,380.00
88	603	Rip Rap 18" Depth @_____	50	SY	$64.25	$3,212.50
89	610	Open Cut Asphalt Trench and Repair (incl material) @_____	200	SY	$91.00	$18,200.00
90	615	Jack and Bore 8" DIP in 16" Steel Casing @ _____	250	LF	$508.75	$127,187.50
91	615	Directional Bore Pipe (3/4" Water Service) @_____	250	LF	$80.35	$20,087.50
92	652	6" Yellow Taxilane Striping (Temporary) @_____	1,300	LF	$1.07	$1,391.00

93	652	6" Yellow Taxilane Striping (Permanent) @_____	1,300	LF	$2.68	$3,484.00
94	652	Black Outline for Taxilane Striping (Permanent) @_____	1,300	LF	$5.90	$7,670.00
95	668	Junction Box @_____	4	EA	$4,070.00	$16,280.00
96	668	Trench Drain, 12in @_____	260	LF	$814.55	$211,783.00
97	668	Pedestal Top Inlet @_____	1	EA	$3,640.00	$3,640.00
98	668	Outlet Control Structure @_____	1	EA	$6,960.00	$6,960.00
99	670	3/4" Domestic Water Service to T-Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete @_____	1	LS	$2,785.00	$2,785.00
100	670	6" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.) @_____	400	LF	$50.35	$20,140.00
101	670	8" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.) @_____	350	LF	$55.70	$19,495.00
102	670	Fire Hydrant Assembly (incl. fittings, valves, blocking, etc.) Complete @_____	2	EA	$4,925.00	$9,850.00
103	700	Permanent Seeding @_____	2.00	AC	$3,060.00	$6,120.00
104	716	Erosion Control Mats, Slopes @_____	1,500	SY	$6.80	$10,200.00
105	N/A	2' Wide Enhanced Swale (including excavation, filter media, check dams, stone, filter fabric, underdrain pipe, and cleanouts) @_____	300	LF	$64.25	$19,275.00

Total Cost (SCHEDULE C-1) = $1,155,379.05

SCHEDULE C-2

Item No.	GDOT Item No.	Description	Qty	Unit	Unit Price	Cost
106	151	Mobilization @_____	1	LS	$16,355.00	$16,355.00

107	797	Supply and construct 10-Unit T-Hangar PEMB including foundation, stone base, all finishes, hardware, doors, mechanical, plumbing, etc., complete per plans and specifications @_____	1	LS	$1,238,835.00	$1,238,835.00
108	N/A	Deduct - Removing heater system @_____	1	LS	- $(22,050.00)	- $(22,050.00)

- $(60,872.00) - $(60,872.00)

Total Cost (SCHEDULE C-2) = ~~$1,233,140.00~~ $1,194,317.36

BID SUMMARY

Total Cost (SCHEDULE A-1) = $236,263.95

Total Cost (SCHEDULE A-2) = $980,551.00 ~~$988,300.00~~

Total Cost (SCHEDULE B-1) = $194,765.50

Total Cost (SCHEDULE B-2) = $440,869.00 ~~$446,150.00~~

Total Cost (SCHEDULE C-1) = $1,155,379.05

Total Cost (SCHEDULE C-2) = $1,194,317.36 ~~$1,233,140.00~~

GRAND TOTAL = $4,202,145.86 ~~$4,253,998.50~~

Signature: _____
(Bidder)

Specifications indicate an alternate for resinous flooring in lieu of sealed concrete. If this option is desired, then please ADD the following amounts to applicable schedules:
A-2: $113,568.00, B-2: $39,165.00, C-2: $184,905.00

Bidder hereby acknowledges receipt of the following addenda:

Addendum No.	Dated
1	12/10/2024
2	12/17/2024

Integrated Builds, LLC
NAME OF BIDDER

BY: _____
NAME
Vice President
TITLE

Business Address: 1310 East End Avenue
Chattanooga, TN 37412

Telephone Number 423-643-8448

Manufacturer's or Contractor's I.D. No. GCCO003542

SUBCONTRACTORS, SUPPLIERS AND OTHERS:

Subcontractor/Supplier/Others	Subcontract Work Item	Dollar value of Subcontract work
Integrated Builds, LLC	Concrete, Erosion Control, Stone Grading Trench Drain, Traffic Control	$ 1,280,471.20
Pavetec	Earth Grading, Utilities, Asphalt Paving, Stormwater Utilities	$ 692,987.93
Massey Electric Company	Electrical	$ 206,300.00
Dalton Service	Plumbing	$ 58,603.00
Multiple PEMB Suppliers	PEMB	$

Full subcontractor breakdown can be provided, if awarded.

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Conforms with The American Institute of Architects, A.I.A. Document A310 (2010 Edition)

Bid Bond

CONTRACTOR:
(Name, legal status and address)
Intergrated Builds, LLC
1310 East End Avenue
Chattanooga, TN 37412

SURETY:
(Name, legal status and principal place of business)
Old Republic Surety Company
445 S. Mooreland Road, Suite 200
Brookefield, WI 53005

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
City of Dalton

BOND AMOUNT:
Five Percent of Bid amount.....

PROJECT:
(Name, location or address, and Project number, if any)
Dalton Municipal Airport Hangar Development

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 20th day of December 2024

Neil Lewis
(Witness)

Integrated Builds, LLC
(Contractor as Principal) *(Seal)*

(Title) VICE PRESIDENT

Kim Stewart
(Witness)

Old Republic Surety Company
(Surety) *(Seal)*

(Title) Melissa J. Bryson, Attorney in Fact

OLD REPUBLIC SURETY COMPANY

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That OLD REPUBLIC SURETY COMPANY, a Wisconsin stock insurance corporation, does make, constitute and appoint:

ALLEN F. CARTER, MARIE D. MCDONALD, CHRIS LINER, MELISSA J. BRYSON,
KIMBERLY STEWART, JASON MCCONKEY, WILLIAM TREW of ATHENS, TN

its true and lawful Attorney(s)-in-Fact, with full power and authority for and on behalf of the company as surety, to execute and deliver and affix the seal of the company thereto (if a seal is required), bonds, undertakings, recognizances or other written obligations in the nature thereof, ***(other than bail bonds, bank depository bonds, mortgage deficiency bonds, mortgage guaranty bonds, guarantees of installment paper and note guaranty bonds, self-insurance workers compensation bonds guaranteeing payment of benefits, or black lung bonds),*** as follows:

ALL WRITTEN INSTRUMENTS

and to bind OLD REPUBLIC SURETY COMPANY thereby, and all of the acts of said Attorneys-in-Fact, pursuant to these presents, are ratified and confirmed. This appointment is made under and by authority of the board of directors at a special meeting held on February 18, 1982.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following resolutions adopted by the board of directors of the OLD REPUBLIC SURETY COMPANY on February 18,1982.

RESOLVED that, the president, any vice-president or assistant vice president, in conjunction with the secretary or any assistant secretary, may appoint attorneys-in-fact or agents with authority as defined or limited in the instrument evidencing the appointment in each case, for and on behalf of the company to execute and deliver and affix the seal of the company to bonds, undertakings, recognizances, and suretyship obligations of all kinds; and said officers may remove any such attorney-in-fact or agent and revoke any Power of Attorney previously granted to such person.

RESOLVED FURTHER, that any bond, undertaking, recognizance, or suretyship obligation shall be valid and binding upon the Company

(i) when signed by the president, any vice president or assistant vice president, and attested and sealed (if a seal be required) by any secretary or assistant secretary; or

(ii) when signed by the president, any vice president or assistant vice president, secretary or assistant secretary, and countersigned and sealed (if a seal be required) by a duly authorized attorney-in-fact or agent; or

(iii) when duly executed and sealed (if a seal be required) by one or more attorneys-in-fact or agents pursuant to and within the limits of the authority evidenced by the Power of Attorney issued by the company to such person or persons.

RESOLVED FURTHER that the signature of any authorized officer and the seal of the company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the company; and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, OLD REPUBLIC SURETY COMPANY has caused these presents to be signed by its proper officer, and its corporate seal to be affixed this 4th day of November, 2024.

OLD REPUBLIC SURETY COMPANY

Karen J. Haffner
Assistant Secretary

OLD REPUBLIC SURETY COMPANY CORPORATE SEAL 1981

Alan Pavlic
President

STATE OF WISCONSIN, COUNTY OF WAUKESHA - SS

On this 4th day of November, 2024, personally came before me, Alan Pavlic and Karen J Haffner, to me known to be the individuals and officers of the OLD REPUBLIC SURETY COMPANY who executed the above instrument, and they each acknowledged the execution of the same, and being by me duly sworn, did severally depose and say: that they are the said officers of the corporation aforesaid, and that the seal affixed to the above instrument is the seal of the corporation, and that said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority of the board of directors of said corporation.

KATHRYN R. PEARSON NOTARY PUBLIC STATE OF WISCONSIN

Kathryn R. Pearson
Notary Public

My Commission Expires: September 28, 2026
(Expiration of notary's commission does not invalidate this instrument)

CERTIFICATE

I, the undersigned, assistant secretary of the OLD REPUBLIC SURETY COMPANY, a Wisconsin corporation, CERTIFY that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the Resolutions of the board of directors set forth in the Power of Attorney, are now in force.

OLD REPUBLIC SURETY COMPANY CORPORATE SEAL 1981

80-5235

Signed and sealed at the City of Brookfield, WI this 20th day of December, 2024.

Karen J. Haffner
Assistant Secretary

ORSC 22262 (3-06)

ATHENS INSURANCE AGENCY

SEE ATTACHED SURETY BOND

PROPOSAL GUARANTEE (5%)

DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

Know All Men By These Presents, that _____

_____

_____

of _____
(Address)

has tendered the attached (cashier's or certified) check payable to CITY OF DALTON, DALTON, GEORGIA to be held, cashed, forfeited or returned, pending the fulfillment of the following obligating conditions.

The conditions of this obligation are such as to operate as a guarantee that the Contractor will fully and promptly execute a contract and cause to be executed Performance and Payment Bonds acceptable to the Sponsor, as set forth in the Proposal or bid, should the same be accepted, and that not longer than fifteen (15) days after the receipt of notification of acceptance of his proposal and the receipt by the Contractor of contract forms from the Sponsor, he will execute in his Proposal or bid, together with and accompanied by Performance and Payment Bonds, satisfactory to the Sponsor, in the amount of the contract. It is also required that the Contractor begin work within ten (10) days after notice to proceed by the Sponsor, and further agrees that within fifteen (15) days after given notice to proceed by the Sponsor to have at work all of the equipment specified, along with such other necessary equipment as set out in the Special Provisions; and that failure to perform or comply with any or all of the foregoing requirements, within the time set forth above, shall be just and adequate cause for the annulment of the award, and it is understood that, in the event of the annulment of the award, the amount of this guarantee shall immediately be at the disposal of the Sponsor, not as a penalty, but as an agreed liquidated damage. Should each and all of the foregoing conditions be fulfilled, this obligation shall be null and void, otherwise to remain in full force and effect.

In testimony whereof, the Contractor has caused these presents to be fully signed, witnessed and attested.

WITNESS: _____ CONTRACTOR: _____

ATTEST: _____ ADDRESS: _____

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SEE ATTACHED STANDARD AIA BOND FORM FROM SURETY

PROPOSAL GUARANTEE BOND (5%)

DALTON MUNICIPAL AIRPORT
DALTON, GEORGIA

KNOW All Men By These Presents, that _____

_____

(hereinafter called the "Principal"), Principal and the_____

a corporation created and existing under the laws of the State of_____

with its principal office in the City of _____ and licensed to do business in the State of Georgia (hereinafter called the "Surety"), is held and firmly bound unto CITY OF DALTON, DALTON, GEORGIA or their duly authorized representative, acting for the Sponsor, hereinafter called the "Sponsor"), in the full and just sum of _____

_____

_____($_____)

good and lawful money of the United States of America, to be paid at sight, without protest, of which sum of money will and truly to be paid, the said Surety binds itself, its heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such as to operate as a guarantee that the Principal will fully and promptly execute a contract and cause to be executed performance and payment bonds acceptable to the Sponsor, all set forth in the Proposal or bid, should the same be accepted, and that not longer than fifteen (15) days after the receipt by the notification of acceptance of this Proposal and this receipt by the Principal of contract forms from the Sponsor, he will execute a contract on the basis of the terms, conditions and unit prices set forth in his Proposal or bid, together with and accompanied by performance and payment bonds, satisfactory to the Sponsor, in the amount determined by the Sponsor, not to exceed the total amount of the contract; it is also required that the Contractor begin work within ten (10) days after notice to proceed by the Sponsor, and further agrees that within fifteen (15) days after given notice to proceed by the Sponsor to have at work all

SEE ATTACHED STANDARD AIA BOND FORM FROM SURETY

of the equipment specified, along with other necessary equipment as set out in the Special Provision; and that failure to perform or comply with any or all of the foregoing requirements within the time set forth above, shag be just and adequate cause for the annulment of the award, the amount of this guarantee shall immediately be at the disposal of the Sponsor, not as a penalty, but as an agreed liquidated damage. Should each and all of the foregoing conditions be fulfilled and Performance and Payment Bonds, as set forth in the Proposal, be executed, bonds being satisfactory to the Sponsor, this obligation shall be null and void, otherwise in full force and effect.

In testimony whereof, the Principal and Surety have caused these presents to be duly signed and sealed.

This _____ day of _____, A.D. 2024.

WITNESS: _____

_____
(Principal)

BY: _____

_____
(Surety)

BY: _____
General Agent of Attorney-in Fact

(SEAL)

NOTE: Each agent representing such Surety Company must file with the Sponsor his Power of Attorney duly executed by said Surety Company. The Surety Company must be listed on U.S. Treasury Circular 570.

NOT APPLICABLE

CERTIFICATE OF CORPORATE BIDDER

I, _____, certify that I am Secretary of the corporation named as bidder herein, same being organized and incorporated to do business under the laws of the State of_____; that _____ and _____ who executed this proposal on behalf of the bidder were, then and there, _____ and _____ respectively, and that said proposal was duly signed by said officers for and in behalf of said corporation, pursuant to the authority of its governing body and within the scope of its corporate powers.

I further certify that the names and addresses of the owners of all outstanding stock of said corporation as of this date are as follows:

_____

_____

_____

_____

This _____ day of _____, 2024.

_____
Secretary

(Corporate Seal)

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CERTIFICATE OF AUTHORITY FOR LIMITED LIABILITY CORPORATION, PARTNERSHIP OR SOLE OWNER

I, the undersigned Jon Clinard, am the Vice President of Integrated Builds, LLC,

a Georgia limited liability company (the "LLC") or Partnership, or Sole Owner. In order to induce CITY OF DALTON, DALTON, GEORGIA (the CITY) to enter into a contract with the LLC, Partnership, or Sole Owner executed on its behalf by me, I do hereby personally guarantee to the AUTHORITY that I, acting alone as Vice President, am vested with full power and authority to act for and on behalf of the LLC, Partnership, or Sole Owner in the execution of contracts between the LLC, Partnership or Sole Owner and the CITY, and any such contract(s) will be binding on the LLC, Partnership, or Sole Owner.

This 20th day of December, 2024.

VP

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FORM OF NONCONCLUSION AFFIDAVIT

(This Affidavit is Part of Bid)

STATE OF Tennessee

COUNTY OF Hamilton

Jon Clinard

being first duly sworn, deposes and says that he/she is

Vice President

(Sole owner, a partner, president, secretary, etc.)

of Integrated Builds, LLC

the party making the foregoing Proposal or BID that such BID is genuine and not collusive or sham; that said BIDDER has not colluded, conspired, connived, or agreed, directly or indirectly, with any BIDDER or person, to put in a sham BID, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the Bid Price of affiant or any other BIDDER, or to fix any overhead, profit or cost element of said Bid Price, or of that of any other BIDDER, or to secure any advantage against SPONSOR any person interested in the proposed Contract; and that all statements in said Proposal or Bid are true; and further, that such BIDDER has not, directly or indirectly submitted this BID, or the contents thereof, or divulged information or date relative thereto to any association or to any member or agent thereof.

(Bidder)

Sworn to an subscribed before me this 20th day of December, 2024.

Katherine Whitefield
Notary Public in and for

Hamilton County Tennessee

My Commission expires Sept. 25, 2028.

(SEAL)

KATHERINE WHITEFIELD
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF HAMILTON

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CERTIFICATION OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The Bidder/Offeror must complete the following two certification statements. The Bidder/Offeror 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 Bidder/Offeror 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 Bidder/Offeror 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 Bidder/Offeror 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 a Bidder/Offeror 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 Bidder/Offeror therefore must provide information to the Sponsor about its tax liability or conviction to the Sponsor, 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 Bidder/Offeror

Vice President
Title

Date: 12/20/2024

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CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

The Bidder/offer certifies, by submission of this Proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntary excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier, transactions, proposals, contracts, and subcontracts. Where the Bidder/offeror or any lower tier participant is unable to certify to this statement, it shall attach an explanation of this solicitation/proposal.

Signature of Contractor

Vice President
Title

Date: 12/20/2024

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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 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

12/20/2024
Date

Signature

Integrated Builds, LLC
Company Name

Vice President
Title

CERTIFICATION REGARDING FOREIGN PARTICIPATION

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. Is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. Has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

c. Has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in foreign country on said list.

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 a contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. This /Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge of the certification of erroneous.

The Contractor shall provide immediate written notice to the sponsor if the Contractor learns that is certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

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.

This certification concerns a matter within the jurisdiction of an agency of the United State of America and the making of a false, fictitious, fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

Signature of Contractor

Vice President
Title

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CERTIFICATE OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or 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 she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or 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 by explicit directives or are, in fact, 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 she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

If the bidder has participated in a previous contract subject to the nondiscrimination clause and has not submitted compliance reports as required by applicable instructions, the bidder shall submit written evidence of required compliance prior to award and within ten (10) days after opening of bids.

The Contractor or Subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

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 a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the Contractor agrees that, if awarded a contract resulting from this solicitation, it will

incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the sponsor if the Contractor learns that its certification or that a subcontractor was erroneous when submitted or has become erroneous by reason of charged circumstances. The subcontractor agrees to provide immediate written notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

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. This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under title 18, United States Code, Section 1001.

Integrated Builds, LLC	12/20/2024
Contractor	Date

EQUAL OPPORTUNITY REPORT STATEMENT

The bidder shall complete the following statement by checking the appropriate spaces. Failure to complete these blanks may be grounds for rejection of bid.

The Bidder ✓ has not _____ participated in a previous contract subject to the nondiscrimination clause prescribed by Executive Order 11246 dated 24 September, 1965, or Executive Order 11114, dated 2 June, 1963.

The Bidder ✓ has not _____ submitted compliance reports in connection with any such contract as required by applicable instructions.

If the bidder has participated in a previous contract subject to the nondiscrimination clause and has not submitted compliance reports as required by applicable instruction, the bidder shall submit written evidence of required compliance within **ten (10)** days after opening of bids.

The bidder certifies that he does _____ does not ✓ employ **fifty (50)** or more employees.

PERFORMANCE OF WORK BY SUBCONTRACORS

The BIDDER hereby states that he proposes, if awarded the Contract, to use the following subcontractors on this project: List below all proposed subcontractors and trade specialties. (List only one subcontractor for each item.)

DUE TO BIDDING TIME CONSTRAINTS, WE COULD NOT COMPILE. IF AWARDED, THEN WE CAN PROVIDE THIS INFORMATION

Item	Subcontractor

Other (Describe)

_____

_____

_____

Estimated Total Cost of Items that BIDDER states will be performed by Subcontractor(s):

($_____)

_____ Vice President

Signature of Contractor Title

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REQUIREMENT OF 49 CFR PART 26 – (AS AMENDED) DISADVANTAGED BUSINESS ENTERPRISE

The following bid conditions apply to this Department of Transportation (DOT) assisted contract. Submission of a bid/proposal by a prospective Contractor shall constitute full acceptance of these bid conditions.

1. Definition - Disadvantaged Business Enterprise (DBE) as used in this Contract shall have the same meaning as defined in 49 CFR Part 26, as amended.

2. Policy - It is the policy of DOT that disadvantaged business enterprise as defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds. Consequently, the DBE requirements of 49 CFR Part 26 apply to this contract.

3. DBE Obligation - The Contractor agrees to ensure that disadvantaged business enterprises as defined in 49 CFR Part 26 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds. In this regard, all Contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that disadvantaged business enterprises have the maximum opportunity to compete for and perform contracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT assisted contracts.

4. Compliance - All bidders, potential contractors, or subcontractors for this DOT assisted contract are hereby notified that failure to carry out the DOT policy and the DBE obligations, as set forth above, shall constitute a breach of contract which may result in termination of the contract or such other remedy as deemed appropriate by the Sponsor.

5. Subcontract Clause - All bidders and potential Contractors hereby assure that they will include the above clauses in all subcontracts which offer further subcontracting opportunities.

6. Contract Award - Bidders are hereby advised that meeting DBE subcontract goals or making an acceptable good faith effort to meet such goals are conditions of being awarded this DOT assisted contract.

The Sponsor proposes to award the contract to the lowest responsive and responsive bidder submitting a reasonable bid provided he has met the goals for DBE participation or, if failing to meet the goals, he has made an acceptable good faith effort to meet the established goals for the DBE participation. The bidder is advised that the Sponsor reserves the right to reject any or all bids submitted.

7. Subcontract Goals - The attainment of goals established for this contract are to be measured as a percentage of the total dollar value of the contract. The goals established for this contract is **0.00%** to be performed by the DBE's.

8. Available Certified DBEs - The Sponsor has developed an DBE Program and DBE Directory as required by 49 CFR Part 26. For this contract, the Sponsor will accept as certified, those DBE firms which are identified by the Small Business Administration (SBA) as 8(a) firms and those firms which are currently certified by other Department of Transportation (DOT) agencies (such as the Department of Transportation). Firms which desire certification which

do not meet the SBA or other DOT agencies previous certification criteria are required by the Sponsor to complete the DOT recommended Schedule A or Schedule B (as applicable) in its entirety before they can be certified for this contract. Copies of Schedule A or Schedule B may be obtained from Sponsor. The act of simply filling out the Schedule A or Schedule B does not mean automatic certification by the Sponsor. The rules and procedures of 49 CFR Part 26 shall govern the certification process of the Sponsor.

9. Contractor's Required Submission - Prospective Contractors shall submit with his bid the following summary of "Letters of Intent" information concerning DBE participation.

The bidder/offeror will also be required to submit the following information:

1. The names and addresses of DBE firms that will participate in the contract;
2. Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
3. Written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (2);

MINORITY SUBCONTRACTS

Minority Subcontractor	Subcontract Work Item	Dollar value of Subcontract work
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____

WOMEN SUBCONTRACTS

Minority Subcontractor	Subcontract Work Item	Dollar value of Subcontract work
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____
_____	_____	$ _____

Total Value of Subcontract Work $ _____

Total Dollar Value of Base Bid $ _____

Percent of Total $ _____

If the Contractor fails to meet the DBE subcontract goals established in paragraph 7 above, the following information must be submitted with prospective Contractor's bid to assist the Sponsor in evaluating the efforts of the Contractor toward meeting DBE goals.

a. Specify efforts used to identify and award contracts to minority businesses on this project;
b. Describe the method used to notify the public and minority community of your solicitation of bids, quantities, specifications and delivery schedule;

c. Identify the solicitation time set up in b. above and describe any follow-up action taken after the initial solicitation to determine if DBEs were interested in subcontract work;

d. Under this contract what work do you feel will be suitable for subcontracting?
(1) Number of Contracts _____

(2) Total Dollar Value $_____

e. List the name, address and bid prices of minority businesses that submitted bids for subcontracts under this project;

f. List DBEs that were rejected and give reasons for rejection; and,

g. Describe efforts made to assist DBEs in obtaining bonding or insurance and sub-mission of bids.

h. Other actions to secure DBE participation.

10. CONTRACTOR ASSURANCES - The bidder hereby assures that he will meet one of the following as appropriate:

a. The DBE participation goals as established in paragraph 7 above.

b. The DBE participation percentage shown in paragraph 9 which was submitted as a condition of contract award.

Agreements between bidder/proposer and a DBE in which the DBE promises not to provide subcontracting quotations to other bidders/proposers are prohibited. The bidder shall make an acceptable good faith effort to replace a DBE subcontractor that is unable to perform successfully with another DBE subcontractor. Substitutions must be coordinated with and approved by the Sponsor.

The bidder shall establish and maintain records and submit regular reports, as required, which will identify and assess progress in achieving DBE subcontract goals and other DBE affirmative action efforts.

NAME OF BIDDER: Integrated Builds, LLC

IRS NUMBER: 26-1387003

BY: 

TITLE: Vice President

DATE: 12/20/2024

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CONTRACTOR - GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned Contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of the CITY OF DALTON has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned Contractor will continue to use the federal work authorization program throughout the contract period and the undersigned Contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the Contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

324229
Federal Work Authorization/ E-Verify User Identification Number

5/4/2010
Date of Authorization

Integrated Builds, LLC
Name of Contractor

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

Executed on Dec, 20, 2024 in Chattanooga (city), TN (state).

Signature of Authorized Officer or Agent

Jon Clinard, Vice President
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE 20th DAY OF December, 2024.

Katherine Whitefield
NOTARY PUBLIC

My Commission Expires:

Sept. 25, 2028

KATHERINE WHITEFIELD
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF HAMILTON

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SUBCONTRACTOR - AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with (name of contractor) on behalf of the SPONSOR NAME has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice that a sub-subcontractor has received an affidavit from any other contracted sub-subcontractor, the undersigned subcontractor must forward, within five business days of receipt, a copy of the notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization/ E-Verify User Identification Number

_____
Date of Authorization

_____
Name of Sub-Contractor

_____
Name of Project

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

Executed on _____, ___, 2024 in _____ (city), _____ (state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE _____ DAY OF _____, 2024.

_____
NOTARY PUBLIC

My Commission Expires:

_____

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SAVE AFFIDAVIT

REQUIRED FOR LOCAL GOVERNMENT THAT MUST BE EXECUTED BY ANYONE ENTERING INTO A CONTRACT WITH A LOCAL GOVERNMENT

STATE OF GEORGIA
WHITFIELD COUNTY, DALTON

By executing this affidavit under oath, as an applicant for a Whitfield County, DALTON, Georgia contract as referenced in O.C.G.A. § 50-36-1 and the August 1, 2010, "Report of the Attorney General on Public Benefits," I am stating the following with respect to my ability to enter into a contract with Whitfield County, DALTON, Georgia:

Jon Clinard

[Name of natural person applying on behalf of individual, business, corporation, partnership or other private entity]

As a representative of:
Integrated Builds, LLC

(Name of the business, corporation, partnership, or other private entity)

1) ✓ I am a United States citizen

OR

2) _____ I am a legal permanent resident 18 years of age or older or I am an otherwise qualified alien or non-immigrant under the Federal Immigration and Nationality Act 18 years of age or older and lawfully present in the United States.*

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of O.C.G.A. § 16-10-20.

This 20th day of December, 2024.

Signature of Applicant: _____

Printed Name: Jon Clinard

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
20th DAY OF December, 2024

Katherine Whitefield
Notary Public
My Commission Expires: Sept. 25, 2028

KATHERINE WHITEFIELD
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF HAMILTON

***Note**: O.C.G.A. § 50-36-1(e)(2) requires that aliens under the federal Immigration and Nationality Act, Title 8 U.S.C., as amended, provide their alien registration number. Because legal permanent residents are included in the federal definition of "alien," legal permanent residents must also provide their alien registration number. Qualified aliens that do not have an alien registration number may supply another identifying number below:
Alien Registration number for non-citizens: *_____

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ACORD

INTECON-01 MBRYSON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 11/22/2024

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

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

PRODUCER Athens Insurance 110 W. Washington Avenue Athens, TN 37303	CONTACT NAME: PHONE (A/C, No, Ext): (423) 745-3062 FAX (A/C, No): (423) 745-8888 E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Grange Insurance Companies	14060
INSURED Integrated Concrete Inc. Integrated Builds, LLC PO Box 91298 Chattanooga, TN 37412	INSURER B : Business First Insurance Co	11697
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC OTHER:			CPP2845405	11/1/2024	11/1/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY			CA2845406	11/1/2024	11/1/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 0			CUP2845407	11/1/2024	11/1/2025	EACH OCCURRENCE AGGREGATE	$ 4,000,000 $ 4,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: Y If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		52125352	11/1/2024	11/1/2025	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
A	Equipment Floater			CPP2845405	11/1/2024	11/1/2025	Rented or Leased	50,000

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

CERTIFICATE HOLDER

Insured's Copy

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

Allen Carter

HANGAR DEVELOPMENT

CHECKLIST FOR BID DOCUMENTS

Failure to include all required documents may result in proposal being removed for consideration for award.

DOCUMENTATION DESCRIPTION	Please check
1. Prequalification Documents	☑
2. Proposal	☑
3. Proposal Bid Form	☑
4. Addenda Acknowledgement	☑
5. Proposal Guarantee (5%)	☑
6. Proposal Guarantee Bond (5%)	☑
7. Certificate of Corporate Bidder *OR* Certificate of Authority for LLC, Partnership or Sole Owner	☑
8. Form of Noncollusion Affidavit	☑
9. Certification Regarding Debarment, Suspension, Ineligibility and Volunteer Exclusion	☑
10. Buy American Certification	☑
11. Certification Regarding Foreign Participation	☑
12. Certification of Nonsegregated Facilities	☑
13. Equal Opportunity Report Statement	☑
14. Performance of Work by Subcontractors	☑
15. Disadvantaged Business Enterprise Program	☑
16. Contractor – Georgia Security and Immigration Compliance Act Affidavit and Agreement	☑
17. Subcontractor – Georgia Security and Immigration Compliance Act Affidavit and Agreement	☑
18. SAVE Affidavit	☑
19. Proof of Insurance	☑
20. GDOT DBE Certification	☑
21. Bid Documents Submittal Checklist (This Page)	☑

This affirms that all documents are included with the bidder's bid package.

Integrated Builds, LLC — Company's Name

12/20/2024 — Date

Jon Clinard — Authorized Representative's Name (Print or Type)

Authorized Representative's Signature

END OF PROPOSAL DOCUMENTS

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STATE OF GEORGIA
BRAD RAFFENSPERGER, Secretary of State
State Licensing Board for Residential and General Contractors
LICENSE NO. GCQA003553

Michael W Toth
P O Box 91298
Chattanooga TN 37412

Company Name: Integrated Properties LLC
Company License NO: GCCO003542
General Contractor Qualifying Agent

EXP DATE - 06/30/2026 Status: Active
Issue Date: 04/24/2012

A pocket-sized license card is below. Above is an enlarged copy of your pocket card.

Please make note of the expiration date on your license. It is your responsibility to renew your license before it expires. Please notify the Board if you have a change of address.

Wall certificates suitable for framing are available at cost, see board fee schedule. To order a wall certificate, please order from the web site – www.sos.ga.gov/plb.

Please refer to Board Rules for any continuing education requirements your profession may require.

Georgia State Board of Professional Licensing
237 Coliseum Drive
Macon GA 31217
Phone: (404) 424-9966
www.sos.ga.gov/plb

Michael W Toth
1310 East End Avenue
Chattanooga TN 37412

STATE OF GEORGIA
BRAD RAFFENSPERGER, Secretary of State
State Licensing Board for Residential and General Contractors
License No. GCQA003553
Michael W Toth

P O Box 91298
Chattanooga TN 37412

Company Name: Integrated Properties LLC
Company License NO: GCCO003542
General Contractor Qualifying Agent

EXP DATE - 06/30/2026 Status: Active
Issue Date: 04/24/2012

STATE LICENSING BOARD FOR RESIDENTIAL AND GENERAL CONTRACTORS
237 Coliseum Drive, Macon, GA 31217
404-424-9966 Trades4@sos.ga.gov
www.sos.ga.gov

CHANGE OF NAME OR ADDRESS FOR A COMPANY

There is NO CHARGE to change a company name or address. To change the name of the business organization, submit a copy of the Name Change Amendment from the Georgia Corporations Division along with this completed form.

A change of business organization structure from one entity type to another (ex: LLC to INC), is not considered a name change and will require a new qualifying agent application. Also, forming a new business organization is not considered a name change and will require a new qualifying agent application.

Company License # **GCCO003542**
If the business organization holds multiple license numbers, please list all of them.

PERSONAL INFORMATION

1. Current Company Name as it appears on License: **Integrated Properties, LLC**

2. New Company Name to appear on License: **Integrated Builds, LLC**
(exactly as registered with the Georgia Corporations Division)

3. Federal ID # 26-1387003

4. Business Phone # 423-643-8448

5. New Physical Address: **1310 East End Ave.**
(PO BOX NOT ACCEPTABLE) NUMBER AND STREET APT OR SUITE#

Chattanooga CITY | **TN** STATE | **37412** ZIP

6. New Mailing Address: (if different) NUMBER AND STREET OR PO BOX APT OR SUITE#

CITY STATE ZIP

7. Email Address: **rtoth@integratedbuilds.com**
(Email addresses are not public information and will not be shared with third parties.)

The business organization name, address, and license number are public information. They will appear on the License Pocket Card and on the public listing of the license on the Secretary of State's website.

Michael W Toth
Printed Name of Qualifying Agent

06/10/2024
Date

Michael W. Toth
Signature of Qualifying Agent

PRESIDENT
Title

Georgia Department of Transportation

Russell R. McMurry, P.E., Commissioner
One Georgia Center
600 West Peachtree Street, NW
Atlanta, GA 30308
(404) 631-1000 Main Office

November 13, 2024

CERTIFICATE OF QUALIFICATION
Vendor ID: 19260

Integrated Builds, LLC
1310 East End Avenue
Chattanooga, TN 37412

In accordance with The Rules and Regulations Governing the Prequalification of Prospective Bidders, you are hereby notified that the Georgia Department of Transportation has assigned the following Rating. This Certificate is effective on the date of issue stated above and cancels and supersedes all Certificate(s) previously issued:

MAXIMUM CAPACITY RATING:	**$1,400,000.00**
CERTIFICATE EXPIRES:	**September 30, 2026**
PRIMARY WORK CLASS/CODE:	**797**
SECONDARY WORK CLASS(ES)/CODE(S):	**441 and 452**

The total amount of incomplete work, regardless of its location and with whom it is contracted, whether in progress or awarded but not yet begun, shall not exceed the Maximum Capacity Rating. If dissatisfied with the Rating, we direct you to the Appeals Procedures in §672-5-.08 (1) & (2) and §672-1-.05, Rules of the State Department of Transportation.

A Prequalified Contractor may request an extension of its current prequalification **prior** to the expiration date of the prequalification by providing the Department with the following information: the amount of time requested for the extension (either 30, 60 or 90 days), the reason for the extension request and the original expiration date of the prequalification. The Department in its discretion will determine whether the extension should be granted and will notify the Contractor of its determination.

Allowing approved prequalification to lapse will leave the Contractors without the ability to bid work until such time as the standing returns to an approved status. If you desire to apply at some intermediate period before the expiration date, your Rating will be reviewed based on the new application.

This Prequalification Certificate is issued for contractors to be eligible for work with the Georgia Department of Transportation (GDOT) only. GDOT does not certify contractors as eligible to do business with entities other than GDOT. *Work class codes are for reference only and do not represent a certification to be provided in support of contractor ability or NAICS code determinations. NAICS Codes are assigned by the office of Equal Employment Opportunity.*

Sincerely,

Patrick Allen, P.E.
Chairman, Prequalification Committee/Contractors

PA:TKA

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DIVISION 4 – CONTRACT DOCUMENTS

CONTRACT

STATE OF GEORGIA
WHITFIELD COUNTY, CITY OF DALTON

THIS AGREEMENT made and entered into this _____ day of _____, 2025 by and between **CITY OF DALTON, DALTON, GEORGIA** (Party of the First Part, hereinafter called the Sponsor) and **INTEGRATED BUILDS, LLC** (Party of the Second Part, hereinafter called the Contractor).

WITNESSETH: That the said Contractor has agreed, and by these presents does agree with the said Sponsor, for the consideration herein mentioned and under the provision of the Performance Bond and Labor and Materials Payment Bond required by the Specifications to furnish all equipment, tools, materials, skill and labor of every description necessary to carry out and complete in a good, firm and substantial and workmanlike manner, the work specified, in strict conformity with the drawings and specifications, together with the foregoing proposal made by the Contractor, the Advertisement, the Instructions to Bidders, General Conditions and this Agreement, shall all form essential parts to this Agreement. The work covered by this Agreement includes all work shown on plans and specifications and listed in the conditions and specifications, to wit: Improvements to DALTON MUNICIPAL AIRPORT, DALTON, GEORGIA and CROY Engineering, LLC project No. 2106.009.

The Contractor awarded work under this contract shall commence work within **10** days after the issuance of the Notice to Proceed. All work shall be fully completed within **180 Calendar Days** from the Notice to Proceed.

If said work is not completed within the time stated, the Contractor shall be liable and hereby agrees to pay the Sponsor as liquidated damages and not as a penalty, the amount of **$1,500** per calendar day for a delay in completion.

The Sponsor shall pay and the Contractor shall receive the prices stipulated in the proposal hereto attached as full compensation for everything furnished and done by the Contractor under this contract, the full sum of **four million, twenty-eight thousand, one hundred seventy-five dollars and 80 cents ($ 4,028,175.80)** based on the quantities shown in the proposal which sum shall be paid in the manner and terms specified in the Contract Documents, but before issuance of certificate of payment, if the Contractor shall not have submitted evidence satisfactory to the Sponsor that all payrolls, materials bills, and other indebtedness connected with the work have been paid, the Sponsor may withhold, in addition to the retained percentages, such amount or amounts as may be necessary to pay just claims for labor and services rendered and materials in and about the work, and such amount or amounts withheld or retained may be applied by the Sponsor to the payment of such just claims.

It is further mutually agreed between the Parties hereto that if, at any time after the execution of agreement and the Performance Bond for its faithful performance and the Labor and Materials Payment bond, the first party shall deem the surety or sureties upon such bond to be inadequate to cover the performance of the work, the second party shall, at its expense, within five (5) days after the receipt of notice from the first party to do so, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the first party. In such event, no further payment to the second party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in a manner and form satisfactory to the first party.

IN WITNESS WHEREOF the parties hereto have executed this agreement in triplicate this day of _____ day of _____, 2025.

ATTEST: (As to Contractor)
Signed and sealed in the
Presence of:

Susan Daniels _____L.S.

_____L.S.

(SEAL)

INTEGRATED BUILDS, LLC

By: _____L.S.

Title: VICE PRESIDENT

ATTEST: (SEAL)

_____L.S.
Secretary

ATTEST:(As to Sponsor)

CITY OF DALTON
WHITFIELD COUNTY/DALTON, GEORGIA

By:_____L.S.

By: _____L.S.

APPROVED AS TO FORM BEFORE EXECUTION

By:_____L.S.
Attorney for City of Dalton

Contract Addendum

This Contract Addendum ("Addendum") is made on March 17, 2025 and serves to modify that certain Contract between the City of Dalton, Georgia (the "Sponsor") and Integrated Builds, LLC (the "Contractor") of even date herewith (the "Contract"), as follows:

I. During the period from the date of the Contract through May 30, 2025 (the "Option Period"), Sponsor shall have the option, with five (5) days written notice to Contractor, to strike the following from the scope of work: the entirety of Schedule B-2 in the Hangar Development Bid Form (the "Option SOW").

II. During the Option Period, Contractor shall not begin any work on the Option SOW without the prior written consent of Sponsor.

III. Strike the original submitted proposal bid form schedule in its entirety and replace with the revised schedule attached hereto and incorporated herein as "EXHIBIT B – Revised Bid Schedule".

All other provisions of the Contract remain in full force and effect and are not impacted or modified by the execution of this Addendum.

CITY OF DALTON, GEORGIA

By: _____ 3/13/25
Date:

By: _____
Date:

SCHEDULE A-1 86' x 120' HANGAR SITE								
Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price	Revised Total Cost	
1	151	Mobilization	1		LS	$ 57,900.00	$	57,900.00
2	163	Construction and Removal of Temporary Sediment Basin, Type 1, SBC	1		EA	$ 5,443.00	$	5,443.00
3	163	Construct Entrance/Exit, including installation and removal	1		EA	$ 3,060.00	$	3,060.00
4	163	Construct and Remove Check Dam - Hay	6		EA	$ 170.00	$	1,020.00
5	163	Dust Control	1		AC	$ 1,700.00	$	1,700.00
6	163	Temporary Grassing	1		AC	$ 1,445.00	$	1,445.00
7	163	Mulching	6		TN	$ 2,550.00	$	15,300.00
8	165	Maintenance of Temporary Silt Fence (NS)	300		LF	$ 3.40	$	1,020.00
9	165	Maintenance of Check Dams, all types	6		EA	$ 127.50	$	765.00
10	165	Maintenance of Temporary Sediment Basin, SBC	1		EA	$ 850.00	$	850.00
11	165	Maintenance of Construction Entrance/Exit	3		EA	$ 1,020.00	$	3,060.00
12	167	Water Quality Monitoring	4		MO	$ 420.00	$	1,680.00
13	171	Installation and Removal of Silt Fence (NS)	300		LF	$ 6.80	$	2,040.00
14	205	Excavation (Cut)	1000		CY	$ 15.00	$	15,000.00
15	208	Embankment (Fill)	325		CY	$ 8.57	$	2,785.25
16	310	GR AGGR BASE CRS, 6 INCH, INCL MATL	275	*265*	SY	$ 27.25	*$*	*7,221.25*
17	441	6" Reinforced Conc Paving	275	*265*	SY	$ 187.25	*$*	*49,621.25*
18	441	4" Reinforced Conc Ditch Paving	300	*296*	SY	$ 139.00	*$*	*41,144.00*
19	603	Rip Rap, 18" Depth	60		SY	$ 60.00	$	3,600.00
20	615	Directional Bore Pipe (3/4" WATER SERVICE)	50		LF	$ 80.33	$	4,016.50
21	660	San Sewer Pipe, 4in PVC	40		LF	$ 32.13	$	1,285.20
22	660	San Sewer Cleanout	1		EA	$ 1,606.50	$	1,606.50
23	670	3/4" Domestic Water Service to 80x120 Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete	1		LS	$ 5,200.00	$	5,200.00
24	700	Permanent Seeding	1		AC	$ 3,060.00	$	3,060.00
25	716	Erosion Control Mats, Slopes	550		SY	$ 6.80	$	3,740.00

Total Cost (SCHEDULE A-1) =	$ 233,562.95

SCHEDULE A-2 86' x 120' HANGAR BUILDING								
Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price	Revised Total Cost	
26	151	Mobilization	1		LS	$ 16,065.00	$	16,065.00
27	797	Supply and Construct 86' x 120' PEMB including foundation, stone base, all finishes, hardware, doors, mechanical, plumbing, etc., complete per plans and specifications	1		LS	$ 978,115.00	$	978,115.00
28	N/A	Deduct - Removing heater system	1	*0*	LS	$ (13,629.00)	*$*	-

Total Cost (SCHEDULE A-2) =	$ 994,180.00

Total Cost (SCHEDULE A-1 & A-2) =	$ 1,227,742.95

SCHEDULE B-1 60' x 60' HANGAR SITE								
Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price		Revised Total Cost
29	151	Mobilization	1		LS	$	55,635.00	$ 55,635.00
30	163	Construct Entrance/Exit, including installation and removal	1		EA	$	3,060.00	$ 3,060.00
31	163	Construct and Remove Check Dam - Hay	2		EA	$	170.00	$ 340.00
32	163	Dust Control	0.5		AC	$	1,700.00	$ 850.00
33	163	Temporary Grassing	0.5		AC	$	1,445.00	$ 722.50
34	163	Mulching	3		TN	$	2,550.00	$ 7,650.00
35	165	Maintenance of Temporary Silt Fence (NS)	400		LF	$	3.40	$ 1,360.00
36	165	Maintenance of Check Dams, all types	2		EA	$	127.50	$ 255.00
37	165	Maintenance of Construction Entrance/Exit	1		EA	$	1,020.00	$ 1,020.00
38	167	Water Quality Monitoring	4		MO	$	420.00	$ 1,680.00
39	171	Installation and Removal of Silt Fence (NS)	400		LF	$	6.80	$ 2,720.00
40	205	Excavation (Cut)	250		CY	$	15.00	$ 3,750.00
41	208	Embankment (Fill)	300		CY	$	8.57	$ 2,571.00
42	310	GR AGGR BASE CRS, 6 INCH, INCL MATL	250	*236*	SY	$	27.25	*$ 6,431.00*
43	441	6" Reinforced Conc Paving	250	*236*	SY	$	187.25	*$ 44,191.00*
44	610	Open Cut Asphalt Trench and Repair (incl material)	80		SY	$	91.00	$ 7,280.00
45	615	Jack and Bore 8" DIP in 16" Steel Casing	50	*0*	LF	$	428.40	$ -
46	615	Directional Bore Pipe (3/4" WATER SERVICE)	50		LF	$	80.33	$ 4,016.50
47	660	San Sewer Pipe, 4in PVC	150		LF	$	32.13	$ 4,819.50
48	660	6" Steel Casing / Sleeve (for 4" SS lateral)	20		LF	$	53.55	$ 1,071.00
49	660	San Sewer Cleanout	2		EA	$	535.00	$ 1,070.00
50	670	3/4" Domestic Water Service to 60x60 Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete	1		LS	$	3,000.00	$ 3,000.00
51	670	8" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.)	150		LF	$	55.70	$ 8,355.00
52	670	Fire Hydrant Assembly (incl. fittings, valves, blocking, etc.)	1		EA	$	4,925.00	$ 4,925.00
53	700	Permanent Seeding	0.5		AC	$	3,060.00	$ 1,530.00
54	716	Erosion Control Mats, Slopes	300		SY	$	6.80	$ 2,040.00

Total Cost (SCHEDULE B-1) =	$ 170,342.50

SCHEDULE B-2 60' x 60' HANGAR BUILDING								
Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price		Revised Total Cost
55	151	Mobilization	1		LS	$	13,785.00	$ 13,785.00
56	797	Supply and Construct 60' x 60' PEMB including foundation, stone base, all finishes, hardware, doors, mechanical, plumbing, etc., complete per plans and specifications	1		LS	$	434,665.00	$ 434,665.00
57	N/A	Deduct - Removing heater system	1	*0*	LS	$	(7,581.00)	*$ -*

Total Cost (SCHEDULE B-2) =	$ 448,450.00

Total Cost (SCHEDULE B-1 & B-2) =	$ 618,792.50

SCHEDULE C-1 T-HANGAR SITE							
Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price	Revised Total Cost
58	151	Mobilization	1		LS	$ 78,406.00	$ 78,406.00
59	163	Construct Entrance/Exit, including installation and removal	1		EA	$ 3,060.00	$ 3,060.00
60	163	Construct and Remove Check Dam - Hay	3		EA	$ 170.00	$ 510.00
61	163	Construct and Remove Stone Filter Ring	1		EA	$ 425.00	$ 425.00
62	163	Construct and Remove Inlet Sediment Trap	4		EA	$ 425.00	$ 1,700.00
63	163	Dust Control	3		AC	$ 1,700.00	$ 5,100.00
64	163	Construct and Remove Retrofit Outlet Structure	1		EA	$ 6,805.00	$ 6,805.00
65	163	Temporary Grassing	3		AC	$ 1,445.00	$ 4,335.00
66	163	Mulching	12		TN	$ 2,550.00	$ 30,600.00
67	165	Maintenance of Temporary Silt Fence (NS)	1250		LF	$ 3.40	$ 4,250.00
68	165	Maintenance of Check Dams, all types	3		EA	$ 127.50	$ 382.50
69	165	Maintenance of Retrofit Outlet Structure	1		EA	$ 1,360.00	$ 1,360.00
70	165	Maintenance of Construction Entrance/Exit	1		EA	$ 1,020.00	$ 1,020.00
71	165	Maintenance of Inlet Sediment Traps	4		EA	$ 170.00	$ 680.00
72	165	Maintenance of Stone Filter Ring	1		EA	$ 340.00	$ 340.00
73	167	Water Quality Monitoring	6		MO	$ 420.00	$ 2,520.00
74	171	Installation and Removal of Silt Fence (NS)	1200		LF	$ 6.80	$ 8,160.00
75	202	Clearing and Stripping	3	*1*	AC	$ 3,750.00	*$ 3,750.00*
76	205	Excavation (Cut)	2000		CY	$ 15.00	$ 30,000.00
77	208	Embankment (Fill)	2000		CY	$ 8.57	$ 17,140.00
78	310	GR AGGR BASE CRS, 8 INCH, INCL MATL	3350	*3148*	SY	$ 32.35	*$ 101,837.80*
79	310	GR AGGR BASE CRS, 6 INCH, INCL MATL	425	*415*	SY	$ 27.25	*$ 11,308.75*
80	402	Recycled Asphaltic Concrete, 12.5 mm, Superpave, Group Blend, including Bituminous Materials and Hydrated Lime (2 in)	380	*340*	TON	$ 195.00	*$ 66,300.00*
81	402	Recycled Asphaltic Concrete, 19 mm, Superpave, Group Blend, including Bituminous Materials and Hydrated Lime (2 in)	380	*340*	TON	$ 190.65	*$ 64,821.00*
82	413	Bitum Tack Coat	465		GL	$ 8.57	$ 3,985.05
83	441	6" Reinforced Conc Paving	425	*415*	SY	$ 245.00	*$ 101,675.00*
84	441	36" Concrete Valley Gutter	100	*77*	LF	$ 94.30	*$ 7,261.10*
85	668	24" Concrete Headwall	1		EA	$ 1,553.00	$ 1,553.00
86	550	Reinforced Concrete Pipe, 18" dia., Class III	165		LF	$ 64.25	$ 10,601.25
87	550	Reinforced Concrete Pipe, 24" dia., Class III	450		LF	$ 96.40	$ 43,380.00
88	603	Rip Rap, 18" Depth	50		SY	$ 64.25	$ 3,212.50
89	610	Open Cut Asphalt Trench and Repair (incl material)	200		SY	$ 91.00	$ 18,200.00
90	615	Jack and Bore 6" DIP in 16" Steel Casing	250	*0*	LF	$ 508.75	*$ -*
91	615	Directional Bore Pipe (3/4" WATER SERVICE)	250		LF	$ 80.35	$ 20,087.50
92	652	6" Yellow Taxilane Striping (Temporary)	1300		LF	$ 1.07	$ 1,391.00
93	652	6" Yellow Taxilane Striping (Permanent)	1300		LF	$ 2.68	$ 3,484.00
94	652	Black Outline for Taxilane Striping	1300		LF	$ 5.90	$ 7,670.00
95	668	Junction Box	4		EA	$ 4,070.00	$ 16,280.00
96	668	Trench Drain, 12in	260	*252*	LF	$ 814.55	*$ 205,266.60*
97	668	Pedestal Top Inlet	1		EA	$ 3,640.00	$ 3,640.00
98	668	Outlet Control Structure	1		EA	$ 6,960.00	$ 6,960.00

99	670	3/4" Domestic Water Service to T-Hangar Pad (incl. piping, tap, fittings, bends, meter, etc.) Complete	1		LS	$	2,785.00	$ 2,785.00
100	670	6" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.)	400		LF	$	50.35	$ 20,140.00
101	670	8" DIP Water Main Extension (incl. taps, fitting, valves, bends, blocking, etc.)	350		LF	$	55.70	$ 19,495.00
102	670	Fire Hydrant Assembly (incl. fittings, valves, blocking, etc.)	2		EA	$	4,925.00	$ 9,850.00
103	700	Permanent Seeding	2		AC	$	3,060.00	$ 6,120.00
104	716	Erosion Control Mats, Slopes	1500		SY	$	6.80	$ 10,200.00
105	N/A	2' Wide Enhanced Swale (including excavation, filter media, check dams, stone, filter fabric, underdrain pipe, and cleanouts)	300		LF	$	64.25	$ 19,275.00

Total Cost (SCHEDULE C-1) =	$	987,323.05

SCHEDULE C-2
T-HANGAR BUILDING

Item No.	GDOT No.	Description	Original Qty	Revised Qty	Unit	Unit Price	Revised Total Cost
106	151	Mobilization	1		LS	$ 16,355.00	$ 16,355.00
107	797	Supply and Construct 10-Unit T-Hangar PEMB including foundation, stone base, all finishes, hardware, doors, mechanical, plumbing, etc., complete per plans and specifications	1		LS	$ 1,238,835.00	$ 1,238,835.00
108	N/A	Deduct - Removing heater system	1		LS	$ (60,872.70)	$ (60,872.70)

Total Cost (SCHEDULE C-2) =	$	1,194,317.30

Total Cost (SCHEDULE C-1 & C-2) =	$	2,181,640.35

Total Cost (SCHEDULE A-1 & A-2) =	$	1,227,742.95

Total Cost (SCHEDULE B-1 & B-2) =	$	618,792.50

Total Cost (SCHEDULE C-1 & C-2) =	$	2,181,640.35

Total Cost (ALL SCHEDULES) =	$	4,028,175.80

CERTIFICATE OF CORPORATE AUTHORITY

I, _____, certify that I am Secretary of the Corporation named as Contractor herein, same being organized and incorporated to do business under the laws of the State of _____; that _____ _____ who executed this contract on behalf of the Contractor was, then and there, _____; and that said contract was duly signed by said officer and in behalf of said corporation, pursuant to the authority and its governing body and within the scope of its corporate powers.

I further certify that the names and addresses of the owners of all the outstanding stock of said corporation as of this date are as follows:

_____

_____

_____

_____

_____

_____

_____

This _____ day of _____, 2024.

_____ (Corporate Seal)

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CERTIFICATE OF AUTHORITY FOR LIMITED LIABILITY CORPORATION, PARTNERSHIP OR SOLE OWNER

I, the undersigned_____, am the

_____of _____, a Georgia limited liability company (the "LLC") or Partnership, or Sole Owner. In order to induce CITY OF DALTON (the CITY) to enter into a contract with the LLC, Partnership, or Sole Owner executed on its behalf by me, I do hereby personally guarantee to the CITY that I, acting alone as_____, am vested with full power and authority to act for and on behalf of the LLC, Partnership, or Sole Owner in the execution of contracts between the LLC, Partnership or Sole Owner and the CITY, and any such contract(s) will be binding on the LLC, Partnership, or Sole Owner.

This _____ day of _____, 2024.

_____

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PERFORMANCE BOND (100%)

KNOW ALL MEN BY THESE PRESENTS, that we, _____**,** as Principal, and _____, as Surety, licensed to do business in the State of Georgia, are held and firmly bound unto **CITY OF DALTON, DALTON, GEORGIA** as Obligee, hereinafter called the Sponsor, in the sum of _____**($**_____**)**, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Sponsor, dated _____ 2024, for **IMPROVEMENTS TO CITY OF DALTON, DALTON, GEORGIA and CROY ENGINEERING Project No. 2106.009.**

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Sponsor, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, except that no change will be made which increases the total contract price more than twenty percent in excess of the original contract price without notice to the Surety, then this obligation to be void, otherwise to remain in full force and effect.

Whenever Principal shall be, and declared by Sponsor to be in default under the Contract, the Sponsor having performed Sponsor's obligations thereunder, the Surety may promptly remedy the

default, or shall promptly:

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

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

Signed, Sealed and Dated this _____ day of _____, A.D., 2024.

_____ (SEAL)
(Principal)

BY: _____

_____ (SEAL)
(Surety)

BY: _____

Power of Attorney is attached.

PAYMENT BOND (100%)

KNOW ALL MEN BY THESE PRESENTS: That _____, as Principal, and_____ a corporation of the State of _____with its principal office in City of _____ (hereinafter called the Surety), as Surety, licensed to do business in the State of Georgia, are held and firmly bound unto **CITY OF DALTON, DALTON, GEORGIA** (hereinafter called the Obligee), for the use and protection of all subcontractors and all persons supplying labor, machinery, materials, and equipment in the prosecution of the work provided for in the contract hereinafter referred to in the full and just sum of _____

_____ **($_____)**, to the payment of which sum, well and truly to be made, the Principal and Surety bind themselves, their, and each of their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract, dated the _____day of _____, 2024, with the Obligee for **DALTON MUNICIPAL AIRPORT, DALTON, GEORGIA and CROY NGINEERING Project No. 2106.009** which Contract is by reference made a part hereof.

NOW, THEREFORE THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall faithfully perform said Contract according to its terms, covenants and conditions, and shall promptly pay all persons furnishing labor or material for use in the performance of said Contract, then this obligation shall be void; otherwise it shall remain in full force and effect.

ALL persons who have furnished labor, material, machinery or equipment for use in the performance of said contract shall have a direct right of action on this Bond, provided payment has not been made in full within **ninety (90) days** after the last day on which labor was performed, materials, machinery, and equipment furnished or the subcontract completed.

PROVIDED, HOWEVER, that no suit or action shall be commenced hereunder by any person furnishing labor or material having a direct contractual relationship with a subcontractor, but no contractual relationship express or implied with the Principal:

Unless such person shall have given notice to the Principal within ninety (90) days after such person did, or performed the last of the work or labor, or furnished the last of the materials for which claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such a notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Principal, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer.

PROVIDED, FURTHER, that any suit under this bond must be instituted before the expiration of one (1) year after the acceptance of the public works covered by the contract by the proper authorities.

Signed, Sealed and Dated this _____ day of _____, A.D., 2024.

_____ (SEAL)
(Principal)

BY: _____

_____ (SEAL)
(Surety)

BY: _____

Power of Attorney is attached.

The Surety Company must be listed on U.S. Treasury Circular 570.

END OF CONTRACT DOCUMENTS

DIVISION 5 - FAA – General Contract Provisions

Section 10 Definition of Terms

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

Paragraph Number	Term	Definition
10-01	**AASHTO**	The American Association of State Highway and Transportation Officials.
10-02	**Access Road**	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	**Advertisement**	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	**Airport**	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	**Airport Improvement Program (AIP)**	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	**Air Operations Area (AOA)**	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	**Apron**	Area where aircraft are parked, unloaded or loaded, fueled

Paragraph Number	Term	Definition
		and/or serviced.
10-08	**ASTM International (ASTM)**	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	**Award**	The Sponsor'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 Sponsor 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

Paragraph Number	Term	Definition
		reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
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 Sponsor to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized

Paragraph Number	Term	Definition
		representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Sponsor'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.** Sponsor Force Account - Work performed for the project by the Sponsor'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 Sponsor. 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

Paragraph Number	Term	Definition
		may be pertinent to such specific reference.
10-32	**Lighting**	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.
10-33	**Major and Minor Contract Items**	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	**Materials**	Any substance specified for use in the construction of the contract work.
10-35	**Modification of Standards (MOS)**	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	**Notice to Proceed (NTP)**	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	**Sponsor**	The term “Sponsor” shall mean the party of the first part or the contracting agency signatory to the contract. Where the term “Sponsor” is capitalized in this document, it shall mean airport Sponsor only. The Sponsor for this project is the **City of Dalton**.
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.

Paragraph Number	Term	Definition
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 Sponsor.
10-46	**Quality Assurance (QA)**	Sponsor's responsibility to assure that construction work completed complies with specifications for payment.
10-47	**Quality Control (QC)**	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	**Quality Assurance (QA) Inspector**	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	**Quality Assurance (QA) Laboratory**	The official quality assurance testing laboratories of the Sponsor or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Sponsor's, or QA Laboratory.
10-50	**Resident Project Representative (RPR)**	The individual, partnership, firm, or corporation duly authorized by the Sponsor to be responsible for all necessary inspections, observations, tests, and/or

Paragraph Number	Term	Definition
		observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	**Runway**	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	**Runway Safety Area (RSA)**	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	**Safety Plan Compliance Document (SPCD)**	Details how the Contractor will comply with the CSPP.
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 Sponsor of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**Structures**	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and Sponsor 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

Paragraph Number	Term	Definition
		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 Sponsor 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	**Sponsor Defined terms**	**None**

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). See Advertisement in Front End Documents.

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Sponsor 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 Sponsor 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 Sponsor.

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

20-03 Contents of proposal forms. The Sponsor'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 Sponsor will accept only those Proposals properly executed on physical forms or electronic forms provided by the Sponsor. Bidder actions that may cause the Sponsor to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

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

20-04 Issuance of proposal forms. The Sponsor 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 Sponsor, 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 Sponsor at the time the Sponsor issues the proposal to a prospective bidder.

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

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

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 Sponsor does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

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

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Sponsor. 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.

Prices should generally be written in whole dollars and cents. The extended total amount of each item should not be rounded.

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 Sponsor's invitation for bid. It is the Sponsor'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 Sponsor, or if the Sponsor'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 Sponsor.

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

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

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

20-11 Delivery of proposal. See Instructions to Bidders

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 Sponsor before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

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

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

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

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Sponsor until any such participating bidder has been reinstated by the Sponsor 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 Sponsor's Engineer of the matter. A bidder that has doubt as to the

true meaning of a project requirement may submit to the Sponsor's Engineer a written request for interpretation no later than **7** days prior to bid opening.

Any interpretation of the project bid documents by the Sponsor's Engineer will be by written addendum issued by the Sponsor. The Sponsor 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 Sponsor 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 Sponsor reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Sponsor 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 Sponsor'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 Sponsor elects to proceed with an award of contract, the Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

All Bonds (Proposal, Payment and Performance) must be signed or countersigned by the surety company's proper resident agent, authorized to do business in the State of Georgia, on whom service can be made in the event of litigation.

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 Sponsor, 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 Sponsor 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 Sponsor'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 Sponsor.

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 Sponsor 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 Sponsor'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 Sponsor and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Sponsor reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Sponsor, the Sponsor's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Sponsor 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 Sponsor'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 Sponsor 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 Sponsor.

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.

d. The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

e. The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

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 Sponsor when so used in the work.

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

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

b. Remove such material from the site, upon written approval of the RPR; or

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

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

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

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

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

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

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

END OF SECTION 40

Section 50 Control of Work

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

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

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

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

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

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

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy,

calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

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

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Sponsor or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions.

SPECIAL PROVISION: Section 100 Construction Contract Clauses – Airport Development Program

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.

50-06 Cooperation between Contractors. The Sponsor 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 Sponsor 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): **hard copy and electronic format (pdf and AutoCAD and/or Microstation version 2004 or later)**.

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 Sponsor.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

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

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

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

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

unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

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

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Sponsor, authorized representatives of the Sponsors of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility Sponsor a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

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

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

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

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

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

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

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

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

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

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

Should the Contractor fail to respond to the RPR's notification, the Sponsor may suspend any work necessary for the Sponsor to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Sponsor, 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 Sponsor, 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 Sponsor shall not void or alter any provision of the contract.

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

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

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

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

Section 60 Control of Materials

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

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

> **Federal Contract Clauses are available at the following FAA website:**
> **www.faa.gov/airports/aip/procurement/federal_contract_provisions/**

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

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

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

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Sponsor 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).

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

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

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

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

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

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

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

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

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

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

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

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

It is understood and agreed that the Sponsor shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. 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 Sponsor 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 Sponsor'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 Sponsor or lessee of the property.

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

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Sponsor furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Sponsor. Sponsor-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 Sponsor-furnished materials shall be included in the unit price bid for the contract item in which such Sponsor-furnished material is used.

After any Sponsor-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 Sponsor-furnished material. The Sponsor will deduct from any monies due or to become due the Contractor any cost incurred by the Sponsor in making good such loss due to the Contractor's handling, storage, or use of Sponsor-furnished materials.

END OF SECTION 60

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Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Sponsor 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.

Effective July 1, 2008: All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law, O.C.G.A. Section 43-41-17.

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 Sponsor. The Contractor and the surety shall indemnify and hold harmless the Sponsor, 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 Sponsor 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 Sponsor 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 Sponsor, such authorized work (by others) **shall be indicated in writing prior to the work being performed.**

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 Sponsor 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 Sponsors by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Sponsor for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

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

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

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

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

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is on sheet(s) **G-101** of the project plans.

70-09 Use of explosives. **The use of explosives is not permitted on this project.**

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Sponsor 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 Sponsor for such purpose may be retained for the use of the Sponsor 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 Sponsor, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

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

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Sponsor 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 Sponsor 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 Sponsor 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 Sponsor shall be repaired by the Contractor at their expense.

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

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether

arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the Sponsor of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Sponsor 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.

Contractor shall make every effort to protect the utilities in place. Contractor shall coordinate with utility companies for relocation where necessary. Airport Sponsor and/or Engineer will provide contact information when needed. Utility companies to be contacted prior to making modifications.

It is understood and agreed that the Sponsor 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 Sponsors 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 Sponsors advised of changes in their plan of operations that would affect such Sponsors.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Sponsor of their plan of operation. If, in the Contractor's opinion, the Sponsor's assistance is needed to locate the utility service or facility or the presence of a representative of the Sponsor 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 Sponsor'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 Sponsor to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

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

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 Sponsor reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-16 Furnishing rights-of-way. The Sponsor 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 Sponsor either personally or as an official of the Sponsor. It is understood that in such matters they act solely as agents and representatives of the Sponsor.

70-18 No waiver of legal rights. Upon completion of the work, the Sponsor will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Sponsor from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Sponsor 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 Sponsor 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 Sponsor for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Sponsor'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 **and shall comply with 49 CFR § 18.36(i)(12).**

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 Sponsor will direct the Contractor to either resume operations or to suspend operations as directed.

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

70-21 Insurance Requirements. Contractor shall purchase and maintain such comprehensive general liability, comprehensive automobile liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance and furnishing of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

1. Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

2. Claims for damages because of bodily injury, occupational sickness or disease or death of Contractor's employees;

3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (b) by any other person for any other reason;

5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use of resulting therefrom;

6. Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

7. Claims for damages because of bodily injury or death of any person or property damage arising out of the Ownership, maintenance or use of any motor vehicle.

The insurance required shall include the specific coverages and be written for no less than the limits of liability and coverages specified or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or

endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to Sponsor and Engineer by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when Contractor may be correcting, removing or replacing defective Work in accordance with subsection 50-18. In addition, Contractor shall maintain such completed operations insurance for at least two years after final payment and furnish Sponsor with evidence of continuation of such insurance at final payment and one year thereafter, with the exception of Sponsor's Protective Liability coverage.

Indemnification: In any and all claims against Sponsor or Engineer or any of their consultants, agents or employees by any employee of Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 70-11 above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

Coverages: The limits of liability for the insurance required by Paragraph 70-11 shall provide coverage for not less than the following amounts or greater where required by law:

1. Workers' Compensation, etc.:

    a. State: Statutory

    b. Applicable Federal: Statutory

    (e.g. Longshoreman's)

    c. Employer's Liability: $500,000

2. Comprehensive General Liability:

    a. Bodily Injury and Property Damage: Combined Single Limit

    $5,000,000 Per Occurrence

    b. The Contractor's General Liability insurance shall provide coverage for the following: (1) Premises - Operations, (2) Independent Contractors, (3) Products/Completed Operations Hazard, (5) Underground Hazard, (6) Broad Form Property Damage, (7) Where applicable, Explosion and Collapse Hazard, and (8) Personal Injury.

3. Comprehensive Automobile Liability:

    a. Bodily Injury and Property Damage: Combined Single Limit

    $1,000,000(Per Occurrence)

    b. The Contractor's Comprehensive Automobile Liability Insurance shall provide coverage for Bodily Injury and Property Damage Per Occurrence for owned, hired and non-owned vehicles.

Contractor will provide such additional information in respect of insurance provided by him as the Sponsor may reasonably request. Failure by Sponsor to give any such notice of objection within the time provided shall constitute an acceptance of such insurance purchased by Contractor as complying with the Contract Documents.

The Sponsor, its officials and staff and the Engineer shall be names as additional insured with respect of notice in the Policy, A Certificate of Insurance naming the Sponsor as a certificate holder shall be issued by the Contractor's insurance provider to Sponsor. Certificates in triplicate from the insurance carrier stating the limits of liability and expiration date shall be filed with Sponsor before operations are begun. Certificates shall not merely name the types of policy provided but shall specifically refer to this Contract and shall contain a separate express statement of compliance with each of the requirements as set forth in this subsection. The certificates shall, in addition to the information relative to the insurance required, contain the following:

(1) Inception and expiration dates of insurance policy.

(2) Limits of liability provided (Public Liability and Property Damage).

(3) Coverage provided, including special hazards if required.

(4) Name of insurance company.

(5) Policy Number.

(6) Additional interests covered.

(7) Statement that the Explosion, Collapse, and Underground exclusions do not apply.

(8) Certificate shall reflect self-insured retention applicable to any contract of insurance.

(9) Excess liability certified contracts must state underlying insurance requirements.

(10) Project number and nature of work.

No certificate will be accepted which exculpates the issuer or reduces any rights conferred on the Sponsor by the above certificates, nor will they be accepted unless the certificates bear a live signature of a direct representative of a company authorized to do business in the state where the work is located.

No certificate will be accepted unless the person signing the certificate certifies, in a separate letter, his exact relationship with the insurance carrier or carriers indicated in the certificate.

The Sponsor may, at his discretion, modify or waive any of the foregoing requirements.

No contract of insurance containing a "claims made" insuring agreement will be acceptable unless the Contractor offering such insurance to fulfill the requirements of this Contract agrees that each such contract of insurance shall be renewed for the entire existence of the Contractor, their successors or assigns; and that on termination of such coverage which is not replaced by a similar contract with the required limits of liability, a "tail policy" will be purchased with limits not less than those required by this Contract."

The Contractor shall additionally provide insurance as described in Section 9 of the GDOT Construction

Contract with the Sponsor. Prior to beginning work, Contractor shall furnish to the Georgia Department of Transportation (the DEPARTMENT), a copy of the certificates and the endorsement page for the minimum amounts of insurance indicated below:

1. Prior to beginning the work, the CONTRACTOR shall obtain and furnish certificates and the endorsement page to the DEPARTMENT for the following minimum amount of insurance from insurers rated at least A- by A. M. Best's and registered to do business in the State of Georgia: Commercial General Liability Insurance of at least $1,000,000 per occurrence $3,000,000 aggregate, including Automobile Comprehensive Liability Coverage with bodily injury in the minimum amount of $1,000,000 combined single limits each occurrence. The DEPARTMENT shall be named as an additional insured and a copy of the policy endorsement shall be provided with the insurance certificate. The above-listed insurance coverages shall be maintained in full force and effect for the entire term of the Contract.
2. The insurance certificate must provide the following:
    a. Name, address, signature and telephone number of authorized agents.
    b. Name and address of insured.
    c. Name of Insurance Company.
    d. Description of coverage in standard terminology.
    e. Policy number, policy period and limits of liability.
    f. Name and address of the DEPARTMENT as certificate holder.
    g. Thirty (30) day notice of cancellation.
    h. Details of any special policy exclusions.
3. Waiver of Subrogation: There is no waiver of subrogation rights by either party with respect to insurance.

70-22 Distracted Driving. *In accordance with Executive Order 1351, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving" (12/30/2009), the FAA encourages recipients of Federal grant funds to adopt and enforce policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or a sub-grant.*

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

END OF SECTION 70

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Section 80 Execution and Progress

80-01 Subletting of contract. The Sponsor 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 **30%** 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 Sponsor, and shall be consummated only on the written approval of the Sponsor.

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

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

80-02 Notice to proceed (NTP). The Sponsors notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within **7** 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 Sponsor.

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 Sponsor.

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 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 described in the CSPP.

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

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

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

The Contractor is responsible to the Sponsor 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 Sponsor. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

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

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

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

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

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

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

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Sponsor shall have the authority to suspend the work wholly, or in part, for such period or periods the Sponsor 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 Sponsor, 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 Sponsor for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

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

80-07 Determination and extension of contract time. The **number of calendar days** shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Sponsor's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional

engineering services that will be incurred by the Sponsor should the Contractor fail to complete the work in the time provided in their contract.

See Proposal Form for Schedule of Liquidated Damages.

The maximum construction time allowed for Schedules **is shown on the Proposal Form**. 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 Sponsor 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 Sponsor 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 Sponsor consider the Contractor in default of the contract for any reason above, the Sponsor 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 Sponsor'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 Sponsor 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 Sponsor 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 Sponsor, 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 Sponsor the amount of such excess.

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

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

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

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

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

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

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

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

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

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

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

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term “ton” will mean the short ton consisting of 2,000 pounds (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the 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.

Term	Description
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range

Term	Description
	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 (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature

of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

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

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

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

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 Sponsor.

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

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

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

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. The Sponsor must ensure prompt and full payment of retainage from 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 Sponsor.

When the Sponsor 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.

From the total of the amount determined to be payable on a partial payment, **10 percent** of such total amount will be deducted and retained by the Sponsor for protection of the Sponsor's interests. Unless otherwise instructed by the Sponsor, the amount retained by the Sponsor 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 Sponsor in accordance with Section 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Sponsor 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.

3. 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 Sponsor 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 Sponsor. When the Sponsor 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.

4. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Sponsor'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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor to indemnify the Sponsor against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Sponsor may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments for **materials on hand are not allowed in this contract.**

90-08 Payment of withheld funds. At the Contractor's option, if a Sponsor withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Sponsor deposit the retainage into an escrow account. The Sponsor'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 Sponsor.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Sponsor 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 Sponsor.

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 Sponsor 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 Sponsor in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor 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 Sponsor, as directed by the Sponsor, and (3) Enforce all warranties for the benefit of the Sponsor.

h. This warranty shall not limit the Sponsor's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

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

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

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

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

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

i. All required record drawings, as-built drawings or as-constructed drawings.

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

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

SPECIAL PROVISION: Section 100 Construction Contract Clauses

Airport Development Program

PART I - WAGE AND LABOR PROVISIONS

DAVIS-BACON REQUIREMENTS:

A. Minimum Wages

1. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

2. (i) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

a. The work to be performed by the classification requested is not performed by a classification in the wage determination; and

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 the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(iii) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or Sponsor, 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.

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. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(i) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or Sponsor, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.* , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or Sponsor, as the case may be, for transmission to the Federal Aviation Administration, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or Sponsor).

(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 provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i) and that such information is correct and complete;

(b) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(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 (3)(ii)(B) 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 231 of Title 31 of the United States Code.

2. The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or Sponsor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

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, 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 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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, as amended, and 29 CFR Part 30.

E. Compliance With Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

F. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

G. Contract Termination: Debarment. A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

H. Compliance With Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

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 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of Eligibility.

1. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

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 CFR 5.12(a)(1).

3. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

K. Contract Workhours and Safety Standards Act Requirements:

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

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) above, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 above, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 above.

3. Withholding for unpaid wages and liquidated damages. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from 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 2 above.

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

5. Working Conditions. No Contractor or subcontractor may require any laborer or mechanic employed in the performance of any contract to work in surroundings or under working conditions that are unsanitary, hazardous or dangerous to his health or safety as determined under construction safety and health standards (29 CFR Part 1926) issued by the Department of Labor.

Veteran's Preference. In the employment of labor (except in executive, administrative, and supervisory positions), preference must be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Title 49 United States Code, Section 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

Copeland “Anti-Kickback” Act Requirements:

The United States Department of Labor Wage and Hours Division oversee the Copeland “Anti-Kickback” Act Requirements. All contracts and subcontracts must meet comply with the Occupational Safety and Health Act of 1970.

United States Department of Labor Wage and Hours Division can provide information regarding any specific clauses or assurances pertaining to the Copeland “Anti-Kickback” Act Requirements required to be inserted in solicitations, contracts or subcontracts.

Federal Fair Labor Standards Act (Federal Minimum Wage)

All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	**Federal Agency with Enforcement Responsibilities**
Federal Fair Labor Standards Act (29 USC 201)	U.S. Department of Labor – Wage and Hour

"General Decision Number: GA20240281 01/05/2024

Superseded General Decision Number: GA20230281

State: Georgia

Construction Type: Highway

County: Whitfield County in Georgia.

HIGHWAY CONSTRUCTION PROJECTS

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)(1).

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 $17.20 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 2024.	
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 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 2024.	

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 01/05/2024

SUGA2014-115 10/03/2016

	Rates	Fringes
CARPENTER, Excludes Form Work....	$ 15.48 **	0.00
CEMENT MASON/CONCRETE FINISHER...	$ 15.60 **	2.09
FORM WORKER.....	$ 14.86 **	0.00
HIGHWAY/PARKING LOT STRIPING:		
Operator (Striping Machine).....	$ 12.39 **	1.94
INSTALLER - GUARDRAIL.....	$ 13.10 **	0.00
IRONWORKER, REINFORCING.....	$ 15.46 **	0.00
IRONWORKER, STRUCTURAL.....	$ 15.13 **	0.00
LABORER: Grade Checker.....	$ 11.45 **	0.00
LABORER: Mason Tender -		
Cement/Concrete.....	$ 11.96 **	0.00
LABORER: Pipelayer.....	$ 12.57 **	0.00
LABORER: Asphalt (Includes		
Distributor, Raker, Screed,		
Shoveler, and Spreader).....	$ 13.23 **	1.26

LABORER: Common or General,		
Includes Erosion Control.....	$ 10.77 **	0.00
OPERATOR:		
Backhoe/Excavator/Trackhoe.....	$ 16.39 **	1.29
OPERATOR: Bobcat/Skid		
Steer/Skid Loader.....	$ 12.22 **	0.00
OPERATOR: Broom/Sweeper.....	$ 14.04 **	1.43
OPERATOR: Bulldozer.....	$ 15.70 **	1.82
OPERATOR: Compactor.....	$ 14.04 **	0.00
OPERATOR: Concrete Saw.....	$ 18.47	0.00
OPERATOR: Crane.....	$ 21.37	0.00
OPERATOR: Grader/Blade.....	$ 19.35	0.00
OPERATOR: Hydroseeder.....	$ 13.93 **	0.00
OPERATOR: Loader.....	$ 13.82 **	1.88
OPERATOR: Mechanic.....	$ 21.08	0.00
OPERATOR: Milling Machine.....	$ 15.57 **	2.10
OPERATOR: Paver (Asphalt,		
Aggregate, and Concrete).....	$ 16.05 **	3.19
OPERATOR: Piledriver.....	$ 16.70 **	0.00
OPERATOR: Roller.....	$ 13.62 **	1.60
OPERATOR: Scraper.....	$ 12.64 **	0.00
OPERATOR: Screed.....	$ 14.68 **	2.19
PAINTER: Spray.....	$ 23.30	0.00
TRAFFIC CONTROL: Flagger.....	$ 13.20 **	0.00
TRAFFIC CONTROL:		
Laborer-Cones/		

Barricades/Barrels -		
Setter/Mover/Sweeper.....	$ 12.37 **	0.00
TRAFFIC SIGNALIZATION:		
Laborer.....	$ 12.76 **	0.00
TRUCK DRIVER: Dump Truck.....	$ 13.00 **	0.00
TRUCK DRIVER: Flatbed Truck.....	$ 14.96 **	1.19
TRUCK DRIVER: Hydroseeder		
Truck.....	$ 14.92 **	0.00
TRUCK DRIVER: Lowboy Truck.....	$ 17.68	0.00
TRUCK DRIVER: Off the Road		
Truck.....	$ 12.38 **	0.00
TRUCK DRIVER: Water Truck.....	$ 13.42 **	1.86
TRUCK DRIVER: Semi/Trailer		
Truck.....	$ 16.13 **	0.00

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 ($17.20) or 13658 ($12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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) (iii)).

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"

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PART II - EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

A. Standard Federal Equal Employment Opportunity Construction Contract Specifications (41 CRF 60-4.3).

1. As used in these specifications:

"Covered area" means the geographical area described in the solicitation from which this contract resulted;

"Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

"Employer identification number" means the federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

"Minority" includes:

(1) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse

any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 18.7a through 18.7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing construction work in a geographical area where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal Procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period and the Contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, a community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or female sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any jobsite. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to

minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation, at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (18.7a through 18.7p). The efforts of a Contractor association, joint Contractor-union, Contractor-community, or other similar groups of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 18.7a through 18.7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which

demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, if the particular groupis employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally,) the Contractor may be in violation of the executive order if a specific minority group of women is underutilized.

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 18.7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of

requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

B. Compliance with Nondiscrimination Requirements. During the performance of this contract, the Contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. COMPLIANCE WITH REGULATIONS. The Contractor (hereinafter includes consultants) will comply with the **Title VI List of Pertinent Nondiscrimination Statutes and Authorities**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. NONDISCRIMINATION. The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. SOLICITATIONS FOR SUBCONTRACTS, INCLUDING PROCUREMENTS OF MATERIALS AND EQUIPMENT. In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. INFORMATION AND REPORTS. The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish thie information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. SANCTIONS FOR NONCOMPLIANCE. In the event of a Contractor's noncompliance with the Non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

   a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or

   b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. INCORPORATION OF PROVISIONS. The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into litigation to protect the interests of the United States.

C. Equal Employment 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, or national origin. The Contractor will take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising that said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible

for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the portion of the sentence immediately preceding paragraph 1 and the provisions of paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

8. The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CRF Part 26 in the award and administration of DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the recipient deems appropriate.

9. Prompt Payment: The prime Contractor agrees to pay each subcontractor under this prime Contract for satisfactory performance of its Contract no later than ten (10) days from the receipt of each payment, the prime contractor received from the Sponsor. The prime Contractor agrees further to return retainage payments to each subcontractor within seven (7) days after the subcontractor's Work is satisfactorily completed. Any delay or postponement of payment form the above referenced time frame may occur only for good cause following written approval of the Sponsor. This clause applies to both DBE and non-DBE subcontractors. Failure to comply with the prompt payment provision of the Contract may result in sanctions under the Contract, as listed below.

    (1) Refusal to issue proposals

    (2) Damages

    (3) Suspension of Work on the project

    (4) No additional progressive payments may be processed

    (5) Suspension of prequalification

D. Notices to be Posted. The "Equal Employment Opportunity is the Law" poster is to be posted by the Contractor in a conspicuous place available to employees and applicants for employment as required by paragraphs (1) and (3) of the EEO clause. Copies of this poster will be furnished to Contractors at the preconstruction conference.

E. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246, As Amended).

1. The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   A. Timetables

   B. Goals for minority participation for each trade
   (Vol. 45 Federal Register pg. 65984 10/3/80)

   C. Goals for female participation in each trade - (6.9%)

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

   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 shall be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project, for the sole purpose of meeting the Contractor's goals, shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director, Office of Federal Contract Compliance Programs (OFCCP), within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone

number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" [insert description of the geographical areas where the contract is to be performed giving the state, county, and city, if any].

F. Required Reports.

1. Monthly Employment Utilization Report. This report is to be prepared on Form CC 257 (Rev. 9-78) and sent to the Area Office, Federal Contract Compliance Program (OFCCP) that serves the geographical area in which this project is located. The report is due by the 10TH day of each month after work has commenced. The Contractor will be advised further regarding this report including the address of the OFCCP Area Office, at the preconstruction conference.

2. Annual EEO-1 Report. Contractors/Subcontractors working on federally assisted airport construction projects are required to file annually, on or before March 31, complete and accurate reports on Standard Form 100 (Employee Information Report, EEO-1). The first such report is required within 30 days after award unless the Contractor/Subcontractor has submitted such a report within 12 months preceding the date of award (the FAA or Department of Labor OFCCP can designate other intervals). This form is normally furnished based on a mailing list, but can be obtained from the Joint Reporting Committee, 1800 G. Street, NW, Washington, DC 20506. This report is required if a Contractor or Subcontractor meets all of the following conditions.

   a. Nonexempt. Contractors/Subcontractors are not exempt based on 41 CFR 60-1.5, and

   b. Number of Employees. Has 50 or more employees.

   c. Contractor/Subcontractor. Is a prime Contractor of first tier subcon-tractor, and a financial institution which is an issuing and paying agent for US savings bonds and savings notes. Some Subcontractors below the first tier who work at the site are required to file if they meet the requirements of 41 CFR 60-1.7.

3. Records. The FAA or Department of Labor OFCCP may require a Contractor to keep employment or other records and to furnish, in the form requested within reasonable limits, such information as necessary.

G. Requirement for Certification of Nonsegregated Facilities.

1. NOTICE TO PROSPECTIVE FEDERALLY ASSISTED CONSTRUCTION CONTRACTORS.

a. Certification of Nonsegregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

b. Contractors receiving federally-assisted construction contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective Subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

c. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

2. NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATION OF NONSEGREGATED FACILITIES

a. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding $10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

b. Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective Subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause.

c. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Certification of Nonsegregated Facilities

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or 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 she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or 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 by explicit directives or are, in fact, 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 she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of

subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

General Civil Rights Provisions

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

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

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

Title VI List of Pertinent Nondiscrimination Authorities

During the performance of this contract, the Contractor, for itself, it assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);

- 49 CFR part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);

- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);

- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients,

sub-recipients and contractors, whether such programs or activities are Federally funded or not);

- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;

- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];

Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

PART III - MISCELLANEOUS CONTRACT PROVISIONS

A. Airport Improvement Program Project. The work in this contract is included in Airport Improvement Program which is being undertaken and accomplished by the SPONSOR in accordance with the terms and conditions of a grant agreement between the SPONSOR and the United States, under the Airport and Airway Improvement Act of 1982 and Part 152 of the Federal Aviation Regulations (14 CFR Part 152), pursuant to which the United States has agreed to pay a certain percentage of the costs of the project that are determined to be allowable project costs under that Act. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

B. Consent to Assignment. The Contractor shall obtain the prior written consent of the SPONSOR to any proposed assignment of any interest in or part of this contract.

C. Veterans Preference. In the employment of labor (except in executive, administrative, and supervisory positions), preference must be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Title 49 United States Code, Section 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

D. FAA Inspection and Review. The Contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.

E. Subcontracts. The Contractor shall insert in each of his subcontracts the provisions contained in paragraphs A, C, and D of this section and also a clause requiring the Subcontractors to include these provisions in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

F. Clean Air and Water Pollution Control. (Reference 2 CFR 200 Appendix II (G)) Contractors and subcontractors agree:

1. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

2. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

3. Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Sponsor immediately upon discovery. The Sponsor assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

4. That, as a condition for award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

5. To include or cause to be included in any construction contract or subcontract which exceeds $100,000 the aforementioned criteria and requirements.

G. 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 products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

1) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or

2) 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/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

H. Drug Free Workplace Certification: The CONTRACTOR must certify that they are in full compliance with the provisions of Code Sections 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-free Workplace Act". The undersigned further certifies that:

a. A drug-free workplace will be provided for the CONTRACTOR'S employees during performance of the contract; and

b. Each CONTRACTOR who hires a subcontractor to work in a drug-free work place shall secure from that subcontractor the following written certification:

"As part of the subcontracting agreement with (CONTRACTOR's name), (Subcontractor's name) certifies to the CONTRACTOR that a drug-free workplace will be provided for the subcontractor's employees during the performance of this Contract pursuant to Paragraph (7) of Sub-section (b) of Code Section 50-24-3".

c. The CONTRACTOR further certifies that he will not engage in the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Contract.

d. CONTRACTOR may be suspended, terminated, or debarred if it is determined that:

(1) The CONTRACTOR has made false certification hereinabove; or

(2) The CONTRACTOR has violated such certification by failure to carry out the requirements of the Official Code of Georgia Section 50-24-3.

I. Certificate Regarding Debarment and Suspension (Bidder or Offeror).

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Certification Regarding Debarment and Suspension (Successful Bidder Regarding Lower Tier Participants)

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

J. Termination of Contract (Reference 2 CFR 200, Appendix II).

1. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Such action may be without cause and without prejudice to any other right or remedy of Sponsor. Upon receipt of a written notice of termination, except as explicitly directed by the Sponsor, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

    a. Contractor must immediately discontinue work as specified in the written notice.

    b. Terminate all subcontracts to the extent they relate to the work terminated under the notice.

    c. Discontinue orders for materials and services except as directed by the written notice.

    d. Deliver to the Sponsor all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.

    e. Complete performance of the work not terminated by the notice.

    f. Take action as directed by the Sponsor to protect and preserve property and work related to this contract that Sponsor will take possession.

Sponsor agrees to pay Contractor for:

a. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

b. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

c. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and

d. Reasonable and substantiated expenses to the Contractor directly attributable to Sponsor's termination action.

2. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price will be made, but no amount will be allowed for anticipated profit on unperformed services or other economic loss arising out of or resulting from the Sponsor's termination action.

3. If the termination is due to failure to fulfill the Contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor is liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

4. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price will be made as provided in paragraph 2 of this clause.

5. The rights and remedies of the Sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

K. Inspection of Records (Reference 2 CFR 200.326, 200.333). The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration, and the Comptroller General of the United States or any of the duly authorized representatives' access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made.

L. Rights to Inventions. All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed. Information regarding these rights is available from the FAA and the Sponsor.

M. 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. 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.

N. 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.

O. Energy Conservation Requirements. The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

P. Foreign Trade Restrictions (DOT Regulation 49 CFR Part 30). Denial of Public Works Contracts to Suppliers of Goods and Services of Countries that Deny Contracts to Suppliers of Goods and Services of Countries that Deny Procurement Market Access to U. S. Contractors.

Q. Occupational Safety and Health Act of 1970. All contracts and subcontracts that result from this solicitation incorporate the following provisions by reference, with the same force and effect as if given in full text. The contractor has full responsibility to monitor compliance to the referenced statute or regulation. The contractor must address any claims or disputes that pertain to a referenced requirement directly with the Federal Agency with enforcement responsibilities.

Requirement	Federal Agency with Enforcement Responsibilities
Occupational Safety and Health Act of 1970 (20 CFR Part 1910)	U.S. Department of Labor – Occupational Safety and Health Administration

R. Trade Restriction Clause. 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 Sponsor 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 Sponsor cancellation of the contract or subcontract for default at no cost to the Sponsor or the FAA

END OF SECTION 100

DIVISION 6 – TECHNICAL SPECIFICATIONS

SECTION 00001 - TECHNICAL SPECIFICATIONS

All items of work shall be in accordance with the Federal Aviation Administration Standard Specifications for Airports and Special provisions except as modified in this Section, or in accordance with Georgia Standard Specifications of Transportation Systems, 2021 Edition and special provisions.

END OF SECTION 00001

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SECTION 01010 - SUMMARY OF WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General Provisions and Supplementary Conditions, Specifications sections in this manual and applicable Advisory Circular 150/5370-10H Standards for Specifying Construction of Airports or State of Georgia, Department of Transportation Standard Specification sections, as specified, apply to work of this section.

B. Division 1 - General Requirements of the contract specifications is an integral part of the Contract Documents of the Contract.

C. Related Requirements specified in other sections of the specifications:

Restrictions on use of site, safety requirements and work within Air Operations Areas are specified in Section 01030-Airport Project Procedures (Construction Safety Plan.)

1.02 PROJECT IDENTIFICATION:

A. Hangar Development

1.03 WORK COVERED BY CONTRACT DOCUMENTS:

A. Work covered by the contract documents is located at the **Dalton Municipal Airport, Dalton**, Georgia. The work of this project includes, but is not limited to:

All labor, materials and supervision to develop three hangar sites on the airport property.

The tasks required to do this work include but are not limited to the following:

1. Installation of Initial Erosion Control Measures
2. Site excavation and grading
3. Storm water infrastructure installation
4. Installation of Intermediate Erosion Control Measures

5. Water and Sewer Utility Installation
6. Subgrade Preparation
7. Paving (Concrete and Asphalt)
8. Temporary and Permanent Striping

1.04 SUMMARY BY REFERENCES:

A. Work of the Contract can be summarized by references to the Contract, General Provisions, Supplementary Conditions, Specification Sections, Drawings, addenda and modifications to the contract documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. It is recognized that work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents.

END OF SECTION 01010

SECTION 01030 - AIRPORT PROJECT PROCEDURES
(CONSTRUCTION SAFETY PHASING PLAN)

Part 1 GENERAL

1.01 INTRODUCTION:

A. This project involves Contractor operations within active Airport Operational Areas (A.O.A.). The Airport will conduct normal aircraft operations (subject to certain restrictions which shall be called out in this section) during the course of this project. Therefore, in order to provide for the security and safety of Airport users and the Contractor's forces, as well as to minimize interruptions to aircraft operations, the Contractor shall limit his work within the areas as designated on the plans and conduct his operations as set forth in the specifications.

THE CONTRACTOR AND ALL PERSONNEL SHALL NOT ENTER OR CROSS THE ACTIVE RUNWAYS OR TAXIWAYS WHEN THEY ARE NOT CLOSED OR WITHOUT SPECIFIC APPROVAL OF THE AIRPORT MANAGER. ANY PERSON IN VIOLATION OF A RUNWAY/TAXIWAY INTRUSION OF THE OPERATIONAL RUNWAY AREAS MAY BE CAUSE FOR DISMISSAL FROM THE PROJECT.

1.02 REFERENCED STANDARDS:

A. U.S. Department of Transportation, Federal Aviation Administration Advisory Circulars AC No. 150/5370-2G and AC No. 150-/5340-1M will be used as guidelines to assist in maintaining operational safety during construction activities. These documents also refer to other applicable Advisory Circulars.

B. Controlling Requirements: The purpose of this Construction Safety Plan is to describe the procedures, rules and requirements to be followed during construction of this project. The material set forth in this section is based upon Department of Transportation, Federal Aviation Administration Advisory Circular 150/5370-2G, Operational Safety on Airports During Construction, dated December 13, 2017, and its references and current changes. The requirements stated in the Advisory Circular, its references and current changes are minimum standards for the project. This section amends the requirements of the referenced standards. In case of a conflict between the referenced standards and this specification the more stringent requirement shall govern.

1.03 CONTRACTOR'S RESPONSIBILITY:

A. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO ADHERE TO ALL SAFETY REGULATIONS OF THE SPECIFICATION, THE ADVISORY CIRCULAR, ITS REFERENCES AND CHANGES AND TO ALL OTHER ADVISORY MATERIAL PERTAINING TO OPERATIONAL SAFETY OF AIRPORTS, ESPECIALLY DURING PERIODS ON CONSTRUCTION ACTIVITY. THE CONTRACTOR WILL BE

RESPONSIBLE FOR COORDINATING AND CONTROLLING ALL CONSTRUCTION ACTIVITIES IN FULL COMPLIANCE WITH THE REQUIREMENTS OF THE REFERENCED FAA ADVISORY CIRCULARS AND THIS SAFETY PLAN.

B. Contractor shall designate an individual in his organization responsible for all construction safety including implementation of the specific requirements of this safety plan. The individual shall instruct all Contractors' employees in the requirements of this safety plan and of construction safety in general. This individual shall also be responsible for insuring that all subcontractors have an understanding of the safety requirements.

1.04 MODIFICATIONS TO THE PLAN:

A. Changes to the requirements of the specification will only be allowed if approved by Sponsor.

1.05 UNAUTHORIZED CROSSINGS OF ACTIVE AIRFIELD OPERATION AREAS:

A. This safety plan requires that Contractor control the operation of his employees, equipment and Subcontractors, and that all work areas within the airfield operations area have a responsible person with a radio in constant radio contact with the airport UNICOM.

1.06 CONSTRUCTION SAFETY REQUIREMENTS:

A. 1. Protection of Utilities: The Contractor shall be responsible for field marking and protecting all utilities within the construction limits.
2. Storage of Equipment, Vehicles, and Materials: All equipment, vehicles, and materials must be stored in the designated storage or staging area or in areas acceptable to the Engineer.
3. Construction Methods Limitation: No open flames or burning will be allowed on the airport property without prior approval.
4. Safety and Accident Protection: The Contractor shall comply with all applicable federal, state, and local laws, ordinances, and regulations governing safety, health, and sanitation, and shall provide barricades, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the airport users, and to protect moving and parked aircraft and other property in connection with the performance of the work covered by the plans and specifications.

1.07 CONTRACTOR USE OF PREMISES :

A. Use of the Site: Confine operations at the site to the areas designated on the Drawings. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work as stated on this Safety Plan while engaged in project construction.

B. Keep existing drives, entrances, and air operations areas designated to remain open, clear and available to the Sponsor, his employees and the public at all times. Do not use these areas for parking or storage of materials.

C. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated. If additional storage is necessary, obtain Engineer's approval.

D. Lock automotive types vehicles, such as passenger cars and trucks, and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.

E. RESTRICTED AREAS

Due to the necessity to accomplish construction in areas on and adjacent to the runways and taxiways, the construction equipment, vehicles, and men are authorized to operate without interruption within the project limits.

Construction activities within these areas shall only be performed at times when the runway or taxiways are closed to aircraft.

Construction within a restricted area shall be performed in such a manner that, at the end of the closure period, the runway and taxiway areas with be clear of debris.

1.08 MOTORIZED VEHICLES AND EQUIPMENT:

A. Construction equipment and vehicles not engaged in construction during non-working hours will be parked at the Contractor’s staging area indicated on the Contract Drawings.

1.09 OTHER SAFETY AND SECURITY MEASURES:

A. All areas of construction will be off-limits to personnel not involved in construction work or operations of the Airport.

1.10 COMMUNICATIONS (GENERAL):

A. All communications relating to the construction work on this project will pass through the Engineer's site representative. Engineer's site representative must be furnished the Contractor's representative's telephone number where he can be contacted on a 24 hour basis. Contractor's representative shall be available on a 24-hour basis.

B. Radio Communication Requirements:
The foreman of each work crew operating adjacent to or within active aircraft operating areas shall be equipped with a VHF two-way radio capable of communicating with the UNICOM frequency. The Contractor shall furnish the radios. The radio frequency of the airport UNICOM is 122.975.

PART 2 EXECUTION :

2.01 GENERAL OPERATIONAL CONDITIONS AND RESTRICTIONS:

A. The contractor cannot work within **500** feet of the runway centerline or near any active taxiways or taxilanes. Airport operations will be impacted by the work of the contractor. Partial taxilanes will be closed. Contractor can work next to the apron area as long as the airport operator agrees and that there is adequate clearance between the equipment or materials and any part of an aircraft using the apron. Appropriate NOTAMS shall be issued by airport management prior to the operation.

B. The contractor must get permission from the Engineer prior to use of construction equipment over 20 feet in height.

2.02 MEASUREMENT AND PAYMENT:

A. There will be no separate measurement and payment for work specified in this Section.

END OF SECTION 01030

SECTION 01150 - MEASUREMENT AND PAYMENT

1.01 DESCRIPTION:

A. This section establishes the method of measurement and payment for work performed under this contract.

B. Payment for work performed shall be made on a unit price basis in accordance with the accepted bid and the method of payment provided in the General Conditions.

C. Related requirements in other parts of the Specifications:

1. Bid (Proposal)
2. Agreement
3. Conditions of the Contract

D. Related requirements specified in other sections:

1.	Summary of Work	- Section 01010
2.	Submittals	- Section 01300
3.	Contract Closeout	- Section 01700

E. No additional payment will be made for items of work for which a separate payment item is not specified herein or contained in the Bid Schedule; such work being deemed incidental to the Project and payment for said work shall be considered as included in the various unit bid prices.

1.02 APPLICATIONS FOR PAYMENT:

A. Submit Applications for Payment to the Engineer in accordance with the schedule established by Conditions of the Contract and Agreement between Sponsor and Contractor.

B. Format and Data Required

1. Submit Applications for Partial Payment on the form required by Sponsor with itemized data typed on 8 ½ inch x 11 white paper continuation sheets.
2. Provide itemized data on continuation sheet: Format, schedules, line items and values: Those of the Schedule of Values accepted by the Engineer.

C. Preparation of Application for each Progress Payment

1. Application Form
   a. Fill in required information, including that for Change Orders executed prior to the date of submittal of application.

b. Fill in summary of dollar values to agree with the respective totals indicated on the continuation sheets.
c. Execute certification with the signature of a responsible officer of the contract firm.

2. Continuation Sheets
   a. Fill in total list of all scheduled component items of work, with item number and the scheduled dollar value for each item.
   b. Fill in the dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to the nearest dollar, or as provided in the bid.

3. List each Change Order executed prior to the date of submission, at the end of the continuation sheets.
   a. List by Change Order and description, as for an original component item of work.

4. Submit Applications for Payment to Sponsor at the times stipulated in the Agreement.
   a. Number: Four copies of each Application.

D. Substantiating Data

1. When the Sponsor or Engineer requires substantiating data, Contractor shall submit suitable information with cover letter identifying:

   a. Project
   b. Application number and date
   c. Detailed list of enclosures
   d. For stored products: Item number and identification as shown on application. Description of specific material.

2. Submit one copy of data and cover letter for each copy of application.

E. Preparation of Application for Final Payment

1. Fill in application form as specified for Progress payments.
2. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 - Contract Closeout.

1.03 CHANGE ORDER PROCEDURES:

A. Format and Data Required

1. Change Orders shall be prepared/submitted/ processed in accordance with requirements of General Conditions and Funding Agency Requirements.

2. Engineer will transmit Certificate for Change to Sponsor and Agency for approval.
3. When Sponsor and Agency approval is received, Change Order will be included under next partial Application for Payment.

1.04 MEASURES AND WEIGHTS:

A. To aid the Sponsor in determining all quantities, the Contractor shall, whenever so requested, provide scales, equipment and assistance for weighing or for measuring any of the materials.

B. It is understood and agreed that a "ton" shall mean the short ton of two thousand (2,000) pounds.

C. Weights and measures of quantity for payment will be the actual weight or actual measure, and no special or trade or so-termed customary allowances will be made, nor will any material which is lost or misplaced be included for payment.

D. For estimating quantities in which computation of areas by geometric methods would be comparatively laborious, it is agreed that the planimeter shall be considered an instrument of precision to the measurement of such areas.

E. Figured dimensions on drawings shall take precedence over measurement by scale, and detailed working drawings are to take precedence over general drawings and shall be considered as explanatory of them and not as indicating extra work.

END OF SECTION 01150

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SECTION 01300 - SUBMITTALS

1.01 GENERAL:

A. Submittals by Contractor:

1. Construction Progress Schedule: provide Bar Chart.
2. Certifications as specified in the various sections.
3. Shop Drawings: as specified in the various sections.
4. Operation and Maintenance Manual
5. Miscellaneous.

1.02 PRELIMINARY PROGRESS SCHEDULE:

A. Bar-Chart Schedule: Submit a bar-chart type progress schedule 10 working days after the preconstruction conference for Engineer's review. On the schedule, indicate a time bar for each major category or unit of work to be performed at the site, properly sequenced and coordinated with other elements of work. Show completion of the work sufficiently in advance of the date established for substantial completion of the work.

1. Superimpose an S-curve on the schedule to show the "estimated" total dollar-volume of work performed at any date during the Contract Time, with a column of cost figures in the left hand margin ranging from zero to the Contract Sum.

2. Submittal Tabulation: With the bar-chart submittal, submit a tabulation, by date, of the submittals which are required during Construction Time. At the Contractor's option, submittal dates may be shown on the bar-chart schedule, in lieu of being tabulated.

B. Update and distribute copies of schedule monthly.

1.03 SHOP DRAWINGS AND PRODUCT DATA:

A. Submit shop drawings, certifications, and product data for all products to be incorporated in the Work.

B. Shop Drawings will:

1. Be original drawings, prepared by the Contractor, subcontractor, supplier or distributor, which illustrate some portion of the work; showing fabrication, layout, setting, or erection details. The submittal will include contractor stamp and certification that the submittal meets the job specifications. If not, show details and reasons for requested variance.

2. Be prepared by a qualified detailer.

3. Identify details by reference to sheet and detail numbers shown on Contract Drawings.

C. Product Data will:

1. Include manufacturer's standard schematic drawings. The Contractor will:
   a. Modify drawings to delete information, which is not applicable to project.
   b. Supplement standard information to provide additional information applicable to project.

2. Include manufacturer's catalog sheets, standard color charts, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.

Contractor will:

   a. Clearly mark each copy to identify pertinent materials or products.
   b. Show dimensions and clearances required.
   c. Show performance characteristics and capacities.

D. The Contractor will be responsible for all submittals and will:

1. Review Shop Drawings and Product Data prior to submission.

2. Verify:
   a. Field Measurements
   b. Field Construction criteria
   c. Catalog numbers and similar data

3. Coordinate each submittal with the requirements of the work and of the Contract Documents.

4. PRIOR TO SUBMISSION TO THE ENGINEER, A CONTRACTOR IS TO REVIEW AND APPROVE ALL SHOP DRAWINGS. BY THIS REVIEW AND APPROVAL, THE CONTRACTOR REPRESENTS THAT IT HAS DETERMINED AND VERIFIED ALL FIELD MEASUREMENTS, FIELD CONSTRUCTION CRITERIA, MATERIALS, CATALOGUE NUMBERS AND SIMILAR DATA, AND THAT IT HAS CHECKED AND COORDINATED EACH SHOP DRAWING WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO INDICATE ITS REVIEW AND APPROVAL BY INCLUDING THE DATE AND THE SIGNATURE OF A RESPONSIBLE PERSON ON EACH SHOP DRAWING.

5. Notify the Engineer, in writing at time of submission, of deviations in submittals from requirements of the Contract Documents.

6. Begin no work which requires submittals until the return of submittals with the Engineer's stamp and initials or signature indicating review.

7. After the Engineer's review, distribute copies.

E. Contractor's responsibility for errors and omissions in submittals is not relieved by the Engineer's review of submittals.

F. CONTRACTOR'S RESPONSIBILITY FOR DEVIATIONS IN SUBMITTALS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS IS NOT RELIEVED BY THE ENGINEER'S REVIEW OF SUBMITTALS, UNLESS THE ENGINEER GIVES WRITTEN ACCEPTANCE OF SPECIFIC DEVIATIONS.

G. Submission requirements will include:

1. THE SHOP DRAWINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO ALLOW DISCUSSION AND CORRECTION PRIOR TO BEGINNING THE WORK. WORK SHALL NOT BE PERFORMED NOR MATERIALS ORDERED PRIOR TO THE REVIEW OF THE DRAWINGS EXCEPT AT THE CONTRACTOR'S RISK.

2. SUBMIT THREE COPIES OF ALL SHOP DRAWINGS AFTER WHICH ONE COPY WILL BE RETURNED FOR CORRECTION OR MARKED REVIEWED AS NOTED. ANY DRAWINGS RETURNED FOR CORRECTION MUST BE RESUBMITTED IN TRIPLICATE.

3. ALL SUBMITTALS MUST BE ACCOMPANIED BY A TRANSMITTAL LETTER, IN DUPLICATE, CONTAINING:

   a. Date
   b. Project title and number
   c. Contractor's name and address
   d. The number of each Shop Drawing and Product Data submitted
   e. Notification of deviations from Contract Documents
   f. Other pertinent data

4. Submittals shall include:

   a. Data and revision dates
   b. Project title and number
   c. The names of:
      (1) Engineer
      (2) Contractor
      (3) Subcontractor
      (4) Supplier
      (5) Manufacturer
      (6) Separate Detailer When Pertinent

   d. Identification of product or material
   e. Relation to adjacent structure or materials
   f. Field dimensions, clearly identified as such
   g. Specification section number
   h. Applicable standards, such as ASTM number or Federal Specification
   I. A blank space, 5 in. x 5 in., for the Engineer's stamp
   j. Identification of deviations from the Contract Documents
   k. Contractor's stamp, initialed or signed, certifying Contractor's review of submittal, verification of field measurements, and compliance with Contract Documents.

H. Resubmission requirements shall include:

1. Revision of initial drawings as required and resubmittal, as specified, for initial submittal.

2. An indication on the drawings of any changes which have been made, other than those requested by the Engineer.

3. On Product Data submittals, include new data as required for initial submittal.

After review and approval, the Contractor will distribute copies of Shop Drawings and Product Data which carry the Engineer's stamp to others as may be required.

I. Shop Drawings and Product Data:

Submit notarized certifications consigned by manufacturer/supplier and Contractor for:

a. Fuel System Products
b All other products as required by Engineer.

J. Equipment Manual - Provide two (2) copies of operating and maintenance data in the form of Operation and Maintenance Manuals (O & M Manuals). The manuals shall be in 3-ring binders and developed into suitable sets of manageable size. The manual shall cover the fuel storage and dispensing system and the fuel management system. The manuals should at a minimum Include the following:

1. Approved Shop Drawings on each piece of equipment and specialty items furnished.

2. Maintenance operation and lubrication instruction, parts lists, and control and wiring diagrams on each piece of equipment furnished.

3. Dispenser pump control diagram prepared by the manufacturer

4. A “one-line diagram” and troubleshooting guide to help the user to determine what steps must be taken to correct any problem that may exist in the system.

5. Brief description of each system and components, starting and stopping procedures and emergency instructions and inspection, reporting and record keeping procedures, and forms.

6. Manufacturer’s warranties.

1.04 MISCELLANEOUS:

A. EEO Reports:

1. Contractor shall submit Monthly Employment Utilization Report and Annual EEO-1 Report to the appropriate Federal Labor Area Office in accordance with Section 120 of the General Conditions. Submit copy of submittal to Sponsor for his records.

2. Prime Contractor shall insure that all his first tier subcontractors submit these reports and shall submit a sworn statement to Sponsor monthly certifying that all subcontractor reports have been submitted as required.

END OF SECTION 01300

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SECTION 01510 - TEMPORARY FACILITIES

1.01 DESCRIPTION:

A. Contractor shall furnish, install and maintain temporary facilities required for construction; remove on completion of Work.

B. Related requirements specified in other sections: The respective Sections of the Specifications.

1.02 REQUIREMENTS OF REGULATORY AGENCIES:

A. Comply with national electric code.

B. Comply with Federal, State, and Local codes and regulations and with utility company requirements.

1.03 MATERIALS - GENERAL:

A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

1.04 TEMPORARY ELECTRICITY AND LIGHTING:

A. Provide temporary electrical service required for power, lighting, and field offices, and pay all costs for service and for power used.

1.05 TEMPORARY WATER:

A. Provide water for construction purposes; pay all costs for installation, maintenance and removal, and service charges for water used.

B. The site is served by a well owned by the Airport Sponsor. The Contractor shall provide and pay all costs for water required for the performance of the work.

1.06 TEMPORARY SANITARY FACILITIES:

A. Provide sanitary facilities in compliance with laws and regulations.

B. SERVICE, CLEAN AND MAINTAIN FACILITIES AND ENCLOSURES.

1.07 TEMPORARY SUPPORT FACILITIES:

A. General: Provide a reasonably neat and uniform appearance in temporary Support Facilities acceptable to the Engineer and the Sponsor.

B. Locate field offices, storage and fabrication sheds and other support facilities for easy access to the Work. Position offices so that windows give the best possible view of construction activities.

C. Maintain field offices, storage and fabrication sheds, temporary sanitary facilities, waste collection and disposal systems, and project identification and temporary signs until near substantial completion. Immediately prior to substantial completion remove these facilities.

D. Access Roads:

1. Location of access roads will be approved by the Engineer and will be set to minimize conflict with the Airport operations and shall be maintained, be well defined and be confined to the minimum area required.

2. The Contractor shall construct the access roads and shall maintain the roads as required to create no dust. All project traffic must be routed through these areas. The Contractor shall provide all markings required to clearly define the access roads.

3. The Contractor may be required to obtain driveway permits for certain access roads. If access roads cross a utility, the Contractor shall protect the utility as directed by the Sponsor of the utility.

1.08 EXECUTION - GENERAL:

Maintain and operate systems to assure continuous service.

1.09 REMOVAL:

Completely remove temporary materials and equipment when their use is no longer required. Clean and repair damage caused by temporary installations or use of temporary facilities.

2.01 MEASUREMENT AND PAYMENT:

THERE WILL BE NO SEPARATE MEASUREMENT AND PAYMENT FOR WORK SPECIFIED IN THIS SECTION.

END OF SECTION 01510

SECTION 01600 - MATERIAL AND EQUIPMENT

1.01 GENERAL:

A. All material and equipment (products) incorporated into the work shall:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.
3. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

B. Related requirements in other parts of the project manual:

1. Conditions of the Contract.

C. Standardization

1. Unless otherwise approved by the Engineer, items of a similar type and function shall be furnished by one manufacturer to standardize on matters and to avoid a division of responsibility among several manufacturers.

1.02 PRODUCT SUBSTITUTIONS AND OPTIONS:

A. Products List

1. Contractor shall submit a complete list of products to be incorporated into the work (with the name of the installing contractor) at the Preconstruction conference required by these specifications.

B. Contractor's Options

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming several products, select any one of the products named, which complies with the specifications.

C. Product Specifications

1. Contractor shall submit, at the Preconstruction Conference, all requests for product substitutions. No requests for substitutions will be accepted from manufacturers or suppliers.

2. Submit a separate written request for each product, supported with complete data, with drawings and samples as appropriate, including:

    a. Comparison of the qualities of the proposed substitution with that specified.
    b. Changes required in other elements of the work because of the substitution.
    c. Effect on the construction schedule.
    d. Cost data comparing the proposed substitution with the product specified.
    e. Any required license fees or royalties.

3. Engineer shall be the judge of the equality and acceptability of the proposed substitution.
4. If Engineer determines the proposed substitute product is not "equal" to the specified product, the Contractor must provide the specified product.
5. No further requests for substitutions will be considered after Preconstruction Conference.

D. Contractor's Representation

1. A request for a substitution constitutes a representation that Contractor;

    a. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
    b. Will provide the same warranties for the substitution as for the product specified.
    c. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

E. Engineer will review requests for substitutions with reasonable promptness and notify Contractor, in writing, of the decision to accept or reject the requested substitution.

1.03 MANUFACTURER'S INSTRUCTIONS:

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, Contractor shall obtain and distribute copies of such instructions to parties involved in the installation, including copies to Engineer.

1. Maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition, and adjust products in strict accord with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instruction, consult with Engineer for further instructions.

2. Do not proceed with work without clear instructions.

C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING:

A. Contractor shall arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.

1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Immediately on delivery, inspect shipments to assure compliance with requirements of contract documents and approved submittals, and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage of products or packaging.

1.05 STORAGE AND PROTECTION:

A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weather tight enclosures.
2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

B. Exterior storage

1. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.

C. ARRANGE STORAGE IN A MANNER TO PROVIDE EASY ACCESS FOR INSPECTION. MAKE PERIODIC INSPECTIONS OF STORED PRODUCTS TO ASSURE THAT PRODUCTS ARE MAINTAINED UNDER SPECIFIED CONDITIONS, AND FREE FROM DAMAGE OR DETERIORATION

D. Protection after installation

1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

END OF SECTION 01600

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SECTION 01700 - CONTRACT CLOSEOUT

1.01 GENERAL:

A. Comply with requirements stated in conditions of the contract and in specifications for administrative procedures in closing out the work.

B. Related requirements in other parts of the Project Manual:
   1. Fiscal provisions, legal submittals and additional administrative requirements: Conditions of the contract.

C. Related Requirements Specified in Other Sections:
   1. Closeout submittals required of trades: The respective sections of specifications.

1.02 SUBSTANTIAL COMPLETION:

A. The conditions and procedures for inspection; and Contractor's, Engineer's and Sponsor's responsibilities pertaining to Substantial Completion are as specified in Section 50 of the General Conditions.

1.03 FINAL INSPECTION:

A. Shall be in accordance with conditions and procedures outlined in the General Provisions.

B. When Engineer finds that the work is acceptable under the Contract Documents, he will request required Contractor's Closeout Submittals.

1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER:

A. Evidence of payment and release of liens: To requirements of General and Supplementary Conditions.

B. Certificates of Insurance for products and completed operations.

C. Evidence of compliance with requirements of governing authorities:
   1. CERTIFICATES OF INSPECTION

END OF SECTION 01700

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SECTION 01710 - CLEANING AND DISPOSAL

PART 1 GENERAL:

1.01 DESCRIPTION:

A. Contractor shall execute cleaning during progress of the work and at completion of the work, as required by General Provisions.

1.02 DISPOSAL REQUIREMENTS:

A. Conduct cleaning and disposal operations to comply with all local, state and federal codes, ordinances, regulations, and anti-pollution laws.

B. Disposal of waste soil materials may be onsite or off-site at approved locations, at Contractor's option.

C. Contractor shall be responsible for arranging for and obtaining off-site disposal areas, including payment for all costs associated with such disposal.

PART 2 EXECUTION:

2.01 CLEANING:

A. Execute periodic cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of at approved locations.

END OF SECTION 01710

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SECTION 01720 - PROJECT RECORDS DOCUMENTS

1.01 GENERAL:

A. Contractor shall maintain at the site as specified herein for the Sponsor one record copy of:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change orders and other modifications.
5. Engineer field orders or written instructions.
6. Approved shop drawings, product data and samples.
7. Field test records.

B. Related requirements in other parts of the Project Manual:

1. Conditions of the Contract.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES:

A. Store documents and samples in Contractor's field office apart from documents used for construction.

B. File documents and samples in accordance with data filing format of the Construction Specifications Institute - MASTERFORMAT.

C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

D. Make documents and samples available at all times for inspection by Engineer.

1.03 RECORDING:

A. Stamp or label each document "PROJECT RECORD" in 3/4" letters.

B. During the daily progress of the Work, the job superintendent for the Contractor shall record information concurrently with construction progress.

1. Do not conceal any work until required information is recorded.

C. DRAWINGS: LEGIBLY MARK TO RECORD ACTUAL CONSTRUCTION IN THE COLOR CODES DESIGNATED BY THE ENGINEER.

D. Record Information includes but is not limited to the following:

1. Depths of various elements of foundation in relation to finish reference datum.

2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

4. Field changes of dimension and detail.

5. Changes made by field order or by change order.

6. Details not on original Contract Drawings.

E. Specifications and addenda; legibly mark each section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by field order or by change order.

F. All horizontal control dimensions shall be to the nearest tenth of a foot. Elevations shall be to the nearest one-hundredths of a foot.

1.04 SUBMITTAL:

A. At the close of the job and prior to receipt of final payment, the Contractor shall deliver to Engineer for Sponsor one complete set of Record Documents.

B. Accompany submittal with transmittal letter containing:

1. Date.
2. Project title and number.
3. Contractor's name and address.
4. Title and number of each record document.
5. Signature of Contractor or his authorized representative.

END OF SECTION 01720

SECTION 01740 - WARRANTIES AND BONDS

1.01 GENERAL:

A. Contractor shall:

1. Compile specified warranties and bonds.
2. Compile specified service and maintenance contracts.
3. Co-execute submittals to verify compliance with Contract Documents.
4. Review submittals to verify compliance with Contract Documents.
5. Submit to Engineer for review and transmittal to Sponsor.
6. Related requirements in other parts of the Project Manual:
   a. Bid Bonds: Instructions to bidders.
   b. Performance Bond and Payment Bond: conditions of the contract.
   c. General warranty of construction: conditions of the contract.

B. Related Requirements Specified in other Sections:

1. Contract closeout: Section 01700
2. Equipment Manuals: Section 01300
3. Warranties and Bonds required for specific products: Each respective section of specifications as listed below.

1.02 SUBMITTAL REQUIREMENTS:

A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.

The contractor shall warrant that all labor and materials furnished and work performed are in accordance with the Contract Documents and authorized modifications thereto, and will be free from defect due to defective materials or workmanship for a period of one year from Date of Substantial Completion.

Should any defect develop during the warranty period due to improper materials, workmanship or arrangement, the defect shall, upon written notice by the Sponsor, be made good by the Contractor at no expense to the Sponsor.

B. Number of original signed copies required: **Two** each.

C. TABLE OF CONTENTS: NEATLY TYPED, IN ORDERLY SEQUENCE. PROVIDE COMPLETE INFORMATION FOR EACH ITEM.
1. Product or work item.
2. Firm, with name of principal, address and telephone number.

3. Scope.
4. Date of beginning of warranty, bond or service and maintenance contract.
5. Duration of warranty, bond or service maintenance contract.
6. Provide information for Sponsor's personnel:
   a. Proper procedure in case of failure.
   b. Instances which might affect the validity of warranty or bond.
7. Contractor, name of responsible principal, address and telephone number.

1.03 FORM OF SUBMITTALS:

A. Prepare in duplicate packets.

B. Format Size 8 ½ inches x 11 inches, punch sheets for 3-ring binder.
Fold larger sheets to fit into binders.

Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS."
List:
a. Project title and number.
b. Sponsor's name.
c. Contractor's name and address.

C. Binders: Commercial quality, 3.-.ring, with durable and cleanable plastic covers.

1.04 TIME OF SUBMITTALS:

A. Submittals within **ten** days after date of Substantial Completion, and prior to final request for payment.

B. For items of work, where acceptance is delayed materially beyond the date of substantial completion, provide updated submittal within **ten** days after acceptance, listing the date of acceptance as the start of the warranty period.

1.05 SUBMITTALS REQUIRED:

A. Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of specifications.

END OF SECTION 01740

DIVISION 7 – GDOT – Specifications

Section 151 Mobilization

151.1 General Description

Mobilization, when listed as a pay item in the proposal, includes preparatory work and operations, including but not limited to, moving personnel, equipment, supplies, and incidentals to the project site. Mobilization also includes all other work and operations that shall be performed, or costs incurred before beginning work on the various Items on the project site.

151.1.01 Definitions

General Provisions 101 through 150.

151.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

General Provisions 101 through 150.

151.1.03 Submittals

General Provisions 101 through 150.

151.2 Materials

General Provisions 101 through 150.

151.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

151.3 Construction Requirements

General Provisions 101 through 150.

151.3.01 Personnel

General Provisions 101 through 150.

151.3.02 Equipment

General Provisions 101 through 150.

151.3.03 Preparation

General Provisions 101 through 150.

151.3.04 Fabrication

General Provisions 101 through 150.

151.3.05 Construction

General Provisions 101 through 150.

151.3.06 Quality Acceptance

General Provisions 101 through 150.

151.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

151.4 Measurement

This item of work is not measured separately for payment.

151.4.01 Limits

The total sum of payments shall not exceed the original Contract amount bid for this item.

151.5 Payment

The Department will make partial payments as follows:

1. The first regular payment is 50 percent of the amount bid for mobilization, or 3 percent of the original Contract amount, whichever is less.
2. When 5 percent of the original contract amount is earned, the next progress payment is 100 percent of the amount bid for mobilization, or 3 percent of the total original contract amount, whichever is less, minus any previous payments.
3. Any amount bid for mobilization in excess of 3 percent of the original Contract amount is paid when work on the Project is complete.
4. The total sum of the payments shall not exceed the original Contract amount bid for this item.

Payment includes all costs for mobilization, demobilization, and remobilization as required to complete the work. Payments will be made under:

Item No. 151	Mobilization	Per lump sum

151.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 151

Section 163 Miscellaneous Erosion Control Items

163.1 General Description

This work includes constructing and removing:

- Silt control gates
- Temporary erosion control slope drains shown on the Plans or as directed
- Temporary sediment basins
- Sediment barriers and check dams
- Rock filter dams
- Stone filter berms
- Stone filter rings
- Temporary sediment traps
- Other temporary erosion control structures shown on the Plans or directed by the Engineer

This work also includes applying mulch (e.g., straw, hay, erosion control compost), and temporary grass.

163.1.01 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 161—Control of Soil Erosion and Sedimentation

Section 171—Silt Fence

Section 500—Concrete Structures

Section 576—Slope Drain Pipe

Section 603—Rip Rap

Section 700—Grassing

Section 711—Turf Reinforcement Matting

Section 716—Erosion Control Mats (Slopes)

Section 720 – Triangular Silt Barrier

Section 800—Coarse Aggregate Section

801— Fine Aggregate Section 822—

Emulsified Asphalt

Section 845—Smooth Lined Corrugated Polyethylene (PE) Culvert Pipe

Section 860—Lumber and Timber

Section 863—Preservative Treatment of Timber Products

Section 881—Fabrics

Section 890—Seed and Sod

Section 893—Miscellaneous Planting Materials

A. Referenced Documents

AASHTO M252

AASHTO M294

163.1.02 Submittals

Provide written documentation to the Engineer as to the average weight of the bales of mulch.

163.2 Materials

Provide materials shown on the Plans, such as pipe, spillways, wood baffles, and other accessories including an anti-seep collar, when necessary. The materials shall remain the Contractor's property after removal, unless otherwise shown on the plans.

Materials may be new or used; however, the Engineer shall approve previously used materials before use.

Materials shall meet the requirements of the following specifications:

Material	Section
Mulch	893.2.02
Temporary Silt Fence	171
Concrete Aprons and Footings shall be Class A	500
Rip Rap	603
Temporary Grass	700
Triangular Silt Barrier	720
Coarse Aggregate	800
Lumber and Timber	860.2.01
Preservative Treatment of Timber Products	863.1
Corrugated Polyethylene Temporary Slope Drain Pipe	845

163.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

163.3 Construction Requirements

163.3.01 Personnel

General Provisions 101 through 150.

163.3.02 Equipment

General Provisions 101 through 150.

163.3.03 Preparation

General Provisions 101 through 150.

163.3.04 Fabrication

General Provisions 101 through 150.

163.3.05 Construction

A. Silt Control Gates

If silt control gates are required or are directed by the Engineer, follow these guidelines to construct them:

1. Clear and grade only that portion of the roadway within the affected drainage area where the drainage structure will be constructed.
2. Construct or install the drainage structure and backfill as required for stability.
3. Install the silt control gate at the inlet of the structure. Use the type indicated on the plans.
4. Vary the height of the gate as required or as shown on the plans.
5. Finish grading the roadway in the affected drainage area. Grass and mulch slopes and ditches that will not be paved. Construct the ditch paving required in the affected area.
6. Keep the gate in place until the work in the affected drainage area is complete and the erodible area is stabilized.
7. Remove the Type 1 silt gate assembly by sawing off the wood posts flush with the concrete apron. Leave the concrete apron between the gate and the structure inlet in place. The gate shall remain the property of the Contractor.

B. Temporary Slope Drains

If temporary slope drains are required, conduct the roadway grading operation according to Section 161 and follow these guidelines:

1. Place temporary pipe slope drains with inlets and velocity dissipaters (straw bales, silt fence, or aprons) according to the plans.
2. Securely anchor the inlet into the slope to provide a watertight connection to the earth berm. Ensure that all connections in the pipe are leak proof.
3. Place temporary slope drains at a spacing of 350 ft. (105 m) maximum on a 0% to 2% grade and at a spacing of 200 ft. (60 m) maximum on steeper grades, or more frequently as directed by the Engineer. Keep the slope drains in place until the permanent grass has grown enough to control erosion.
4. Remove the slope drains and grass the disturbed area with permanent grass. However, the temporary slope drains may remain in place to help establish permanent grass if approved by the Engineer.

C. Temporary Sediment Basins

Construct temporary sediment basins according to the Plans at the required locations, or as modified by the Engineer.

1. Construct the unit complete as shown, including:
   - Grading
   - Drainage
   - Riprap
   - Spillways
   - Anti-seep collar
   - Temporary mulching and grassing on internal and external slopes
   - Accessories to complete the basin
2. When the sediment basin is no longer needed, remove and dispose of the remaining sediment.
3. Remove the sediment basin. Grade to drain and restore the area to blend with the adjacent landscape.
4. Mulch and permanently grass the disturbed areas according to Section 700.

D. Sediment Barriers

Construct sediment barriers according to the Plan details. The

following items may be used for sediment barriers

1. Type A Silt Fence.
2. Type C Silt Fence.
3. Rectangular, mechanically produced and standard-sized baled wheat straw.
4. Triangular Silt Barrier.
5. Synthetic Fiber: Use synthetic fiber bales of circular cross section at least 18 in. (450 mm) in diameter. Use synthetic bales of 3 ft. or 6 ft. (0.9 m or 1.8 m) in length that are capable of being linked together to form a continuous roll of the desired total length. Use bales that are enclosed in a geotextile fabric and that contain a pre-made stake hole for anchoring.
6. Coir: Use coir fiber bales of circular cross section at least 16" (400mm) in diameter. Use coir bales of 10 ft., 15 ft., or 20 ft. (3 m, 4.5 m, or 6 m) in length. Use coir baled with coir twine netting with 2 in. X 2 in. (50 mm X 50 mm) openings. Use coir bales with a dry density of at least 7 lb/ft.^{3} (112 kg/m^3). Anchor in place with 2 in. X 4 in. (50 mm X 100 mm) wooden wedges with a 6 in. (150 mm) nail at the top. Place wedges no more than
36 in. (900 mm) apart.
7. Excelsior: Use curled aspen excelsior fiber with barbed edges in circular bales of at least 18 in. (450 mm) in diameter and nominally 10 ft. (3 m) in length. Use excelsior baled with polyester netting with 1 in. X 1 in.
(25 mm by 25 mm) triangular openings. Use excelsior bales with a dry density of at least 1.4 lb/ft.^{3} (22 kg/m^3). Anchor in place with 1 in. (25 mm) diameter wooden stakes driven through the netting at intervals of no more than 2 ft. (600 mm).
8. Compost Filter Sock: Use general use compost (see Subsection 893.2.02.A.5.b) in circular bales at least 18 in. (450 mm) diameter. Use compost baled with photo-degradable plastic mesh 5 mils thick with a
maximum 0.38 in X 0.38 in (10 mm X 10 mm) openings. Anchor in place with 1 in. (25 mm) diameter wooden stakes driven through the netting at intervals of no more than 2 ft. (600 mm) in concentrated flow applications and no more than 5 ft. (1500 mm) in sheet flow applications. The sock shall be dispersed on site when no longer required, as determined by the Engineer. Do not use Compost Filter Socks in areas where the use of fertilizer is restricted.
9. Compost Filter Berm: Use erosion control compost (see Subsection 893.2.02) to construct an non-compacted 1.5 ft. to 2 ft. (450 mm to 600 mm) high trapezoidal berm which is approximately 2 ft. to 3 ft.
(600 mm to 1 m) wide at the top and minimum 4 ft. (1.2 m) wide at the base. Do not use Compost Filter Berms in areas where the use of fertilizer is restricted.

   The construction of the compost filter berm includes the following:

   a. Keeping the berm in a functional condition.
   b. Installing additional berm material when necessary.
   c. Removing the berm when no longer required, as determined by the Engineer. At the Engineer's discretion, berm material may be left to decompose naturally, or distributed over the adjacent area.

E. Other Temporary Structures

When special conditions occur during the design stage, the plans may show other temporary structures for erosion control with required materials and construction methods.

F. Temporary Grass

Use a quick-growing species of temporary grass such as rye grass, millet, or a cereal grass suitable to the area and season.

Use temporary grass in the following situations:

- When required by the Specifications or directed by the Engineer to control erosion where permanent grassing cannot be planted.
- To protect an area for longer than mulch is expected to last (60 calendar days), plant temporary grass as follows:
  1. Use seeds that conform to Subsection 890.2.01, *Seed*. Perform seeding according to Section 700; except use the minimum ground preparation necessary to provide a seed bed if further grading is required.
  2. Prepare areas that require no further grading according to Subsection 700.3.05.A, *Ground Preparation*. Omit the lime unless the area will be planted with permanent grass without further grading. In this case, apply the lime according to Section 700.
  3. Apply mixed grade fertilizer at 400 lbs./acre (450 kg/ha). Omit the nitrogen. Mulch (with straw or hay) temporary grass according to Section 700. (Erosion control compost Mulch will not be allowed with grassing.)
  4. Before planting permanent grass, thoroughly plow and prepare areas where temporary grass has been planted according to Subsection 700.3.05.A, *Ground Preparation*.
  5. Apply Polyacrylamide (PAM) to all areas that receive temporary grassing.
  6. Apply PAM (powder) before grassing or PAM (emulsion) to the hydroseeding operation.
  7. Apply PAM according to manufacturer specifications.
  8. Use only anionic PAM.

For projects that consist of shoulder reconstruction and/or shoulder widening, refer to Section 161.3.05H for Wood Fiber Blanket requirements.

G. Mulch

When staged construction or other conditions prevent completing a roadway section continuously, apply mulch (straw or hay or erosion control compost) to control erosion. Mulch may be used without temporary grassing for 60 calendar days or less. Areas stabilized with only mulch (straw/hay) shall be planted with temporary grass after 60 calendar days.

Apply mulch as follows:

9. Mulch (Hay or Straw) - Without Grass Seed
   a. Uniformly spread the mulch over the designated areas from 2 in. to 4 in. (50 mm to 100 mm) thick.
   b. After spreading the mulch, walk in the mulch by using a tracked vehicle (preferred method), empty sheep foot roller, light disking, or other means that preserves the finished cross section of the prepared areas. The Engineer will approve of the method.
   c. Place temporary mulch on slopes as steep as 2:1 by using a tracked vehicle to imbed the mulch into the slope.
   d. When grassing operations begin, leave the mulch in place and plow the mulch into the soil during seed bed preparation. The mulch will become beneficial plant food for the newly planted grass.
10. Erosion control compost - Without Grass Seed
   a. Uniformly spread the mulch (erosion control compost) over the designated areas 2 in. (50 mm) thick.
   b. When rolling is necessary, or directed by the Engineer, use a light corrugated drum roller.
   c. When grassing operations begin, leave the mulch in place and plow the mulch into the soil during seed bed preparation. The mulch will become beneficial plant food for the newly planted grass.
   d. Plant temporary grass on area stabilized with mulch (erosion control compost) after 60 calendar days.
   e. Do not use Erosion Control Compost in areas where the use of fertilizer is restricted.

H. Miscellaneous Erosion Control Items Not Shown on the Plans

When conditions develop during construction that were unforeseen in the design stage, the Engineer may direct the Contractor to construct temporary devices such as but not limited to:

- Bulkheads
- Sump holes
- Half round pipe for use as ditch liners
- U-V resistant plastic sheets to cover critical cut slopes

The Engineer and the Contractor will determine the placement to ensure erosion control in the affected area.

I. Diversion Channels

When constructing a culvert or other drainage structure in a live stream that requires diverting a stream, construct a diversion channel.

J. Check Dams

Check dams are constructed of the following materials;

- Stone plain riprap according to Section 603 (Place woven plastic filter fabric on ditch section before placing riprap.)
- Sand bags as in Section 603 without Portland cement
- Baled wheat straw
- Compost filter socks
- Fabric (Type C silt fence)

Check dams shall be constructed according to plan details and shall remain in place until the permanent ditch protection is in place or being installed and the removal is approved by the Engineer.

K. Construction Exits

Locate construction exits at any point where vehicles will be leaving the project onto a public roadway. Install construction exits and tire wash area at the locations shown in the plans and in accordance with plan details.

Construction exit tire cleaning station shall be installed when conditions dictate additional tire cleaning measures are necessary to assist in protecting public roadways. Tire cleaning station shall consist of two pressure washers, water source and necessary labor and materials to clean tires of exiting vehicles. When conditions warrant the use of the tire cleaning station or as directed by the Engineer, the Department will pay $750 dollars per day for the use. The Contractor may submit other construction exit tire wash assembly and sediment storage methods for review and approval by the Engineer.

L. Retrofits

Add the retrofit device to the permanent outlet structure as shown on the plan details.

When all land disturbing activities that would contribute sediment-laden runoff to the basin are complete, clean the basin of sediment and stabilize the basin area with vegetation.

When the basin is stabilized, remove the retrofit device from the permanent outlet structure of the detention pond.

M. Inlet Sediment Traps

Inlet sediment traps consist of a temporary device placed around a storm drain inlet to trap sediment. An excavated area adjacent to the sediment trap will provide additional sediment storage.

Inlet sediment traps may be constructed of Type C silt fence, plastic frame and filter, hay bales, baffle box, or other filtering materials approved by the Engineer. Construct inlet sediment traps according to the appropriate specification for the material selected for the trap. Place inlet sediment traps as shown on the plans or as directed by the Engineer.

N. Rock Filter Dams

Construct rock filter dams of the material selected as shown in the approved erosion and sediment control plan. Construct and place this item in accordance with the approved erosion control construction detail(s) and Standard Specification Section 603.

Rock filter dams shall remain in place until the permanent ditch protection is in place or is being installed and their removal is approved by the Engineer.

O. Stone Filter Berms

Construct stone filter berms of the material selected as shown in the approved erosion and sediment control plan. Construct and place this item in accordance with the approved erosion control construction detail(s) and Standard Specification Section 603.

Stone filter berms shall remain in place until the permanent slope protection is in place or is being installed and their removal is approved by the Engineer.

P. Stone Filter Rings

Construct stone filter rings of the material selected as shown in the approved erosion and sediment control plan. Construct and place this item in accordance with the approved erosion control construction detail(s) and Standard Specification Section 603.

A stone filter ring shall remain in place until final stabilization of the area which drains toward it is achieved and its removal is approved by the Engineer.

Q. Temporary Sediment Traps

Construct temporary sediment traps of the material selected as shown in the approved erosion and sediment control plan. Construct and place this item in accordance with the approved erosion control construction detail(s) and Standard Specification Section 603.

A temporary sediment trap shall remain in place until final stabilization of the area which drains toward it is achieved and its removal is approved by the Engineer.

163.3.06 Quality Acceptance

General Provisions 101 through 150.

163.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

163.4 Measurement

A. Silt Control Gates

Silt control gates are measured for payment by the entire structure constructed at each location complete in place and accepted. Silt control gates constructed at the inlet of multiple lines of drainage structures are measured for payment as a single unit.

B. Temporary Slope Drains

Temporary slope drains are measured for payment by the linear foot (meter) of pipe placed. When required, the inlet spillway and outlet apron and/or other dissipation devices are incidental and not measured separately.

C. Temporary Sediment Basins

Temporary sediment basins are measured for payment by the entire structure complete, including construction, maintenance, and removal. Temporary grassing for sediment basins is measured separately for payment. Measurement also includes:

- Earthwork
- Drainage
- Spillways
- Baffles
- Riprap
- Final cleaning to remove the basin

D. Sediment Barriers

Sediment barriers are measured by the linear foot (meter).

E. Other Temporary Structures

Other temporary structures are not measured for payment. Costs for the entire structure complete, including materials, construction (including earthwork), and removal is included in the price bid for the drainage structure or for other Contract items.

F. Temporary Grass

Temporary grass is measured for payment by the acre (hectare). Lime, when required, is measured by the ton (megagram). Mulch and fertilizer are measured separately for payment.

G. Mulch

Mulch (straw or hay, or erosion control compost) is measured for payment by the ton (megagram).

H. Miscellaneous Erosion Control Items Not Shown on the Plans

These items are not measured for payment. The cost for construction, materials, and removal is included in the price bid for other contract items.

I. Diversion Channels

Diversion channels are not measured for payment. The cost for the entire structure complete, including materials, construction (including earthwork), and removal is included in the price bid for the drainage structure or for other contract items.

J. Check Dams

Stone, sand bags, baled wheat straw, and compost filter sock check dams are measured per each, which includes all work necessary to construct the check dam including woven plastic filter fabric placed beneath stone check dams. Fabric check dams are measured per linear foot.

K. Construction Exits

Construction exits are measured per each which will include all work necessary to construct the exit including the required geotextile fabric placed beneath the aggregate.

Construction exit tire cleaning station are measured per day when added to an existing construction exit. Measurement includes all work necessary to construct the construction exit tire cleaning station including equipment, material, water source, and removal.

L. Retrofits

Retrofit will be measured for payment per each. The construction of the detention pond and permanent outlet structure will be measured separately under the appropriate items.

M. Inlet Sediment Traps

Inlet sediment traps, regardless of the material selected, are measured per each which includes all work necessary to construct the trap including any incidentals and providing the excavated area for sediment storage.

N. Rock Filter Dams

Rock filter dams are measured for payment per each required. This includes the entire structure at each location and all the work necessary for construction.

O. Stone Filter Berms

Stone filter berms are measured for payment per linear foot (meter) required. This includes the entire structure at each location and all the work necessary for construction.

P. Stone Filter Rings

Stone filter rings are measured for payment per each required. This includes the entire structure at each location and all the work necessary for construction.

Q. Temporary Sediment Traps

Temporary sediment traps are measured for payment per each required. This includes the entire structure at each location and all the work necessary for construction.

163.4.01 Limits

General Provisions 101 through 150.

163.5 Payment

A. Silt Control Gates

The specified silt control gates are paid for at the Contract Unit Price per each. Payment is full compensation for:

- Furnishing the material and labor
- Constructing the concrete apron as shown on the Plans
- Excavating and backfilling to place the apron
- Removing the gate

B. Temporary Slope Drains

Temporary slope drains are paid for by the linear foot (meter). Payment is full compensation for materials, construction, removal (if required), inlet spillways, velocity dissipaters, and outlet aprons.

When temporary drain inlets and pipe slope drains are removed, they remain the Contractor's property and may be reused or removed from the Project as the Contractor desires. Reused pipe or inlets are paid for the same as new pipe or inlets.

C. Temporary Sediment Basins

Temporary sediment basins, measured according to Subsection 163.4,C *Measurement*, are paid for by the unit, per each, for the type specified on the plans. Price and payment are full compensation for work and supervision to construct, and remove the sediment basin, including final clean-up.

D. Sediment Barriers

Sediment barriers are paid by the linear foot (meter). Price and payment are full compensation for work and supervision to construct, and remove the sediment barrier, including final clean-up.

E. Other Temporary Structures

Other temporary structures are not measured for payment. Costs for the entire structure complete, including materials, construction (including earthwork), and removal is included in the price bid for the drainage structure or for other Contract items.

F. Temporary Grass

Temporary grass is paid for by the acre (hectare). Payment is full compensation for all equipment, labor, ground preparation, materials, wood fiber mulch, polyacrylamide, and other incidentals. Lime (when required) is paid for by the ton (megagram). Mulch and fertilizer are paid for separately.

G. Mulch

Mulch is paid for by the ton. Payment is full compensation for all materials, labor, maintenance, equipment and other incidentals.

The weight for payment of straw or hay mulch will be the product of the number of bales used and the average weight per bale as determined on certified scales provided by the Contractor or state certified scales. Provide written documentation to the Engineer stating the average weight of the bales.

The weight of erosion control compost mulch will be determined by weighing each loaded vehicle on the required motor truck scale as the material is hauled to the roadway, or by using recorded weights if a digital recording device is used. The Contractor may propose other methods of providing the weight of the mulch to Engineer for approval.

H. Miscellaneous Erosion Control Items Not Shown on the Plans

These items are not paid for separately. They are included in the price bid for other contract items.

I. Diversion Channel

Diversion channels are not paid for separately. They are included in the price bid for other contract items.

J. Check Dams

Payment is full compensation for all materials, construction, and removal. Stone plain riprap, sand bag, baled wheat straw, or compost filter sock~~s~~ check dams are paid for per each. The required woven filter fabric required under each stone check dam~~s~~ is included in the bid price. Fabric check dams are paid for per linear foot.

K. Construction Exits

Construction exits are paid for per each. Payment is full compensation for all labor and materials including the required geotextile, construction, and removal.

Construction exit tire cleaning stations are paid for per day when added to an existing construction exit. Payment is full compensation for all labor, equipment, materials, water source, and removal.

L. Retrofits

This item is paid for at the Contract Unit Price per each. Payment is full compensation for all work, supervision, materials (including the stone filter), labor and equipment necessary to construct and remove the retrofit device from an existing or proposed detention pond outlet structure.

M. Inlet Sediment Traps

Inlet sediment traps are paid for per each. Payment is full compensation for all materials, construction, and removal.

N. Rock Filter Dams

Rock filter dams are paid for per each. Payment is full compensation for all materials, construction, and removal for each. Clean reused stone Type 3 riprap and #57 stone are paid for on the same basis as new items. Plastic woven filter fabric is required under rock filter dams and is included in the price bid for each.

O. Stone Filter Berms

Stone filter berms are paid for per linear foot (meter). Payment is full compensation for all materials, construction, and removal for each. Clean reused stone Type 3 riprap and #57 stone are paid for on the same basis as new items. Plastic woven filter fabric is required under rock filter berms and is included in the price bid for linear foot (meter).

P. Stone Filter Rings

Stone filter rings are paid for per each. Payment is full compensation for all materials, construction, and removal for each. Clean reused stone Type 3 riprap and #57 stone are paid for on the same basis as new items. Plastic woven filter fabric is required under stone filter rings and is included in the price bid for each.

Q. Temporary Sediment Traps

Temporary sediment traps are paid for payment per each required. This includes the entire structure at each location and all the work necessary for construction.

The items in this section (except temporary grass and mulch) are made as partial payments as follows:

- When the item is installed and put into operation the Contractor will be paid 75 percent of the Contract price.
- When the Engineer instructs the Contractor that the item is no longer required and is to remain in place or is removed, whichever applies, the remaining 25 percent will be paid.

Temporary devices may be left in place at the Engineer's discretion at no change in cost. Payment for temporary grass will be made based on the number of acres (hectares) grassed. Mulch will be based on the number of tons (megagrams) used.

Payment is made under:

Item No. 163	Construct and remove sediment basins	Per each
Item No. 163	Construct and remove check dams (hay bale)	Per each
Item No. 163	Construct and remove construction exits	Per each
Item No. 163	Construct and remove retrofits	Per each
Item No. 163	Construct and remove stone filter rings	Per each
Item No. 163	Construct and remove inlet sediment traps	Per each
Item No. 163	Construct and remove temporary sediment traps	Per each
Item No. 163	Temporary grass	Per acre
Item No. 163	Mulch	Per ton
Item No. 163	Dust Control	Per acre

163.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 163

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Section 165 Maintenance of Temporary Erosion and Sedimentation Control Devices

165.1 General Description

This work consists of providing maintenance on temporary erosion and sediment control devices, including but not limited to the following:

- Silt control gates
- Temporary erosion control slope drains shown on the Plans or as directed
- Temporary sediment basins
- Silt control gates
- Check dams
- Sediment barriers
- Rock filter dams
- Stone filter berms
- Stone filter rings
- Temporary sediment traps

It also consists of removing sediment that has accumulated at the temporary erosion and sedimentation control devices.

165.1.01 Definitions

General Provisions 101 through 150.

165.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

General Provisions 101 through 150.

165.1.03 Submittals

General Provisions 101 through 150

165.2 Materials

General Provisions 101 through 150.

165.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

165.3 Construction Requirements

165.3.01 Personnel

General Provisions 101 through 150.

165.3.02 Equipment

General Provisions 101 through 150.

165.3.03 Preparation

General Provisions 101 through 150.

165.3.04 Fabrication

General Provisions 101 through 150.

165.3.05 Construction

As a minimum, clean sediment from all temporary erosion control devices (except temporary sediment basins) installed on the project when one-half the capacity by volume, as measured by depth, has been reached. Clean sediment from all temporary sediment basins installed on a project when one-third the capacity of the storage volume has been filled.

Handle excavated sediment from any erosion or sediment control device in one of the following ways:

- Remove sediment from the immediate area and immediately stabilize it to prevent the material from refilling any erosion or sediment control device.
- Place and mix it in the roadway embankment or waste it in an area approved by the Engineer.

Repair or replace at no cost to the Department any erosion or sediment control device that is not functioning properly or is damaged due to negligence or abuse.

A. Temporary Silt Fence

Maintenance of temporary silt fence consists of furnishing all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0 % filled). Also included is the removal of sediment accumulations ("filtercake") on the fabric by tapping the fabric on the downstream side. Maintenance of silt fence also includes the removal and replacement of any deteriorated filter fabric reducing the effectiveness of the silt fence on any properly installed silt fence.

B. Silt Control Gates

Maintenance of temporary silt control gates consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). When applicable, this item will include the removal of sediment accumulations on the fabric by tapping the fabric on the downstream side.

C. Check Dams (all types)

Maintenance of temporary erosion control check dams shall consist of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes. When applicable, this item will include the removal of sediment accumulations on the fabric by tapping the fabric on the downstream side, or from the baled straw by similar means.

D. Silt Retention Barriers

Maintenance of temporary silt retention barriers consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled).

E. Temporary Sediment Basins

Maintenance of temporary sediment basins consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original bottom of the basin. This also includes removing accumulated sediment from the rock filter and restoring the rock filter to its original specified condition and any work necessary to restore all other components to the pre-maintenance conditions.

F. Sediment Barriers

Maintenance of sediment barriers consists of furnishing all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0 % filled). Also included is the removal of sediment accumulations on the barriers by tapping.

G. Triangular Silt Barriers

Maintenance of triangular silt barriers consists of all labor, tools, materials, equipment and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled).

H. Retrofits

Maintenance of the retrofits device consists of all labor, tools, materials, equipment and necessary incidentals to remove and properly dispose of accumulated sediment in the permanent detention pond being utilized as a temporary sediment basin. This item also includes any maintenance that is required to ensure the retrofit device is maintained per Plan details and any maintenance of the stone filter to maintain its filtering ability, including cleaning and replacement.

I. Construction Exits

Maintenance of the construction exits consists of all labor, tools, materials, equipment and incidentals, including additional stone and geotextile fabric as required to prevent the tracking or flow of soil onto public roadways. This includes scarifying existing stone, cleaning existing stone, or placement of additional stone.

Maintenance of the construction exit tire wash area consists of all labor, tools, materials, and equipment and incidentals. It also includes the removal and disposal of accumulated sediment in the required approved sediment storage device down to the original ground line (0% filled).

Cleaning of the construction exit by scraping and/or brooming only will not be measured for payment.

J. Inlet Sediment Traps

Maintenance of inlet sediment traps consists of all labor, tools, materials, equipment, and necessary incidentals to remove and properly dispose of accumulated sediment in the trap and/or the excavated area adjacent to the trap. It also includes any maintenance that is required to remove sediment accumulations (“filtercake”) from the material selected to construct the inlet sediment trap.

K. Rock Filter Dams

Maintenance of rock filter dams consists of all labor, tools, materials, equipment, and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes.

L. Stone Filter Berms

Maintenance of stone filter berms consists of all labor, tools, materials, equipment, and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes.

M. Stone Filter Rings

Maintenance of stone filter rings consists of all labor, tools, materials, equipment, and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes.

N. Temporary Sediment Traps

Maintenance of temporary sediment traps consists of all labor, tools, materials, equipment, and necessary incidentals to remove and dispose of accumulated sediment down to the original ground line (0% filled). This item also includes the removal of any material deposited in sump holes.

165.3.06 Quality Acceptance

General Provisions 101 through 150.

165.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

165.4 Measurement

A. Temporary Silt Fence

Maintenance of temporary silt fence, Type A or C, is the actual linear feet (meter) of silt fence measured in place where sediment is removed or where the silt fence has become undermined due to no fault or negligence of the Contractor. Any deteriorated filter fabric reducing the effectiveness of the silt fence that needs to be removed and replaced will be measured as maintenance of temporary silt fence.

B. Silt Control Gates

Maintenance of temporary silt control gates, Type 1, 2, or 3, as specified on the plans is measured as a single unit.

C. Check Dams (All Types)

Maintenance of temporary erosion control check dams as specified on the plans is the actual linear feet (meter) of baled straw, or rip rap, measured in place, where sediment is removed.

D. Silt Retention Barriers

Maintenance of temporary silt retention barrier as specified on the plans is measured by the linear foot (meter) where sediment is removed.

E. Temporary Sediment Basins

Maintenance of temporary sediment basins as specified on the plans is measured as a single unit.

F. Sediment Barriers

Maintenance of sediment barriers is the actual linear feet (meter) measured in place where sediment is removed.

G. Triangular Silt Barriers

Maintenance of triangular silt barrier as specified on the plans is measured by the linear foot (meter) where sediment is removed.

H. Retrofits

Maintenance of retrofit devices at the location specified on the plans is measured per each.

I. Construction Exits

Maintenance of construction exits at the location specified on the plans, or as directed by the Engineer is measured per each.

Maintenance of construction exit tire wash area, including the required approved sediment storage device, at the location specified on the plans, or as directed by the Engineer are measured per each when added to an existing construction exit.

> Each location will be measured as either maintenance of construction exit, or maintenance of construction exit tire wash assembly.

J. Inlet Sediment Traps

Maintenance of inlet sediment traps at the location specified on the plans, or as added by the Engineer is measured per each.

K. Rock Filter Dams

Maintenance of rock filter dams as specified on the plans is measured as a single unit.

L. Stone Filter Berms
Maintenance of stone filter berms as specified on the plans is measured per linear foot (meter).

M. Stone Filter Rings
Maintenance of stone filter rings as specified on the plans is measured as a single unit.

N. Temporary Sediment Traps

Maintenance of temporary sediment traps as specified on the plans is measured as a single unit.

165.4.01 Limits

General Provisions 101 through 150.

165.5 Payment

A. Temporary Silt Fence
Maintenance of temporary silt fence, Type A or C, is paid for at the contract unit price bid per linear foot (meter).

B. Silt Control Gates
Maintenance of temporary silt control gates, Type 1, 2, or 3, as specified on the plans is paid for at the contract unit price bid per each.

C. Check Dams
Maintenance of check dams as specified on the plans is paid for at the contract unit price bid per linear foot (meter).

D. Silt Retention Barriers

Maintenance of temporary silt retention barriers as specified on the plans is paid for at the contract unit price bid per linear foot (meter).

E. Temporary Sediment Basins
Maintenance of temporary sediment basins as specified on the plans is paid for at the contract unit price bid per each.

F. Sediment Barriers

Maintenance of sediment barriers as specified on the plans is paid for at the contract unit price bid per linear foot (meter).

G. Triangular Silt Barriers

Maintenance of triangular silt barriers as specified on the plans is paid for at the contract unit price bid per linear foot (meter).

H. Retrofits

Maintenance of the retrofit devices at the location specified on the plans is paid for at the contract unit price bid per each.

I. Construction Exits
Maintenance of the construction exits at the location specified on the plans or as added by the Engineer is paid for at the contract unit price per each.

Maintenance of construction exit tire wash assembly at the location specified on the plans or as added by the Engineer is paid for at the contract unit price per each when added to an existing construction exit.

J. Inlet Sediment Traps

Maintenance of the inlet sediment traps at the location specified on the plans or at the location specified by the Engineer is paid for at the contract unit price per each.

K. Rock Filter Dams

Maintenance of rock filter dams as specified on the Plans is paid for at the contract unit price bid per each.

L. Stone Filter Berms

Maintenance of stone filter berms as specified on the Plans is paid for at the contract unit price bid per linear foot (meter).

M. Stone Filter Rings

Maintenance of stone filter rings as specified on the plans is paid for at the contract unit price bid per each.

N. Temporary Sediment Traps

Maintenance of temporary sediment traps as specified on the plans is paid for at the contract unit price bid per each.

Payment will be made under:

Item No. 165	Maintenance of temporary silt fence	per linear foot
Item No. 165	Maintenance of check dams	per each
Item No. 165	Maintenance of temporary sediment basins	per each
Item No. 165	Maintenance of retrofits	per each
Item No. 165	Maintenance of construction exits	per each
Item No. 165	Maintenance of inlet sediment traps	per each
Item No. 165	Maintenance of rock filter ring	per each
Item No. 165	Maintenance of rock filter dams	per each
Item No. 165	Maintenance of temporary sediment traps	per each

165.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 165

Section 167 Water Quality Monitoring

167.1 General Description

This Specification establishes the Contractor's responsibility to meet the requirements of the current National Pollutant Discharge Elimination System (NPDES) Infrastructure Permit No. GAR100002 as it pertains to Part IV. Erosion, Sedimentation and Pollution Control Plan. In the case of differing requirements between this specification and the Permit, whichever is the more stringent requirement shall be adhered to.

167.1.01 Definitions

Certified Personnel— certified personnel are defined as persons who have successfully completed the appropriate certification course approved by the Georgia Soil and Water Conservation Commission. For Department projects the certified person must also have successfully completed the Department's Worksite Erosion Control Supervisor (WECS) certification course.

Water Quality Sampling – as used within this specification, the term "sampling" shall be inclusive of the acts of detecting, noting, discerning, monitoring, etc. for the purpose of gauging compliance with the NPDES General Permit GAR100002.

Qualifying Rainfall Sampling Event—as used within this specification, means that which is defined in the NPDES General Permit GAR100002, Part IV.D.6.d(3).

167.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

B. Referenced Documents

NPDES Infrastructure Permit No. GAR100002

GDOT WECS seminar.

Environmental Protection Divisions Rules and Regulations (Chapter 391-3-7)

Georgia Soil and Water Conservation Commission Certification Level IA course

OCGA Sec 12-7-1 et seq.

Erosion, Sedimentation and Pollution Control Plan (ESPCP)

167.1.03 Submittals

General Provisions 101 through 150

167.2 Materials

General Provisions 101 through 150.

167.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

167.3 Construction Requirements

167.3.01 Personnel

Use GASWCC Level IA certified and WECS certified personnel to perform all monitoring, sampling, inspections, and rainfall data collection.

Use the Contractor-designated WECS or select a prequalified consultant from the Qualified Consultant List (QCL) to perform water quality monitoring, sampling, inspections, and rainfall data collection.

The Contractor is responsible for having a copy of the current GAR100002 Permit onsite at all times.

167.3.02 Equipment

Provide equipment necessary to complete the Work or as directed by the Engineer.

167.3.03 Preparation

General Provisions 101 through 150.

167.3.04 Fabrication

General Provisions 101 through 150.

167.3.05 Construction

A. General

Perform inspections, rainfall data collection, testing of samples, and reporting the test results on the project according to the requirements in Part IV of the NPDES Infrastructure Permit and this Specification. Take samples manually or use automatic samplers, according to the GAR100002 Permit. Note that the GAR100002 Permit requires the use of manual sampling or rising stage sampling for qualifying events that occur after the first instance of the automatic sampler not being activated during a qualifying event. Analyze all samples according to the Permit, regardless of the method used to collect the samples. If samples are analyzed in the field using portable turbidimeters, the monitoring results shall state they are being used and a digital readout of NTUs is what is provided. Submit bench sheets, work sheets, etc., when using portable turbidimeters. There are no exceptions to this requirement. Perform required inspections and submit all reports required by this Specification within the time frames specified. Failure to perform the inspections within the time specified will result in the cessation of all construction activities with the exception of traffic control and erosion control. Failure to submit the required reports within the times specified will result in non-refundable deductions as specified in Subsection 161.5.01.B.

B. Water Quality Inspections

The Department will provide one copy of the required inspection forms for use and duplication. Inspection forms may change during the contract to reflect regulatory agency needs or the need of the Department. Any costs associated with the change of inspection forms shall be considered incidental. Alternate formats of the provided forms may be created, used and submitted by the Contractor provided the required content and/or data fields and verbatim certification statements from the Department's current forms are included.

The Engineer shall inspect the installation and condition of each erosion control device required by the erosion control plan within seven days after initial installation. This inspection is performed for each stage of construction when new devices are installed. The WECS shall ensure all installation deficiencies reported by the Engineer are corrected within two business days.

Ensure the inspections of the areas listed below are conducted by certified personnel and at the frequencies listed. Document all inspections on the appropriate form provided by the Department.

1. Daily (when any work is occurring):

a. Petroleum product storage, usage and handling areas for spills or leaks from vehicles or equipment.

b. All locations where vehicles enter/exit the site for evidence of off-site sediment tracking.

Continue these inspections until a Notice of Termination (NOT) is submitted and use the daily inspection forms.

2. Weekly and after Rainfall Events:

Conduct inspections on these areas every seven calendar days and within twenty-four hours after the end of a rainfall event that is 0.5 in (13 mm) or greater (unless such storm ends after 5:00 PM on any Friday or any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first):

a. Disturbed areas not permanently stabilized

b. Material storage areas that are exposed to precipitation or stormwater and poses a risk to discharging pollutants

c. Structural control measures, Best Management Practices (BMPs) to ensure they are operating correctly

d. Water quality sampling locations and equipment

e. Discharge locations or points, e.g., outfalls and drainage structures that are accessible to determine if erosion control measures are effective in preventing significant impacts to receiving waters

Continue these inspections until all temporary BMPs are removed and a NOT is submitted and use the EC-1 Form.

3. Monthly:

Once per month, inspect all areas where final stabilization has been completed. Look for evidence of sediments or pollutants entering the drainage system and or receiving waters. Inspect all permanent erosion control devices remaining in place to verify the maintenance status and that the devices are functioning properly. Inspect discharge locations or points, e.g. outfalls, drainage structures, that are accessible to determine if erosion control measures are effective in preventing significant impacts to receiving waters.

Continue these inspections until the Notice of Termination is submitted and use the monthly inspection form.

C. Water Quality Sampling

When the sampling location is a receiving water, the upstream and downstream samples are taken for comparison of NTU values. When the sampling location is an outfall, a single sample is taken to be analyzed for its absolute NTU value.

D. Reports

1. Inspection Reports:

Summarize the results of inspections noted above in writing on the appropriate Daily, Weekly, Monthly, or EC-1 form provided by the Department and includes the following information:

- Date(s) of inspection
- Name of certified personnel performing inspection
- Construction phase
- Status of devices

- Observations
- Action taken in accordance with Part IV.D.4.a.(5) of the GAR100002 Permit
- Signature of personnel performing the inspection
- Any instance of non-compliance

When the report does not identify any non-compliance instances, the inspection report shall contain a statement that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. (See the EC-1 form.)

The reports shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction project that has been phased has undergone final stabilization and a Notice of Termination is submitted to the Georgia Department of Natural Resources Environmental Protection Division (GAEPD). Such reports shall be readily available by the end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the plan. The inspection form certification sheet shall be signed by the project WECS and the inspector performing inspections on behalf of the WECS (if not the same person). Submit all inspection reports to the Engineer within twenty-four hours of the inspection. The Engineer will review the submitted reports to determine their accuracy. The Engineer will notify the certified personnel of any additional items that should be added to the inspection report.

Complete any items listed in the inspection report requiring routine maintenance within seventy–two (72) hours of notification or immediately during perimeter BMP failure emergencies. Deficiencies that interfere with traffic flow, safety, or downstream turbidity shall have immediate reasonable steps taken to address
the deficiencies.

BMP(s) that has failed or is deficient beyond routine maintenance and has resulted in sediment deposition into waters of the State shall have immediate reasonable steps taken to address the condition, including but not limited to cleaning up any contaminated surfaces so the sediment material will not discharge in subsequent storm events. When the repair does not require a new or replacement BMP or significant repair, the BMP failure or deficiency must be corrected by the close of the next business day from the time of discovery. If the correction requires a new or replacement BMP or significant repair, the correction must be completed and operational within seven (7) days from the time of discovery. If seven (7) days is infeasible, the Contractor must document why the timeframe is infeasible and coordinate with the Engineer to schedule the correction as soon as feasible after the seven (7) day timeframe. The Department must be in agreement with the infeasibility assessment.

Assume responsibility for all costs associated with additional sampling as specified in Part IV.D.6.d.3.(c) of the NPDES GAR100002 Permit if either of these conditions arise:

- BMPs shown in the Plans are not properly installed and maintained, or
- BMPs designed by the Contractor are not properly designed, installed and maintained.

2. Sampling Reports
   a. All sampling shall be performed in accordance with the requirements of the GAR100002 Permit for the locations identified in the ESPCP approved by the Department.
   b. Report Requirements

Include in all reports, the following certification statement, signed by the WECS or consultant providing sampling on the project:

> "I certify under penalty of law that this report and all attachments were prepared under my direct supervision in accordance with a system designed to assure that certified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

When a rainfall event requires a sample to be taken, submit a report of the sampling results to the Engineer within seven working days of the date the sample was obtained. Include the following information in each report:

1) Date and time of sampling
2) Name of certified person(s) who performed the sampling and analyses.
3) Date the analyses were performed
4) Time the analyses were initiated
5) Rainfall amount on the sampling date (sampling date only)
6) References and written procedures, when available, for the analytical techniques or methods used.
7) Whether the samples were taken by automatic sampler, rising-stage sampler, or manually (grab sample)
8) The NTU of each sample, the results of the analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine the results
9) Location where each sample was taken (station number and left or right offset)
10) Identification of whether a sample is a receiving-water sample or an outfall sample
11) Project number and county
12) A clear note if a sample exceeds 1000 NTUs by writing "exceeds 1000 NTUs" prominently upon the report

c. Report Requirements with No Qualifying Rainfall Events

In the event a qualifying rainfall event does not produce a discharge to sample, or sampling is "impossible", as defined in the GAR1000002 Permit, a written justification must be included in the report as required at Part IV.D.4.a.(6) of the GAR100002 Permit.

d. Sampling Results

Provide sampling results to the Project Engineer within 48 hours of the samples being analyzed. This notification may be verbal or written. This notification does not replace the requirement to submit the formal summary to the Engineer within 7 working days of the samples being collected. The Engineer will ensure submission of the sampling report to GAEPD by the 15th of the month following the sampling results as per the GAR100002 Permit. The WECS will be held accountable for delayed delivery to the Department which results in late submissions to GAEPD resulting in enforcement actions.

3. Rainfall Data Reports:
4. Record the measurement of rainfall within disturbed areas that have not met final stabilization once each 24-hour period, except for non-working Saturdays, non-working Sundays and non-working Federal Holidays until a Notice of Termination is submitted. Project rain gauges and those used to trigger the automatic samplers are to be emptied after every rainfall event. This will prevent a cumulative effect and prevent automatic samplers from taking samples even though the rainfall event is not a qualifying event. The daily rainfall data supplied by the WECS to the Engineer will be the official rainfall data for the project for compliance with the permit.

167.3.06 Quality Acceptance

General Provisions 101 through 150.

167.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

167.4 Measurement

Water Quality Inspections in accordance with the inspection and reports sub-sections will be measured for payment by the month up to the time the Contract Time expires. Required inspections and reports after Contract Time has expired will not be measured for payment unless a time extension is granted.

Water Quality Sampling is measured per each. “Each” means each qualifying rainfall sampling event, not each sampled site.

167.4.01 Limits

General Provisions 101 through 150. Submit the monitoring summary report to the Engineer within 7 working days

167.5 Payment

Payment for Water Quality Inspections and Water Quality Sampling will be made as follows:

Water Quality Inspections will be paid at the Contract Price per month. This is full compensation for performing the requirements of the inspection section of the NPDES Permit and this Specification, any and all necessary incidentals, and providing results of inspections to the Engineer, within the time frame required by the NPDES Infrastructure Permit, and this Specification.

Water Quality Monitoring and Sampling per each qualifying rainfall sampling event is full compensation for meeting the requirements of the monitoring sections of the NPDES Permit and this Specification, obtaining samples, analyzing samples, any and all necessary incidentals, and providing results of turbidity tests to the Engineer, within the time frame required by the NPDES Infrastructure Permit, and this Specification. This item is based on the rainfall events requiring sampling as described in Part IV.D.6 of the Permit. The Department will not pay for samples taken and analyzed for rainfall events that are not qualifying events as compared to the daily rainfall data supplied by the WECS.

Payment will be made under:

Item No. 167	Water Monitoring (incl sampling, inspection and reporting)	Per month

167.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 167

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Section 171 Silt Fence

171.1 General Description

This work includes furnishing, installing, and removing a water permeable filter fabric fence to remove suspended particles from drainage water.

171.1.01 Definitions

General Provisions 101 through 150.

171.1.02 Related References

A. Standard Specifications

Section 163—Miscellaneous Erosion Control Items

Section 700—Grassing

Section 862—Wood Posts and Bracing

Section 881—Fabrics

Section 894—Fencing

B. Referenced Documents

ASTM D 3786

ASTM D 4355

ASTM D 4632

ASTM D 4751

GDT 87

QPL 36

171.1.03 Submittals

General Provisions 101 through 150.

171.2 Materials

Materials shall meet the requirements of the following Specifications:

Material	Section
Fabrics	881
Fencing	894
Wood Posts and Bracing	862

Conditions during Project construction will affect the quantity of the silt fence to be installed.

The Engineer may increase, decrease, or eliminate the quantity at his or her direction. Variations in quantity are not changes in details of construction or in the character of the work.

For Type A, B, and C fences, use fabric as specified in Subsection 881.2.07, *Silt Fence Filter Fabric*.

171.2.01 Delivery, Storage, and Handling

During shipment and storage, wrap the fabric in a heavy-duty covering protecting the cloth from sunlight, mud, dust, dirt, and debris. Do not expose the fabric to temperatures greater than 140 °F (60 °C).

When installed, the Engineer will reject the fabric if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

171.3 Construction Requirements

171.3.01 Personnel

General Provisions 101 through 150.

171.3.02 Equipment

General Provisions 101 through 150.

171.3.03 Preparation

General Provisions 101 through 150.

171.3.04 Fabrication

General Provisions 101 through 150.

171.3.05 Construction

Install the silt fence according to this Specification, as shown on the plans, or as directed by the Engineer

A. Install Silt Fence

1. Install silt fence by either of the following methods:
   a. Excavated Trench Method

      Excavate a trench 4 to 6 in. (100 to 150 mm) deep using equipment such as a trenching machine or motor grader. If equipment cannot be operated on the site, excavate the trench by hand.

   b. Soil Slicing Method

      Create a mechanical slice in the soil 8 to 12 in. (200 to 300 mm) deep to receive the silt fence. Ensure the width of the slice is not more than 3 in. (75 mm). Mechanically insert the silt fence fabric into the slice in a simultaneous operation with the slicing ensuring consistent depth and placement.
2. Install the first post at the center of the low point (if applicable). Space the remaining posts a maximum of 6 ft. (1.8 m) apart for Types A and B fence and 4 ft. (1.2 m) apart for Type C fence.
3. Bury the posts at least 18 in. (450 mm) into the ground. If this depth cannot be attained, secure the posts enough to prevent the fence from overturning from sediment loading.
4. Attach the filter fabric to the post using wire, cord, staples, nails, pockets, or other acceptable means.
   a. Staples and Nails (Wood Posts): Evenly space staples or nails with at least five per post for Type A fence and four per post for Type B fence.
   b. Pockets: If using pockets and they are not closed at the top, attach the fabric to a wood post using at least one additional staple or nail, or to a steel post using wire. Ensure the

additional attachment is within the top 6 in. (150 mm) of the fabric.

c. Install the filter fabric so 6 to 8 in. (150 to 200 mm) of fabric is left at the bottom to be buried. Provide a minimum overlap of 18 in. (450 mm) at all splice joints.

d. For Type C fence:

1) Woven Wire Supported

- Steel Post: Use wire to attach the fabric to the top of the woven wire support fence at the midpoint between posts. Also, use wire to attach the fabric to the post.

2) Polypropylene Mesh Supported

- Wood Post: Use at least six staples per post. Use two staples in a crisscross or parallel pattern to secure the top portion of the fence. Evenly space the remaining staples down the post.
- Steel Post: Use wire to attach the fabric and polypropylene mesh to the post.

5. Install the fabric in the trench so 4 to 6 in. (100 to 150 mm) of fabric is against the side of the trench with 2 to 4 in. (50 to 100 mm) of fabric across the bottom in the upstream direction.
6. Backfill and compact the trench to ensure flow cannot pass under the barrier. When the slice method is used, compact the soil disturbed by the slice on the upstream side of the silt fence first, and then compact the downstream side.
7. When installing a silt fence across a waterway producing significant runoff, place a settling basin in front of the fence to handle the sediment load, if required. Construct a suitable sump hole or storage area according to Section 163.

B. Remove the Silt Fence

1. Keep all silt fence in place unless or until the Engineer directs it to be removed. A removed silt fence may be used at other locations if the Engineer approves of its condition.
2. After removing the silt fence, dress the area to natural ground, grass and mulch the area according to Section 700.
3. The silt fence shall remain until the Project is accepted or until the fence is removed. Also, remove and dispose of the silt accumulations at the silt fence.
4. Remove and replace any deteriorated filter fabric reducing the effectiveness of the silt fence.

171.3.06 Quality Acceptance

Approved silt fence is listed in QPL 36. Approved fabrics must consistently exceed the minimum requirements of this Specification as verified by the Office of Materials and Research. The Office of Materials and Research will remove fabric failing to meet the minimum requirements of this specification from the QPL until the products' acceptability has been reestablished to the Department's satisfaction.

At the time of installation, the Engineer will reject the fabric if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

171.4 Measurement

The quantity of silt fence to be paid for is the actual number of linear feet (meters) of silt fence, measured in place from end post to end post of each separate installation. The silt fence must be complete and accepted.

171.4.01 Limits

General Provisions 101 through 150.

171.5 Payment

Silt fence Type A, B, or C measured as defined in Subsection 171.4, *Measurement*, is paid for at the Contract Unit Price bid per linear foot (meter).

Payment is full compensation for the following:

- Furnishing materials
- Erecting the fence
- Dressing and grassing, when required
- Removing the fence,

when required Payment for

this Item is made as follows:

- Seventy-five percent of the Contract Price bid per linear foot (meter) is paid when each fence is
- complete in place.
- Twenty-five percent is paid at removal or acceptance.

If the silt fence must be repaired or removed, as the result of neglect or damage, perform the work at no additional cost to the Department.

Payment will be made under:

Item No. 171	Silt fence, type N S	Per linear foot

171.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 171

Section 202 Random Clearing and Grubbing

202.1 General Description

This work includes clearing and grubbing borrow and material pits. See Subsection 107.23. It also includes such ditch inlets, outlets, channel changes, and easement areas where clearing and grubbing are required but not shown on the plans.

202.1.01 Definitions

General Provisions 101 through 150.

202.1.02 Related References

A. Standard Specifications

Section 107—Legal Regulations and Responsibility to the Public

Section 201—Clearing and Grubbing Right-of-Way

B. Referenced Documents

General Provisions 101 through 150.

202.1.03 Submittals

General Provisions 101 through 150.

202.2 Materials

General Provisions 101 through 150.

202.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

202.3 Construction Requirements

202.3.01 Personnel

General Provisions 101 through 150.

202.3.02 Equipment

General Provisions 101 through 150.

202.3.03 Preparation

General Provisions 101 through 150.

202.3.04 Fabrication

General Provisions 101 through 150.

202.3.05 Construction

Perform the work according to Section 201.

202.3.06 Quality Acceptance

General Provisions 101 through 150.

202.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

202.4 Measurement

The area of completed and accepted clearing and grubbing is measured in acres (hectares). Only the area cleared and grubbed as shown on the Plans or as designated by the Engineer is measured.

The Department will make no separate payment for removing grass, weeds, debris, small underbrush, other vegetation from cultivated lands, and isolated trees or stumps. Include the cost for removing these items in the price bid for other Pay Items.

202.4.01 Limits

General Provisions 101 through 150.

202.5 Payment

The Department will pay for Clearing and Grubbing and Clearing at the Contract Unit Price per acre (hectare), which is full compensation for all work specified.

Payment will be made under:

Item No. 202	Clearing and grubbing	Per acre

202.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 202

Section 205 Roadway Excavation

205.1 General Description

Roadway excavation shall conform to the lines, grades, and cross-sections shown on the Plans or established by the Engineer.

If artifacts of historical or archaeological significance are encountered, temporarily stop excavation operations until directed by the Engineer. See Subsection 107.13.A.

Roadway excavation includes the following:

- Excavating, hauling, and placing or disposing of materials (not removed under another Contract Item) from within the limits of areas designated in the Contract.
- Excavating ditches (except channel excavation) and filling and/or plugging abandoned wells (both dug and drilled) located within the Right-of-Way and construction easements according to Georgia Standard 9031H.
- Removing paving, aggregates, and ballast not incorporated into the new work as a result of alignment shifts, grade changes, or reasons that may or may not be shown on the Plans.
- Salvaging aggregates, paving, (only if designated on the Plans) and removed railroad ballast.
- The Department claims salvaged materials unless the Engineer directs that materials be wasted. Dispose of materials not salvaged. Stockpile salvaged materials on the Project unless other sites for stockpiling are shown on the Plans.

205.1.01 Definitions

General Provisions 101 through 150.

205.1.02 Related References

A. Related Specifications

Section 107—Legal Regulations and Responsibility to the Public

Section 109—-Measurement and Payment

Section 201—Clearing and Grubbing Right-of-Way

Section 202—Random Clearing and Grubbing

Section 208—Embankments

Section 209—Subgrade Construction

Section 411—Asphaltic Concrete Pavement, Partial Removal

Section 610—Removal of Miscellaneous Roadway Items

B. Related Documents

General Provisions 101 through 150.

205.1.03 Submittals

General Provisions 101 through 150.

205.2 Materials

Define excavated material, regardless of its nature or composition, as “unclassified excavation” unless otherwise specified in the Plans.

The Engineer will designate materials that are unsuitable.

205.2.01 Delivery, Storage, and Handling

A. Disposal of Surplus Material

Unless directed by the Engineer, do not waste excavated material until satisfying embankment and backfill requirements, unless material is designated on the Plans as “Unsuitable for embankment or backfill construction.”

Dispose of materials to be wasted according to Subsection 201.3.05.E and the following information:

- Use suitable surplus material to widen embankments uniformly or to flatten fill slopes, or deposit the material in places on the Right-of-Way as directed by the Engineer.
- Do not leave an unsightly pile of material that will damage abutting property or deposit material above the grade of the adjacent roadway unless so directed by the Engineer.
- Do not place the edge of a waste bank nearer than 10 ft. (3 m) from the top of a cut slope.

Dispose of unsuitable and surplus materials unless they are used as fill for slopes, abandoned ditches, or other areas shown on the Plans.

- Deposit unsuitable material excavated from ditches and do not allow it to remain within 3 ft (1 m) of the ditch edge. Spread material neatly in level, uniform layers.
- Use suitable materials from ditches for constructing roadway embankments unless otherwise directed by the Engineer.

B. Waste Disposal Areas

When unable to dispose of unsuitable or surplus excavation material on the Right-of-Way, dispose of it in the following areas:

1. Disposal Areas Shown on Plans

Check disposal areas shown on the Plans. They may or may not be adjacent to the Right-of-Way.

When shown on the Plans, the Department will obtain Right-of-Way or easement to permit disposal of material. The Plans contain the amounts of royalties and the conditions for the acquiring of the waste easement.

When the Department furnishes the waste areas, and the Engineer provides measurements of the area used, do the following:

a. Promptly pay royalties to the owners of waste pits.

b. Meet other conditions agreed to with the owners.

c. Submit to the Engineer a written statement signed by the owner stating that the owner has been paid in full and the agreed conditions, including proper draining and final clean-up, have been fulfilled to the owner’s satisfaction before receiving final payment from the Department.

The Department will not make separate payment for these costs of acquisition.

If the property owner is not paid within 60 days after the Engineer has furnished the measurement, the Department may pay the property owner directly any amounts due, and deduct it from funds due the Contractor.

This provision does not affect the obligation of the Contractor under his bond or the rights of the property owner or the Department under the bond.

In case of dispute between the Contractor and the Department, the Chief Engineer will make the final and conclusive decision.

When disposal areas are shown on the Plans and are elected to be used, comply with the terms of the option before resorting to other areas.

2. Disposal Areas Not Shown on Plans

When waste disposal areas are not shown on the Plans, obtain suitable disposal areas at no expense to the Department.

Exercise the right to sell or otherwise dispose of the surplus material in these cases. (See Subsection 107.22 and Subsection 107.23.)

3. Reclamation

Reclaim disposal areas according to Section 160.

205.3 Construction Requirements

205.3.01 Personnel

General Provisions 101 through 150.

205.3.02 Equipment

General Provisions 101 through 150.

205.3.03 Preparation

General Provisions 101 through 150.

205.3.04 Fabrication

General Provisions 101 through 150.

205.3.05 Construction

Perform roadway excavation according to the Plans, and all of the requirements of this Subsection.

1. Provide adequate openings in spoil banks to allow the adjacent land surface to drain.
2. To carry water from the side hill, cut surface ditches at the top of cut slopes that extend to each end of the cuts.
3. Turn side ditches or gutters that empty from cuts to embankments outward to avoid embankment erosion.
4. Discharge water from surface ditches at terraces or in tail ditches cut along contour lines (wherever possible).
5. Provide outlets or flumes for roadway ditches where necessary according to the Plans.
6. Surface ditches, outlets, and other such ditches will be paid for as “unclassified excavation.”
7. Uniformly round the intersection of cut slopes with natural ground surfaces, including the beginning and end of cut slopes.
8. Bring cut slopes to the grade and cross-section shown on the Plans or established by the Engineer.
9. Finish to reasonably uniform surfaces acceptable for seeding and mulching operations.
10. Dispose of material from slides and overbreaks that occur before Final Acceptance as directed by the Engineer.

A. Constructing Serrated Slopes

Construct serrated slopes as follows:

1. Grade the backslope according to the Construction Detail.

The pay line is the template line or the final staked cross- section slope line. The Department will not make additional measurement or payment for constructing serrated slopes.

2. Start the first serration (step) as designated on the Construction Detail. Ensure that it is level instead of parallel to the roadway grade.
3. Use the tilt-control blade bulldozer to cut steps in alternate directions.

B. Constructing Non-serrated Slopes

Construct non-serrated slopes by leaving the front and back slopes in a roughened condition to provide a seed bed for temporary or permanent grassing operations.

C. Erosion and Siltation Control

Take the measures necessary throughout the Project to control erosion and to prevent silting of rivers, streams, and impoundments. Construct drainage facilities and perform all other construction work that contributes to erosion and siltation control in conjunction with earthwork operations as required by Section 161.

D. Rock Excavation

Remove rock and dispose of it as shown on the Plans or as directed by the Engineer. Transition any flattening of a cut slope already begun when rock is encountered to ensure the cut has a pleasing appearance.

Use the presplitting technique to reduce overbreakage and to establish a free surface or shear plane in the rock along the cut periphery or proposed break lines.

- Presplit a periphery plane to the excavation depth before blasting within the plane.
- Conduct the presplitting process by drilling appropriately sized holes at intervals that will ensure a neat break, to the desired depth, along the plane of the proposed cut. Load and stem the holes with an appropriate light charge explosive, and detonate the explosives simultaneously.
- Allow an 18 in. (450 mm) offset in the slope to begin succeeding drilling operations when the depth of the cut is more than can be drilled from the top.

Create a relatively smooth shear plane as indicated in the Plans with localized irregularities that do not exceed 2 ft. (600 mm) behind or 1 ft. (300 mm) in front (roadway side) of the plane surface.

Do not presplit slopes flatter than 1:1.

1. Overbreakage

Material that is excavated beyond or below the cross-section shown on the Plans or designated will be at the Contractor's expense, except unavoidable overbreakage in solid rock. The allowable overbreakage is a maximum of 2 ft. (600 mm) below or outside the original template lines. Backfill to replace material removed below the limits specified at no expense to the Department.

2. Precautions

See Use of Explosives in Subsection 107.12.

3. Rock and Boulders

Handle rock and boulder excavation as follows:

a. Excavate solid rock and boulders in the roadbed to at least 1 ft (300 mm) below the finished subgrade elevation and backfill the space to the correct grade with suitable subgrade material.

b. Leave the side slopes of rock cuts with uniform faces whether or not the excavation is carried beyond the specified side slope.

c. Remove loose rock on cut slopes immediately after blasting.

d. Place stones, broken rock, and boulders found within the construction limits and not required for other construction, into embankment slopes when possible.

4. Ensure that sloped surfaces conform to the typical section shown on the Plans or to natural cleavage planes compatible with the typical section. Leave sloped surfaces safe and natural looking.

E. Unsuitable Material Excavation

The Engineer may require unsuitable material be removed from its location.

1. Remove material and backfill with properly compacted approved material.
2. Undercut material to the depth shown on the Plans or established by the Engineer in cut areas where the material is not suitable for subgrades or shoulders. Backfill the area with suitable material.
3. Excavate unsuitable material in roadway cuts and dispose of the material as directed by the Engineer.

The Department will not designate the unsuitable material excavation as a separate Pay Item unless specifically designated on the Plans, but will pay for it as “Roadway Excavation—Unclassified.”

F. Obliteration of Old Roads

Obliterate old roads or other areas by completing the following work as directed by the Engineer:

- Obliterate discontinued roads or other areas inside or outside the Project construction limits.
- Grade, scarify, plow, and harrow obliterated areas.

The Department will pay for excavation (other than that necessary for finishing and dressing) as “roadway excavation—unclassified.” Follow this procedure to obliterate the road:

1. Fill old ditches and grade the roadway after the old road is no longer needed for traffic. Restore the original contour of the ground and produce a surface of naturally rounded slopes.
2. Use borrow required for the new roadway from fills in the old road (where feasible).
3. Place surplus and waste material from the new roadway in cuts in the old road (where feasible).
4. Break down and remove or bury old structures not required to maintain drainage flow. Remove and store material with salvage value, or use it in the new construction.
5. Scarify, harrow, and smooth the old surface. Re-grass disturbed areas or establish a vegetative cover according to Section 160 or Section 700 as applicable.

G. Surcharge Removal

Remove and properly dispose of materials placed as surcharge for consolidation or other purposes.

1. Waste the material removed or use it for other purposes as specified on the Plans or in the Special Provisions.
2. Provide other areas for disposal if adequate areas are not available for disposing of excess surcharge within the Right-of-Way.

H. Use of Select Materials

Conserve and use excavated materials suitable for subgrade, shoulder construction, plant topsoil, blanket for fill slopes, or other purposes as directed by the Engineer according to Subsection 104.06.

1. Reserve suitable material by either leaving it in its original position or stockpiling it as directed by the Engineer.
2. Haul select materials directly from the excavation area to the final placement area whenever possible. Do not stockpile materials unless specifically directed.

The Department will again pay for "roadway excavation—unclassified," which includes necessary hauling and placement, when the material is removed from the stockpile.

l. Final Finishing of Roadway

After excavation has been completed use the following procedure to finish the roadway:

1. Shape the surface of the roadbed and slopes to reasonably true grade alignment and cross-section shown on the Plans or established by the Engineer. Finish according to Section 209.
2. Leave cut slope surfaces in rock reasonably uniform and remove loose overhanging rock.
3. Open all ditches, drains, and culverts constructed to effectively drain the roadway.

The Department will make no separate payment for finishing done under this Section. Include the work in the cost of the roadway excavation.

4. Maintain the excavated areas until final acceptance of the Project.

205.3.06 Quality Acceptance

General Provisions 101 through 150.

205.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

205.4 Measurement

Original ground surface measurements will be obtained using conventional methods, photogrammetric means, or a combination of these methods. The Engineer will determine the method(s) and time when the measurements are to be taken for each Project.

The volume of Roadway Excavation-Unclassified, authorized and accepted by the Engineer, will be computed by the method of average end areas, or other acceptable means, using the original ground surface, the final ground surface, cross-section, or approved templates.

The final ground surface will be obtained from conventional field measurements, as-built templates, photogrammetric means, or a combination of these methods. The Engineer will determine the method(s) to be used on each Project.

The measurement will include:

- Overbreakage and slides in roadway excavation, unless they are caused by Contractor negligence
- Authorized excavation of rock or unsuitable material below template grade
- Material re-excavated from stockpiles and used in construction as directed by the Engineer
- Surcharge removal

Excavation outside of staked lines and slopes will never be measured for payment unless ordered or approved by the Engineer.

Ditch excavation will be measured as specified in paragraph one, above.

Retaining wall construction will be measured to the back and bottom of the select material backfill or footing as the Engineer determines. Any exception outside these lines by the Grading Contractor to provide stable slopes and positive drainage will not be measured and will be considered incidental to the work.

Filling or plugging abandoned wells will not be measured for payment but all costs shall be included in the price bid for Roadway Excavation when Item 205 is shown as a pay item. Otherwise all costs shall be included in the overall contract bid price.

Removing paving, aggregates, and ballasts will be measured and included in the computations for roadway excavation when Section 205 is shown as a pay item (unless those items are shown in the Plans as a separate pay item).

205.4.01 Limits

General Provisions 101 through 150.

205.5 Payment

Removing paving, aggregates, and ballast will be paid for at the Contract Price bid per cubic yard (meter) when Item 205 is shown as a Pay Item, unless the items are shown in the Plans as a separate Pay Item.

The Department will withhold a percentage of the progress payments for the estimated quantity of earthwork (not to exceed 5 percent) until final dressing, subgrade construction, and satisfactory disposal of unsuitable or surplus materials is completed. This percentage withheld shall be in addition to that specified in Subsection 109.07.

The Contract Price per cubic yard (meter) for “roadway excavation—unclassified” will be paid for quantities of excavation measured according to Subsection 205.4. Payment is full compensation for

- Excavating, hauling, placing, and compacting excavated material.
- Removing, loading, hauling, stockpiling as designated, and sawing pavement when payment is included under Item 205.
- Pre-splitting rock, disposing of unsuitable or surplus materials, excavating, shaping, disposing of unsatisfactory excavated materials, maintaining ditches (except channel excavation specified in Section 204), constructing subgrades and shoulders, and finishing, dressing, and maintaining the work until Final Acceptance.

Payment will be made under:

Item No. 205	Unclassified excavation	Per cubic yard

205.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 205

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Section 208 Embankments

208.1 General Description

This work includes placing embankments, backfilling structures, and constructing earth berms and surcharges with suitable material excavated under Section 204, Section 205, Section 206, and Section 207.

Complete the work according to the lines, grades, and typical cross-sections shown on the plans or established by the Engineer.

The work also includes preparing areas by backfilling stump holes and correcting surface irregularities where the embankment is to be constructed. This includes forming, compacting, and maintaining the embankment and placing and compacting approved material where unsuitable material has been removed.

Payment for this work is included in other appropriate Pay Items unless a specific Pay Item is set up in the Contract.

Apply all provisions of Section 161 to the work in this Section.

Perform Shoulder Construction according to Section 216.

208.1.01 Definitions

General Provisions 101 through 150.

208.1.02 Related References

A. Standard Specifications

Section 161—Control of Soil Erosion and Sedimentation

Section 201—Clearing and Grubbing Right-of-Way

Section 204—Channel Excavation

Section 205—Roadway Excavation

Section 206—Borrow Excavation

Section 207—Excavation and Backfill for Minor Structures

Section 209—Subgrade Construction

Section 216—Unpaved Shoulders

Section 810—Roadway Materials

Section 811—Rock Embankment

Section 813—Pond Sand

B. Referenced Documents

GDT 7

GDT 20

GDT 21

GDT 24a

GDT 24b

GDT 59

GDT 67

208.1.03 Submittals

General Provisions 101 through 150.

208.2 Materials

Embankment material classes are defined in Section 810, Section 811, and Section 813. The material incorporated into the roadway will be subject to the following limitations:

A. Embankment Material

Use embankment material classified as Class I, II, III, V, or VI except as noted below:

1. Inundated Embankments
2. A Special Provision in the Proposal will contain required gradation and other characteristics of materials for constructing embankments through reservoirs.
3. Intermittently Inundated Embankments
4. Build intermittently inundated embankments using any material suitable for embankment.
5. Embankments at Structures
6. Use Class I or II embankment materials within 10 ft. (3 m) of any bridge structure. Class IIIC1 material may be used in Districts 1, 6, and 7. Class IIIC2 or IIIC3 material may only be used in Districts 1, 6, and 7 if approved by the Office of Materials and Testing, Geotechnical Environmental Pavement Bureau. Ensure that materials do not contain rock larger than 3 in. (75 mm) for any dimensions.

B. Rock Embankment

Ensure that rock embankment placed as indicated on the Plans meets the requirements of Section 811 unless specified otherwise in the plans or in the Special Provisions.

C. In-Place Embankment

Construct in-place embankment with Class I, II, III, V, or VI material.

D. Backfill Material

Use Class I or Class II backfill material furnished and stockpiled as defined in Subsection 810.2.01.A. Class IIIC1 material may be used in Districts 1, 6, and 7. Class IIIC2 or IIIC3 material may only be used in Districts 1, 6, and 7 if approved by the Office of Materials and Testing, Geotechnical Environmental Pavement Bureau.

E. Pond Sand Embankment

Use pond sand that meets the requirements of Section 813 as embankment material. Material is subject to the following approval limitations:

1. Pond sand will be approved on a stockpile basis only.
2. Pond Sand will not be approved for Type I or normal backfill materials or for backfill for mechanically stabilized walls.
3. Pond sand shall be encapsulated, when used as fill, with 2 ft. (600 mm) of soil on the slopes and 3 ft. (1 m) of soil on top.
4. Pond sand shall not be used on sidehill fills or fill widenings where any of the following conditions exist:
   a. The proposed fill slope is steeper than 2:1.
   b. The thickness of the proposed fill at its thinnest point, as measured perpendicularly from the new fill line to the existing ground slope/fill slope, is less than 7 ft. (2.1 m), including 2 ft. (600 mm) of soil cover.
   c. The fill height exceeds 30 ft. (9 m).

208.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

208.3 Construction Requirements

208.3.01 Personnel

General Provisions 101 through 150.

208.3.02 Equipment

General Provisions 101 through 150.

208.3.03 Preparation

General Provisions 101 through 150.

208.3.04 Fabrication

General Provisions 101 through 150.

208.3.05 Construction

A. Benching Excavation for Embankment

This work includes excavating material forming benches in the existing ground beneath proposed embankments. Form benches to increase the bond between the existing ground and the proposed embankment.

This work is required where embankments are placed on hillsides or against existing embankments, which will be indicated on the plans.

Construct the benches approximately 12 ft. (3.7 m) wide unless otherwise shown on the plans. Use material removed in the excavation in the embankments. The Department will make no additional payment for this work.

B. Embankments

Follow these requirements when constructing embankments:

1. Preparation for Embankments

   Before starting embankment construction, clear and grub the embankment area according to Section 201 and install Drainage Structures according to Section 550.

   a. Depressions and Undercut Areas

Fill depressions below the ground surface and undercut areas with suitable material. Remove unsuitable or unstable material and compact according to Subsection 208.3.05.B.1.c before beginning embankment construction.

   b. Scarification and Other Preparation

Plow and scarify the entire area upon which the embankment is to be placed (except inundated areas) at least 6 in. (150 mm) deep.

Before placing the embankment, recompact loosened soil to the approximate density of the underlying soil. Cut benches as specified in Subsection 208.3.05.A.

   c. Compaction Under Shallow Fills

When the depth of fill and surfacing is 3 ft. (1 m) or less, compact the original ground compact at least 1 ft. (300 mm) deep to at least 95 percent of the maximum laboratory dry density as determined from representative samples of the compacted material using, GDT 7, GDT 24a, GDT 24b, or GDT 67 whichever applies.

The in-place density of the compacted fill will be determined according to GDT 20, GDT 21, or GDT 59, whichever applies.

d. Embankments Over Existing Roads, Parking Areas, and Floors

Thoroughly plow or scarify all portions of existing unpaved roads and flexible pavements. Destroy cleavage planes before placing the embankment.

1) Remove the old pavement with rigid surfaces if the new embankment is not more than 3 ft. (1 m) high.

2) Break remaining rigid pavements that are within 10 ft. (3 m) of the finished grade so that no section larger than 10 ft.² (1 m²) remains intact.

2. Embankment Formation

Use the following requirements when constructing the embankment formation:

a. Layer Construction

Except as noted in Subsection 208.3.05.B.2.d, construct the embankments in parallel layers. Deposit the material and spread in horizontal layers not more than 8 in. (200 mm) thick, loose measurement, for the full width of the cross-section. Use motor graders, bulldozers, or other approved equipment to keep layers uniform. Compact the layers using a sheepsfoot roller. The Engineer may permit the use of vibratory rollers whenever the embankment soils consist of Class IA1, IA2, or IA3 materials.

b. Moisture Content

Compact each layer within the range of optimum moisture content to achieve the compaction specified below.

Do not construct successive layers on previous layers that exhibit excessive pumping under construction equipment regardless of compaction.

Dry material if it contains too much moisture. Ensure the moisture content is sufficient for stability and compaction.

Add water if the material is too dry and uniformly mix it with the soil for stability and compaction. The Department will not measure water added to the material under this requirement for payment. It is considered incidental to the satisfactory completion of the work.

c. Degree of Compaction

Compact the embankment at bridge structures to at least 100 percent of the maximum laboratory dry density. Compact for the full depth of the embankment, beginning at the toe of the slope and extending 100 ft. (30 m) from the end of the bridge.

Compact embankment other than at bridge structures to at least 95 percent of the maximum laboratory dry density to within 1 ft. (300 mm) of the top of the embankment. Compact the top 1 ft. (300 mm) of the embankment to at least 100 percent of the maximum laboratory dry density.

If grading and paving are let in separate contracts, the paving Contractor shall recompact the top 6 in. (150 mm) to at least 100 percent of the maximum laboratory density.

The maximum laboratory dry density will be determined from representative samples of the compacted material using GDT 7, GDT 24a, GDT 24b, or GDT 67, whichever applies. The in-place density of the compacted fill will be determined according to GDT 20, GDT 21, or GDT 59, whichever is applicable.

d. Special Conditions

Follow these special requirements:

1) Build layers as parallel as possible. In certain cases, the Engineer may permit steeper slopes at ends of the embankments.

2) In swamp or inundated areas that will not support the equipment, build the lower part of the fill by dumping successive loads in layers no thicker than necessary to support the hauling equipment.

3) Build and compact the remainder of fills in layers as specified above.

e. Embankments at Structures

Use Class I or II material when constructing embankments over and around pipes, culverts, arches, and bridges according to Subsection 810.2.01.A.1. Class IIIC1 material may be used in Districts 1, 6, and 7.

1) Compact the material as specified in Subsection 208.3.05.B.2.c.

2) Place the specified material on both sides of bridge structures for a distance of at least 10 ft. (3 m).

NOTE: Do not place rock larger than 4 in. (100 mm) diameter within 2 ft. (600 mm) of any drainage structure.

Before any traffic is allowed over any structure, provide a sufficient depth of material over and around the structure to protect it from damage or displacement.

f. Method of Handling Classes of Soils

Handle the different classes of soils using the following methods:

1) Class IIB3 and Better Soils

Distribute and compact these soils in 8 in. (200 mm) uniform layers over the entire width of the embankment. Use these soils (when available in sufficient quantities) in the top 1 ft. (300 mm) of the roadbed. Reserve these soils for this purpose when directed by the Engineer

2) Class IIB4 Soils

Distribute and compact these soils in 8 in. (200 mm) layers over the entire width of the embankment. Class IIB4 soils may be used in the top 12 in. (300 mm) of subgrade in Districts 1, 6, and 7. Class IIB4 soils may be used in the top 12 in. (300 mm) of subgrade in Districts 2, 3, 4, and 5 with a stabilizing agent if approved by the Office of Materials and Testing, Geotechnical Environmental Pavement Bureau. If Class IIB3 or better soils are available in borrow pits, use these soils in the top 12 in. (300 mm) of subgrade.

3) Class IIIC1 Soils

Class IIIC1 soils excavated per Section 204, 205 or 207, which excludes Section 206 (Borrow), may be used in Districts 1, 6, and 7 in embankments and within the top 12 in. (300 mm) of subgrade if approved by the Office of Materials and Testing, Geotechnical Environmental Pavement Bureau. If Class IIB4 or better soils are available in borrow pits, use these soils in the top 12 in. (300 mm) of subgrade.

used for subgrade.

4) Class IIIC2 and IIIC3 Soils

Class IIIC2 and IIIC3 soils excavated per Section 204, 205 or 207, which excludes Section 206 (Borrow) may be used in Districts 1, 6, and 7 in embankments, except within 5 ft. (1.5 m) of the bottom of subgrade directly beneath the pavement, if approved by the Office of Materials and Testing, Geotechnical Environmental Pavement Bureau.

5) Class IIIC4 Soils

Class IIIC4 chert clay soils in District 6 with less than 55 percent passing the No. 10 (2 mm) sieve may be used in embankments and subgrade. All other Class IIIC4 soils may not be used.

6) Class IV Soils

Do not use these soils in embankments. Waste these soils or (when designated in the Plans or directed by the Engineer) stockpile them and use them for blanketing fill slopes.

7) Class V Soils

Place these soils in the same manner as Class IIB4 soils. Pulverize large particles to obtain the proper compaction.

8) Class VI Rock

Place rock in uniform layers not over 3 ft. (1 m) thick and distribute it over the embankments to avoid pockets. Fill voids with finer material.
Do not place rock larger than 6 in. (150 mm) in diameter within 3 ft. (1 m) of the finished surface of the embankment.
Do not place rock larger than 6 in. (150 mm) in diameter within 2 ft. (600 mm) of the outer limits of proposed posts or utility poles.
Do not place rock at bridge end bents within 10 ft. (3 m) of pile locations.

9) All Classes

Place mixtures of the above classes together with random material such as rock, gravel, sand, cinders, slag, and broken-up pavement so that coarse particles are dumped near the outer slopes and finer particles near the center of the roadway.
Produce a gradual transition from the center to the outside. If material is too large to place in 8 in. (200 mm) layers, treat it as rock or break it down and place it in 8 in. (200 mm) layers.

3. Embankment Consolidation at Bridge Ends

When consolidating embankments at bridge ends, use the following specifications:

a. When a waiting period is required in the plans or by Special Provision, place end fills at bridges in time for consolidation readings to indicate that both the fill and the natural ground have reached the desired degree of stability.

b. Delay constructing bridge portions during the period of consolidation as shown on the plans or as required by a Special Provision.

The plans or the Special Provisions will indicate the estimated time required to reach consolidation.

The Engineer may extend or shorten this waiting period based on settlement readings taken on points placed in the fills. The longer or shorter waiting period will not constitute a valid claim for additional compensation.

Follow these specifications when extending a waiting period:

1) Extending an estimated waiting period may lead to increasing the Contract time. If the Contract is on a calendar day or completion date basis, the Department may increase the calendar days equal to the maximum number of calendar days involved in the extension.

2) When a time extension causes additional delay due to seasonal changes, the Engineer may recompute the time extension on an available day basis.
When the Contract is on an available day basis, the time increase will be equal to the greatest number of available days involved in the extension.

3) When time charges on separate Bridge Contracts are controlled by Special Provisions that set forth the availability of bridge sites, extending an estimated waiting period controls the availability of that bridge site only; time charges will be adjusted according to the Special Provision.

c. Construct the embankment at bridge ends full-depth to the subgrade template (except for the stage construction providing a bench for the end bent) unless otherwise stated in the Plans and compact thoroughly before driving a piling at bridge ends.

d. The minimum acceptable length of completed full-depth embankment is equal to the maximum width of fill between slope stakes at the end of the bridge. The Department will measure the minimum length of full-depth embankment along the roadway centerline away from the end-of-bridge Station.

C. In-Place Embankment

Construct embankments designated on the plans and in the Proposal as “In-Place Embankment” using either a hydraulic or conventional dry land construction method and using materials obtained from within the construction limits of the Right-of -Way or from borrow pits, whichever is appropriate.

Regardless of the method of construction, the Department will measure the entire embankment for payment as in- place embankment.

1. Construction
   - Build embankments according to this Section when hydraulic or conventional dry land construction methods are used.
   - Furnish equipment suitable for the method chosen to complete the work. Equipment is subject to the Engineer’s approval.
   - When using a hydraulic method is used, conform to these additional requirements:
     a. Using baffles for construction is permitted as long as the embankment slopes are not steeper than indicated on the plans.
     b. Use of excess material placed outside the prescribed slopes to raise the fill is permitted.
     c. Leave openings in the embankments at the bridge site as indicated on the plans.
     d. Dredge material that invades the openings or existing channels at no additional expense to the Department. Provide the same depth of channel at mean low water as existed before the construction of the embankment.
     e. Do not excavate or dredge material within 500 ft. (150 m) of the toe of the embankment or existing structures, unless otherwise shown on the plans.
     f. Place in-place embankment in areas previously excavated below the ground line in a uniform mass beginning at one end of the excavated area and continuing to the other end of the operation. Avoid forming of muck cores in the embankment.
     g. Construct the embankment at the farthest points along the roadway from the bridge ends and progress to the end of the excavation area beyond the toe of the slope of end rolls at bridge ends.
     h. Remove timber used for temporary bulkheads or baffles from the embankment.
     i. Fill and thoroughly compact the holes.
2. Maintenance
   a. Maintain the embankment at grade until it has been completed and accepted. Assume responsibility for slides, washouts, settlement, subsidence, or mishaps to the work while under construction.
   b. Keep constructed embankment stable and replace displaced portions before Final Acceptance of the entire Contract.
   c. Remove and dispose of excess materials, including fill, detours, and erosion deposits placed outside the prescribed slopes in wetland areas.
3. Permits

   Obtain (at no additional expense to the Department) necessary permits or licenses from the appropriate authorities to operate dredges and other floating equipment in waters under their jurisdiction, unless otherwise provided for in the Contract.
4. Erosion Control

   In addition to the provisions of Section 161, follow additional erosion, siltation, and pollution control measures specified in the plans or Special Provisions.

D. Rock Embankment

This work includes furnishing materials either from the roadway excavation or other sources and hauling and the placing of rock embankment. Use materials that meet the requirements of Subsection 208.2.B, as shown on the plans or directed by the Engineer.

1. Place the rock in uniform layers not over 3 ft. (1 m) thick. Distribute rock over the embankment to avoid pockets.
2. Fill voids with rock fines. Do not use rock larger than 6 in. (150 mm) for any diameter within 3 ft. (1 m) of the finished grade of the embankment, or within 2 ft. (600 mm) of any structure.
3. Do not place rock at bridge end bents within 10 ft. (3 m) of pile locations. Construct rock embankment and adjoining earth embankment concurrently. Ensure that neither is larger than 4 ft. (1.2 m) higher than the other at any time.

E. Final Finishing

After constructing the entire embankment, shape the surface of the roadbed and the slopes to reasonably true grade and cross-sections as shown on the plans or established by the Engineer.

Open ditches, channels, and drainage structures (both existing and those constructed or extended) to effectively drain the roadway. Maintain the embankment areas until Final Acceptance of the project.

208.3.06 Quality Acceptance

General Provisions 101 through 150.

208.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

208.4 Measurement

The following section details measurement for payment for the work described in this Section:

A. Except as provided herein, there will be no measurement for payment for the work covered by this Section.

B. The Department will compute the quantity of in-place embankment or rock embankment using the average end area method, or other acceptable methods, when embankment is in place and accepted.

The quantity will be calculated as the neat volume, above the original ground surface, between the template line shown on the plans or authorized changes by the Engineer, and the original ground surface.

The original ground surface is determined by conventional field, photogrammetric, or other methods. The Department will not deduct for the volume of culverts and manholes.

In-place embankment necessary for the construction of temporary detours will not be measured for payment and is considered incidental to the completion of the work unless specifically stated otherwise on the plans.

Where work includes excavating of unstable materials below the ground line, the volume of embankment required for backfill below the ground line is calculated based on the neat line measurement for the cross-section shown on the plans or established by the Engineer by the average end area method or other acceptable methods.

Where permitted by the Engineer or required by the plans, material removed from the existing roadbed, special ditches, berm ditches, or dry land borrow pits and used in making embankment will be paid for as in-place embankment regardless of the method of excavation.

208.4.01 Limits

General Provisions 101 through 150.

208.5 Payment

Except as provided for herein, the Department will not make separate payment for placing embankments, backfilling structures, and constructing earth berms, including surcharges.

Payment will be included at the Contract Unit Price for the items covered by Section 204, Section 205, and Section 206. Prices are full compensation for the work covered by this Section.

The Unit Prices bid per cubic yard (meter) for in-place and rock embankments (when included as Contract bid Items) are full compensation for furnishing suitable material, hauling, placing, compacting, finishing, and dressing according to these Specifications or as directed by the Engineer.

Payment will be made under:

Item No. 208	In-place embankment	Per cubic yard

208.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 208

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Section 210 Grading Complete – THIS SECTION NOT APPLICABLE

210.1 General Description

This work includes:

- Excavating of all materials including ditches, undesirable material (including removal and replacement), and borrow (if required)
- Hauling
- Forming embankments
- Constructing shoulders and subgrades
- Finishing, dressing, and disposing of undesirable or surplus material
- Clearing and grubbing according to Section 201 and Section 202 unless these items are established as Pay Items in the Contract
- Removing and disposing of miscellaneous roadway items, including but not limited to curbs, drainage structures, and pavements (unless established as separate contract items)

Ensure that the completed grading work conforms to the horizontal and vertical alignment and typical cross-sections shown on the Plans or as directed by the Engineer.

210.1.01 Definitions

General Provisions 101 through 150.

210.1.02 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 201—Clearing and Grubbing Right-of-Way

Section 202—Random Clearing and Grubbing Section

204—Channel Excavation

Section 205—Roadway Excavation Section

206—Borrow Excavation

Section 207—Excavation and Backfill for Minor Structures Section

208—Embankments

Section 209—Subgrade Construction

B. Referenced Documents

General Provisions 101 through 150.

210.1.03 Submittals

General Provisions 101 through 150.

210.2 Materials

Use materials required for grading construction that conform to the requirements of Section 204, Section 205, Section 206, Section 207, Section 208, and Section 209.

210.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

210.3 Construction Requirements

210.3.01 Personnel
General Provisions 101 through 150.

210.3.02 Equipment
Use equipment approved by the Engineer that will not damage base, pavement, or other appurtenances to be retained.

210.3.03 Preparation
Before placing base material, finish the subgrade according to Subsection 209.3.05.E.

210.3.04 Fabrication
General Provisions 101 through 150.

210.3.05 Construction
Perform The Work according to the appropriate portions of Section 201, Section 202, Section 204, Section 205, Section 206, Section 207, Section 208, and Section 209 of the Specifications. Measurement and payment shall be according to the provisions of this Section. See Subsection 210.4 and Subsection 210.5, below.

210.3.06 Quality Acceptance
When the Engineer determines that the existing material in areas where fills are to be placed is undesirable, the Engineer may require the Contractor to remove the undesirable material and replace it with suitable material.

- Compact the replacement materials according to the applicable portions of Section 208.
- In cut areas, where the material below the template line is undesirable for subgrade or shoulders, undercut it to a depth established by the Engineer and replace it with suitable material.
- Compact the replacement materials as specified herein.

210.3.07 Contractor Warranty and Maintenance
General Provisions 101 through 150.

210.4 Measurement

A. Grading Complete
The Work under this Item is not measured separately for payment.

B. Grading Per Mile (Kilometer)
This Item is measured in linear miles (kilometers) along the centerline of the road or the median, including ramps where shown on the Plans.

C. Undercut Excavation
The amount of undercut excavation (when directed by the Engineer and not addressed in the Plans) measured for payment is the product of the length, width, and depth of excavation. Replacement material for undercut excavation is not measured for payment. There will be no separate payment for undercut excavation required by the Plans or rock excavation required under Subsection 205.3.

210.4.01 Limits
General Provisions 101 through 150.

210.5 Payment

A. Grading Complete

This Item completed and accepted will be paid for at the Lump Sum Price bid. Payment is full compensation for all work and material specified in this section.

The Contractor may initiate a partial payment process for the lump sum grading complete by submitting a written request to the Engineer. Unless the Engineer approves this request, this item, completed and accepted, will be paid for at the Lump Sum Price Bid according to the following schedule:

Clearing and Grubbing	Section 201 & 202	25%
Embankment/Heavy Grading/Rough Grading/Mass Grading	Section 204, 205, 206, 207, & 208	60%
Subgrade/Shoulder/Fine Grading	Section 209	10%
Dressing/Finish Grading	Section 208.3.05.E & 209.3.05.E	5%

B. Grading Per Mile (Kilometer)

This Item will be paid for at the Contract Unit Price per linear mile (kilometer) complete in place and accepted. This price is full compensation for furnishing the materials and performing the work specified in this Section.

C. Undercut Excavation

Undercutting areas not shown in the Plans when directed by the Engineer will be paid for at the rate of $7.50 per cubic yard ($9.80 per cubic meter) for quantities up to 750 yd³ (575 m³).

Quantities exceeding 750 yd³ (575 m³) will be considered Extra Work as defined in Subsection 109.05, and will be paid for accordingly. Payment is full compensation for excavating and disposing of undesirable material and supplying, placing, and compacting replacement material.

Payment will be made under:

Item No. 210	Grading complete	Per lump sum

210.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 210

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Section 310 Graded Aggregate Construction

310.1 General Description

This work includes constructing a base, subbase or shoulder course composed of mineral aggregates. Construct according to these specifications and to the lines, grades, thickness, and typical cross-sections shown on the plans or established by the Engineer.

The provisions of Section 300 apply to this work.

310.1.01 Definitions

General Provisions 101 through 150.

310.1.02 Related References

A. Standard Specifications

Section 105—Control of Work

Section 300—General Specifications for Base and Subbase Courses

Section 412—Bituminous Prime

Section 815—Graded Aggregate

Section 821—Cutback Asphalt

Section 823—Cutback Asphalt Emulsion

B. Referenced Documents

AASHTO T 180

GDT 21

GDT 59

310.1.03 Submittals

General Provisions 101 through 150.

310.2 Materials

Ensure that materials meet the requirements of the following Specifications:

Material	Section
Graded aggregate	815
Cutback asphalt, RC-30, RC-70, RC-250 or MC-30, MC-70, MC-250	821.2.01
Cutback Asphalt Emulsion, CBAE-2	823.2.01
Blotter material (sand)	412.3.05.G.3

310.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

310.3 Construction Requirements

310.3.01 Personnel

General Provisions 101 through 150.

310.3.02 Equipment

Provide equipment in satisfactory condition for proper construction of the base, subbase or shoulder course. Use any applicable equipment specified in Subsection 412.3.02, *Equipment* for Bituminous Prime.

310.3.03 Preparation

Prepare the subgrade or subbase as specified in Subsection 300.3.03.C, *Preparing the Subgrade* or Subsection
300.3.03.D, *Preparing the Subbase*. Place graded aggregate materials only on dry, thawed subgrade or subbase.

310.3.04 Fabrication

General Provisions 101 through 150.

310.3.05 Construction

A. Placing Material

Use the central plant mix method unless producing aggregates (from an approved source or deposit) that conform to the requirements of Section 815.

Use the following steps to mix base and spread subbase or shoulder course.

1. Mixing

When blending two sizes of aggregate, proportion the aggregate and water, if needed, into the central plant. Mix until producing a homogeneous and uniform mixture.

2. Spreading

To obtain the specified thickness, uniformly spread materials to the proper depth with a mixture spreader. Do not use materials containing frost or frozen particles.

a. One-Course Construction

Lay one course to a maximum thickness of 8 in. (200 mm) compacted.

b. Multiple-Course Construction

If the thickness of the base, subbase or shoulder course exceeds 8 in. (200 mm), construct it in 2 or more courses of equal thickness.

B. Compacting Material

Use the following steps to compact and finish a base, subbase, or shoulder course.

1. Moisture Content

Ensure that the moisture content of materials is uniformly distributed and allows compaction to the specified density.

Unless approved by the Office of Materials and Research, no graded aggregate will be shipped to a project when the moisture content of the material exceeds two percent of optimum moisture.

2. Compaction

After shaping the spread material to line, grade, and cross-section, roll to uniformly compact the course. If using Group 1 aggregate, roll to at least 98 percent of maximum dry density. If using Group 2 aggregate, roll to at least 100 percent of the maximum dry density.

If using graded aggregate mixtures composed of either group as base for paved shoulders 6 ft. (1.8 m) wide or less, compact to at least 96 percent of the maximum dry density.

Regardless of compaction, ensure that the compacted base is sufficiently stable to support construction equipment without pumping. If the base material is unstable from too much moisture, dry and rework the base material. Dry and rework the underlying subgrade, if necessary.

a. One-Course Construction

1) After compaction, shape to the required grade, line, and cross- section.

2) Add water as necessary to develop the proper moisture content.

3) Roll until the surface is smooth, closely knit, and free of cracks.

4) Correct all defects according to Subsection 300.3.06.B, *Repairing Defects*.

b. Multiple-Course Construction

1) After compacting the first course, shape the surface again to line, grade, and cross section.

2) Add water as necessary to develop the proper moisture content.

3) Spread and compact the second and any succeeding courses without rolling the first course again.

4) Finish the surface according to the procedure specified for one-course construction.

c. Irregular Areas

In places inaccessible to the roller, obtain the required compaction with mechanical tampers approved by the Engineer. Apply the same density requirements as stated above in Subsection 310.3.05.B.

C. Finishing

Finish the surface of the subbase for Portland cement concrete pavement or the base of asphaltic concrete pavement with automatically controlled screed equipment when required by Subsection 300.3.02.H, *Fine Grading Machine* of the specifications. Furnish, install, and maintain the sensing wires needed to control the finish operation as a part of the Pay Item. When automatically controlled screed equipment is not required, fine grading with motor graders is permitted.

Finish immediately after the placing and compacting operations. After finishing, compact the subbase again, according to Subsection 310.3.05.B, *Compacting Material*.

D. Protecting the Base, Subbase or Shoulders

Maintain the course until the Engineer determines that it has cured sufficiently and is ready to prime. Maintain by additional wetting, rolling, and blading as necessary. Repair any defects according to Subsection 300.3.06.B, *Repairing Defects*.

These protection measures do not relieve the Contractor of maintaining the Work until final acceptance as specified in Section 105.

E. Priming the Base

Apply bituminous prime according to Section 412 unless using:

- Graded aggregate base under Portland cement concrete pavement
- Graded aggregate base under asphaltic concrete 5 in. (125 mm) or more in total thickness

310.3.06 Quality Acceptance

A. Compaction Tests

1. Determine the maximum dry density from representative samples of compacted material, according to AASHTO T180, Method D.
2. Determine the in-place density of finished courses according to GDT 21 or GDT 59 , where applicable.

B. Finished Surface

Check the finished surface of the base, subbase, or shoulder course as follows:

1. Check the longitudinal surface using a 15 ft. (4.5 m) straightedge parallel to the centerline.
2. Check the transverse surface by using one of the following tools:
   - A template, cut true to the required cross-section and set with a spirit level on non-super elevated sections
   - A system of ordinates, measured from a string line
   - A surveyor's level
3. Ensure that ordinates measured from the bottom of the template, string line, or straightedge, to the surface do not exceed 1/4 in. (6 mm) at any point. Rod readings shall not deviate more than 0.02 ft. (6 mm) from required readings.
4. Correct any variations from these requirements immediately according to Subsection 300.3.06.B, *Repairing Defects*.

C. Thickness Tolerances

1. Thickness Measurements
   a. Thickness requirements apply to shoulder construction where the plans specify a uniform thickness, or where the shoulders will be surfaced.
   b. Determine the thickness of the base, subbase, or shoulder course, by making as many checks as necessary to determine the average thickness.
2. Deficient Thickness
   a. If any measurement is deficient in thickness more than 1/2 in. (13 mm), make additional measurements to determine the deficient area.
   b. Correct any area deficient between 1/2 in. (13 mm) and 1 in. (25 mm) to the design thickness by using one of the following methods according to these specifications:
      - Add additional quantities of the same materials and reconstruct to the required thickness
      - Leave in place and accept payment for the materials and area at ½ the Contract Unit Price for the deficient area.
   c. Correct any area deficient in thickness by more than 1 in. (25 mm) by adding additional quantities of the same material and reconstructing to the required thickness in accordance with these Specifications.
   d. If payment is made by the ton (megagram), payment for additional material to correct deficiencies will be made at the Contract Unit Price with no additional cost to the Department for scarification, mixing or compaction.
   e. If payment is made by the square yard (meter), no payment will be made for additional material required to correct deficiencies or for reconstructing deficient work.
3. Average Thickness
   a. The average thickness per linear mile (kilometer) is determined from all measurements within the mile (kilometer) increments except the areas deficient by more than 1/2 in. (13 mm) and not corrected.
   b. The average thickness shall not exceed the specified thickness by more than 1/2 in. (13 mm).

c. If the basis of payment is per ton (megagram), and the average thickness for any mile (kilometer) increment exceeds the allowable 1/2 in. (13 mm) tolerance, the excess quantity in that increment will be deducted from the Contractor's payments.

d. The excess quantity is calculated by multiplying the average thickness that exceeds the allowable 1/2 in. (13 mm) tolerance by the surface area of the base, subbase, or shoulder.

e. If the basis of payment is per square yard (meter), no deduction will be made for excess thickness.

310.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

310.4 Measurement

A. Graded Aggregate

Where specified for payment by the ton (megagram), graded aggregate base, subbase or shoulder materials are measured in tons (megagrams), mixed and accepted. When hauling material to the roadway, the actual weight of each loaded vehicle is determined with an approved motor truck scale.

Where specified for payment by the square yard (meter) for a certain thickness, the surface length is measured along the centerline, and the width is specified on the plans. Measure irregular areas, such as turnouts and intersections, by the square yard (meter).

B. Bituminous Prime

Bituminous prime is not measured for separate payment.

310.4.01 Limits

General Provisions 101 through 150.

310.5 Payment

A. Graded Aggregate

Graded aggregate base, subbase, or shoulder course will be paid for at the Contract Unit Price per ton (megagram) or per square yard (meter), complete, in place, and accepted. This payment shall be full compensation for:

- Materials
- Shaping and compacting the existing roadbed
- Loading, hauling, and unloading
- Crushing and processing
- Mixing
- Spreading
- Watering
- Compacting and shaping
- Maintenance
- Priming, when required
- All incidentals necessary to complete the work

B. Graded Aggregate with Recycled Concrete Aggregate

If used in lieu of graded aggregate, the pay tons for graded aggregate with Recycled Concrete Aggregate calculated in accordance with Subsection 310.4.C will be paid for at the graded aggregate contract unit price. This pay shall be full compensation for:

- Materials
- Shaping and compacting the existing roadbed
- Loading, hauling, and unloading
- Crushing and processing
- Mixing
- Spreading
- Watering
- Compacting and shaping
- Maintenance
- Priming, when required
- All incidentals necessary to complete the work Payment will be made under:

Item No. 310	4” Graded aggregate (base, subbase, shoulder course)—including material	Per square yard
Item No. 310	6” Graded aggregate (base, subbase, shoulder course)—including material	Per square yard

310.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 310

Section 402 Hot Mix Recycled Asphaltic Concrete

402.1 General Description

This work includes producing and placing hot mix recycled asphaltic concrete that incorporates reclaimed asphalt pavement (RAP), reclaimed asphalt shingles (RAS), virgin aggregate, hydrated lime, and neat asphalt cement.

402.1.01 Definitions

General Provisions 101 through 150.

402.1.02 Related References

A. Standard Specifications

Section 400—Hot Mix Asphaltic Concrete Construction

Section 800—Coarse Aggregate

Section 828—Hot Mix Asphaltic Concrete Mixtures

B. Referenced Documents

Guidelines for RAP Stockpile Approval

402.1.03 Submittals

A. Certified Weight Tickets

Notify the Engineer before removing RAP from a stockpile that belongs to the Department. Submit to the Engineer the certified weight tickets of materials removed from the stockpile.

B. Affidavit

Submit to the laboratory an affidavit stating the sources of stockpiled materials to be used on a State project. Include the following information in the letter:

- State project number
- Location from which the material was removed
- Approximate removal dates
- Mix types removed and the estimated quantity of each type in the stockpiles
- Other available information about the stockpiled material such as percentage of local sand in the RAP Obtain specific approval from the laboratory to use RAP or RAS stockpiles.

Adhere to Guidelines for RAP Stockpile Approval.

402.2 Materials

A. RAP Material Composition

Use RAP materials from any of the following:

- Existing roadway
- Contractor's RAP stockpile that has been approved by the Department
- Department stockpile

NOTE: The location of Department RAP material stockpiles will be given on the Plans.

Do not use RAP materials that contain alluvial gravel or local sand in any mixture placed on interstate projects except for mixtures used in shoulder construction. When used in shoulder construction, limit RAP containing local sand or alluvial gravel so that the sand or gravel contributes no more than 20% of the total aggregate portion of the mix.

1. RAP Percentage

For non-interstate projects, limit the percentage of RAP allowed in recycled mixes so that the overall amount of alluvial gravel does not exceed 5 percent of the total mix. The percentage of alluvial gravel, local sand, and Group I material in the RAP will be determined through petrographic analysis or available records.

2. RAP furnished to the Contractor but not used in the work remains the Contractor's property.

RAP used in the recycled mixtures for mainline or ramps (if applicable) may make up from 0 to 40 percent of the mixture depending on the amount of RAP available, the production facilities, and whether the mixture meets the requirements in Section 828.

The maximum ratio of RAP material to the recycled mixtures other than SMA is 40 percent for continuous mix type plants and 25 percent for batch type plants. The maximum ratio of RAP material to the recycled mixture is 15 percent for Stone Matrix Asphalt (SMA) mixes.

3. Process RAP Material

Process RAP material to be used in the recycled mixture so that 100 percent will pass the 2 in (50 mm) sieve. Additional crushing and sizing may be required if the RAP aggregate exceeds the maximum sieve size for the mix type as shown in Section 828. Obtain representative materials from the RAP stockpile for the mix design.

B. RAS Material

RAS materials are produced as a by-product of manufacturing roofing shingles and/or discarded shingle scrap from the reroofing of buildings.

1. Limit the amount of RAS material used in the recycled mixture to no greater than 5 percent of the total mixture weight.

2. Shred the RAS material before incorporating it into the mix to ensure that 100 percent of the shredded pieces are less than 1/2 in (12.5 mm) in any dimension.

3. Remove all foreign materials such as paper, roofing nails, wood, or metal flashing.

4. Provide test results for Bulk Sample Analysis, known as Polarized Light Microscopy, if post-consumer shingles are used to certify the RAS material is free of asbestos. Test stockpiles at the rate of one test per 1000 tons (megagrams) prior to processing.

Other than as specifically stated in this Subsection, ensure that RAS material is used according to the same requirements as described for RAP material.

C. Asphaltic Concrete Removed from an Existing Roadway

Asphaltic concrete removed from an existing roadway becomes the Contractor's property unless specified otherwise on the Plans. RAP material retained by the Department is designated on the Plans, and the RAP shall be stockpiled at the location specified on the Plans.

D. Local Sand and Group I Material in RAP

Use of local sand in recycled mixes is restricted as stipulated in Section 828 for the Project. However, RAP which contains local sand may be used in surface and intermediate layers of non-interstate projects so long as the RAP percentage used does not contribute more than 5% local sand to the total aggregate portion of the mix. The amount of local sand in the RAP material shall be considered when determining the percentage of local sand in the total mix.

Where Pay Items specify that Group II only aggregate is to be used, RAP which consists primarily of Group II aggregate, but contains some Group I aggregate, shall be limited such that the Group I aggregate makes up no more than 5% of the total aggregate portion of the mix. When a Blend I mix is specified, any Group I materials in the RAP will be considered when determining the Group I portion allowed in the total mix as specified in Subsection 828.2.A.2.

E. Asphalt Cement

Using laboratory evaluations, the Department will determine the asphalt cement grade to be used in the recycled mixture. The asphalt cement shall meet the requirements of Section 820.

When the asphalt cement is blended with asphalt cement recovered from the RAP material and after tests on residue from thin film oven tests, the asphalt cement shall have a viscosity of 6,000 to 16,000 poises (600 to 1600 Pa) or as approved by the Engineer. Recover asphalt cement from the recycled mixture to verify that the specified viscosity is being met.

If the Engineer determines during construction that the selected asphalt cement grade is not performing satisfactorily, the Department may change the asphalt cement grade in the mixture, with no change in the Contract Unit Price.

F. Recycled Mixture

The recycled mixture shall be a homogenous mixture of RAP or RAS material, virgin aggregate, hydrated lime, and neat asphalt cement. Ensure that the mixture conforms to an approved mixture design outlined in Section 828.

402.2.01 Delivery, Storage, and Handling

Separate the stockpiles by Project sources and by Group I and Group II aggregate types. Erect a sign on each stockpile to identify the source(s).

If RAP material from different project sources becomes intermixed in a stockpile, only use those materials when approved by the laboratory.

The Department may reject by visual inspection stockpiles that are not clean and free of foreign materials.

402.3 Construction Requirements

402.3.01 Personnel

General Provisions 101 through 150.

402.3.02 Equipment

A. Hot Mix Plant

Use a hot mix plant for the recycling process with necessary modifications approved by the Engineer to process recycled material. Design, equip, and operate the plant so that the proportioning, heating, and mixing yields a uniform final mixture within the job mix formula tolerances.

B. Cold Feed Bin

Proportion the RAP or RAS material using a separate cold feed bin. Ensure that the material meets the size requirements in Subsection 402.2, “Materials.” The ratio of the RAP or RAS to virgin aggregate shall be controlled gravimetrically.

C. Electronic Belt Weighing Devices

Use electronic belt weighing devices to monitor the flow of RAP or RAS and the flow of virgin aggregate. For batch-type plants, the RAP or RAS portion of the mix may be weighed in a weigh hopper before incorporating it into the pugmill. The RAP shall be screened through a 2-inch maximum sized screen prior to crossing the cold feed weigh. Ensure the amount of RAP material incorporated into the asphalt plant does not change after this final measurement is processed by the asphalt plant computer.

D. Feeders and Conveyors

Equip plants with an interlocking system of feeders and conveyors that synchronize the RAP or RAS material flow with the virgin aggregate flow. Ensure that the electronic controls track the flow rates indicated by the belt weighing devices and develop the signal to automatically maintain the desired ratio at varying production rates. Design the RAP or RAS feeder bins, conveyor system, and auxiliary bins (if used) to prevent RAP material from segregating and sticking.

402.3.03 Preparation

General Provisions 101 through 150.

402.3.04 Fabrication

General Provisions 101 through 150.

402.3.05 Construction

Follow the requirements in Section 400 for hot mix recycled asphaltic concrete production and placement, materials, equipment, and acceptance plans except as noted or modified in this Specification.

402.3.06 Quality Acceptance

The Department may require additional quality control tests to determine the RAP stockpile consistency and the RAP aggregate quality. In this case, conduct at least three extraction/gradation tests from each individual source. Ensure that aggregate meets the quality standards in Section 800.

402.3.07 Contractor Warranty and Maintenance General Provisions 101 through 150.

402.4 Measurement

Recycled asphaltic concrete mixture, complete in place and accepted, is measured in tons (megagrams). The weight is determined by recorded weights if an approved recording device is used. Or, the weight is determined by weighing each loaded vehicle on an approved motor truck scale as the material is hauled to the roadway.

402.4.01 Limits

General Provisions 101 through 150.

402.5 Payment

The work performed and the materials furnished as described in this Specification will be paid for at the Contract Unit Price per ton (megagram). Payment is full compensation for providing materials, hauling and necessary crushing, processing, placing, rolling and finishing the recycled mixture, and providing labor, tools, equipment, and incidentals necessary to complete the work, including hauling and stockpiling RAP or RAS material.

Item No. 402	Recycled asphaltic concrete 12.5_mm Superpave, Type 1, group- blend, including bituminous materials and hydrated lime	Per ton
Item No. 402	Recycled asphaltic concrete 19_mm Superpave, Type 1, group- blend, including bituminous materials and hydrated lime	Per ton

A. Materials Produced and Placed During the Adjustment Period

An adjustment period is allowed at the start of mixing operations for each type of mix placed on the Contract. A new adjustment period shall not be granted for a change of producer, mix design or asphalt plant location. The adjustment period is provided to adjust or correct the mix and to establish the construction procedures and sequence of operations.

The adjustment period consists of the tons (megagrams) of the affected mix produced and placed on the first day of operation. If this quantity is less than 500 tons (500 Mg), the Engineer may combine the tons (megagrams) produced and placed on the first day of operation with the tons (megagrams) produced and placed on the next production day of the affected mix for the adjustment period.

The material produced and placed during the mixture adjustment period is one lot. If the mix is adjusted during this period, a new lot may be necessary, but a new adjustment period will not be permitted.

This material shall be paid for at 100 percent of the Contract Unit Price provided it meets the minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the Mixture Acceptance Schedule—Table 9 or 10.

If the material placed during the adjustment period fails to meet the above requirements, it will be paid for using the applicable acceptance schedule. However, when mixture used for leveling at a spread rate of 90 lbs./yd² (50 kg/m²) or less is also used for the surface mix at a spread rate greater than 90 lbs./yd² (50 kg/m²), an

additional adjustment period will be allowed for compaction only. This material will be paid for at a 1.00 pay factor provided it:

- Meets the minimum requirements for a 1.00 pay factor in the Mixture Acceptance Schedule—Table 9 or 10 for both asphalt content and gradation.
- Meets the minimum requirements for a 0.90 pay factor in Table 12 of Subsection 400.5.01C, *Calculate Mean Pavement Air Voids*.

Mixture which does not meet these requirements shall be paid for using the applicable acceptance schedule.

B. Determine Lot Acceptance

Pay factor adjustments are based on control sieves and asphalt cement content. The control sieves used in the mixture acceptance schedule for the various types of mix are indicated below:

Control Sieves Used in the Mixture Acceptance Schedule	
Asphaltic concrete 25 mm Superpave	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement

Asphaltic concrete 19 mm SMA	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm SMA	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm Superpave	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm SMA	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 4.75 mm Mix	No. 8 (2.36 mm) sieve and asphalt cement

The Department will perform the following tasks:

1. Using the Mixture Acceptance Schedule—Table 9 or 10, of Subsection 400.3.06 to determine the mean of the deviations from the job mix formula per test results per lot.
2. Determine this mean by averaging the actual numeric value of the individual deviations from the job mix formula; disregard whether the deviations are positive or negative amounts.
3. Use the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06 to determine acceptance of surface mixes and the Mixture Acceptance Schedule—Table 10 of Subsection 400.3.06 to determine acceptance of subsurface mixes.

On Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete, the mixture is accepted for 100 percent payment of the asphaltic concrete Unit Price provided it meets the following:

1. Minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the applicable Mixture Acceptance Schedule—Table 9 or 10 of Subsection 400.3.06.
2. Minimum requirements for a 0.90 pay factor in Table 12 of Subsection 402.5.01.C, *Calculate Pavement Mean Air Voids*.

If the material placed on Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete does not meet the above requirements, the material will be paid for using the applicable acceptance schedule.

C. Calculate Pavement Mean Air Voids

The Department will determine the percent of maximum air voids for each lot by dividing the pavement mean air voids by the maximum pavement mean air voids acceptable.

The Department will determine the payment for each lot by multiplying the Contract Unit Price by the adjusted pay factor shown in the following Air Voids Acceptance schedule:

TABLE 12 - AIR VOIDS ACCEPTANCE SCHEDULE

Pay Factor	Percent of Maximum Air Voids (Lot Average of Tests)	Percent of Maximum Air Voids (Lot Average all Tests) (for Reevaluations)
1.00	?100	?100
0.97	100.1 — 105	100.1 — 104
0.95	105.1 — 112	104.1— 109
0.90	112.1 — 124	109.1 — 118
0.80	124.1 — 149	118.1 — 136
0.70	149.1 —172	136.1 — 153
0.50	172.1 — 191	153.1 — 166

When the range tolerance is exceeded, the Department will apply a pay factor of 0.95 as described in Subsection 400.3.06.B.2.

D. Asphaltic Concrete for Temporary Detours

Hot mix asphaltic concrete placed on temporary detours that will not remain in place as part of the permanent pavement does not require hydrated lime. Hot mix used for this purpose is paid for at an adjusted Contract Price. The payment for this item shall cover all cost of construction, maintenance and removal of all temporary mix. Hot mix asphaltic concrete placed as temporary mix shall meet requirements established in Subsection 400.3.05.F.

Where the Contract Price of the asphaltic concrete for permanent pavement is let by the ton (megagram), the Contract Price for the asphaltic concrete placed on temporary detours is adjusted by subtracting $1.75/ton ($2.00/mg) of mix used.

Where the Contract price of the mix in the permanent pavement is based on the square yard (meter), obtain the adjusted price for the same mix used on the temporary detour by subtracting $0.09/yd² ($0.11/ m²) per 1- in. (25-mm) plan depth.

Further price adjustments required in Subsection 400.3.06, *Quality Acceptance*, which are based on the appropriate adjusted Contract Price for mix used in the temporary detour work shall apply should temporary mix be left in place. Hot mix asphalt produced as temporary mix containing no hydrated lime shall be removed and replaced with permanent mix containing hydrated lime.

E. Determine Lot Payment

Determine the lot payment as follows:

1. When one of the pay factors for a specific acceptance lot is less than 1.0, determine the

payment for the lot by multiplying the Contract Unit Price by the adjusted pay factor.

2. When two or more pay factors for a specific acceptance lot are less than 1.0, determine the adjusted payment by multiplying the Contract Unit Price by the lowest pay factor.

If the mean of the deviations from the job mix formula of the tests for a sieve or asphalt cement content exceeds the tolerances established in the Mixture Acceptance Schedule—Table 9 or 10 and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the pavement mean air voids exceed the tolerances established in the Air Voids Acceptance Schedule – Table 12, remove and replace the materials at the Contractor's expense.

If the Engineer determines that the material is not acceptable to leave in place, remove and replace the materials at the Contractor's expense.

END OF SECTION 402

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Section 413 Bituminous Tack Coat

413.1 General Description

This work includes furnishing and applying a bituminous tack coat on a prepared road surface including cleaning the road surface.

413.1.01 Definitions

General Provisions 101 through 150.

413.1.02 Related References

A. Standard Specifications

Section 109—Measurement and Payment

Section 400—Hot Mix Asphaltic Concrete Construction

Section 424—Bituminous Surface Treatment

Section 427—Emulsified Asphalt Slurry Seal

Section 820—Asphalt Cement

Section 822 – Emulsified Asphalt

Section 824—Cationic Asphalt Emulsion SOP 4

B. Referenced Documents

General Provisions 101 through 150.

413.1.03 Submittals

A. Invoices

Furnish formal written invoices from a supplier for the bituminous materials for sole use of tack coat when requested by the Department. Show the following on the Bill of Lading:

- Date Manufactured for emulsified asphalt materials.
- Date shipped
- Quantity in gallons
- Included with or without additives

413.2 Materials

Ensure materials meet the following specifications:

TABLE 1 – BITUMINOUS MATERIALS

Material	Section
Asphalt cement, performance grade PG 58-22, PG 64-22, or PG 67-22	820.2.01
Approved non-tracking Anionic Emulsified Asphalt	822.2.01
Cationic emulsified asphalt CSS-1h, CRS-1h, CRS-2h, CRS-3, CQS- 1h and other approved non-tracking cationic emulsified asphalt products listed on QPL 7	824.2.01

Use any of the materials shown in Table 1as bituminous tack coat for work performed under Section 400 as directed by the Engineer.

The Department may change the grade or type of bituminous materials without a change in the Contract Unit Price if the Engineer determines the grade or type selected is not performing satisfactorily.

413.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

Emulsified Asphalt

Maintain all equipment used for the delivery, storage, and handling of anionic emulsified asphalt or cationic emulsified asphalt to prevent contamination of the emulsion. Transfer anionic emulsified asphalt or cationic emulsified asphalt directly to the pressure distributor from the transport tanker. Emulsified asphalt may be stored in an onsite bituminous storage tank in accordance with Note 1.

Provide and maintain temperature measuring devices to continuously monitor the temperature of anionic emulsified asphalt or cationic emulsified asphalt in storage and in the pressure distributor. Do not allow anionic emulsified asphalt or cationic emulsified asphalt to freeze.

Note 1: Asphalt emulsion that has been stored longer than 30 days from the time of initial manufacture shall be tested and approved for compliance with specified requirements prior to being used as tack coat for work performed under Section 400

413.3 Construction Requirements

413.3.01 Personnel

General Provisions 101 through 150.

413.3.02 Equipment

Provide equipment in good repair, including the following units that meet the requirements of Subsection 424.3.02, *Equipment*.

- Power broom and blower
- Pressure distributor

Provide a properly cleaned distributor to avoid contamination with incompatible materials.

413.3.03 Preparation

General Provisions 101 through 150.

413.3.04 Fabrication

General Provisions 101 through 150.

413.3.05 Construction

A. Seasonal and Weather Limitation

Do not apply tack coat if the existing surface is wet or frozen. Do not place emulsified asphalt if the air temperature in the shade is less than 40 °F (4 °C).

B. Application

Coat the entire areas to be paved with the tack coat unless directed otherwise by the Engineer. Apply tack coat with distributor spray bars instead of hand hoses, except in small areas inaccessible to spray bars.

Table 2 - Application Rates for Anionic Emulsified Asphalt or Cationic Emulsified Asphalt, gal/yd² (L/m²)		
Tack Uses	**Minimum**	**Maximum**
New Asphaltic Concrete Pavement to New Asphaltic Concrete Pavement or Thin Lift Leveling	0.05 (0.23)	0.08 (0.36)
New Asphaltic Concrete Pavement (≤ 25 % RAP) to Aged Existing Pavement or Milled Surface	0.06 (0.27)	0.10 (0.45)
New Asphaltic Concrete Pavement (> 25 % RAP) to Aged Existing Pavement or Milled Surface	0.08 (0.36)	0.12 (0.54)
• Allow standard anionic emulsified asphalt or cationic emulsified asphalt to break per emulsion manufacturer's recommendation. Proceed with paving only after the anionic emulsified asphalt or cationic emulsified asphalt has cured to the satisfaction of the Engineer. • Do not use anionic emulsified asphalt or cationic emulsified asphalt under OGFC or PEM on interstates or limited access state routes.		

Note: Application rates for PG Binder Asphalt Cement are specified in Section 400.3.03.A.3.C.

C. Temperature of Material

Apply bituminous materials within the temperature ranges specified below.

TABLE 3 – BITUMINOUS MATERIALS AND APPLICATION TEMPERATURES

Bituminous Materials	Temperature of Application °F (°C)
Asphalt cement	350 - 400 (175 - 205)
Approved non-tracking Anionic Emulsified Asphalt	140 - 180 (60 - 80)
Cationic Emulsified Asphalt CSS-1h, CRS- 1h, CRS-2h, CRS-3, CQS-1h and other approved non-tracking cationic emulsified asphalt products listed on QPL 7	140 - 180 (60 - 80)

D. Cleaning

Immediately before applying the tack coat, clean the entire area free of loose dirt, clay, and other foreign materials.

E. Application Rate

The Engineer will determine the application rate of the bituminous tack coat.

F. Limitations and Areas Coated

Apply only enough tack coat to the prepared road surface that can be covered with the new pavement course the same working day the tack coat is applied.

G. Maintenance and Protection

After applying a standard emulsified asphalt tack coat material, allow it to break per emulsion manufacturer's recommendation. Do not allow construction equipment or traffic on the tack. When directed by the Engineer, provide a revised paving plan when excessive tracking of the tack material by construction related traffic
is evident.

413.3.06 Quality Acceptance

General Provisions 101 through 150.

413.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150 shall apply with specific consideration given to General Provision Sections 105.12, 105.14, and 105.16.

413.4 Measurement

Bituminous materials for tack coat applied and accepted are measured as outlined in Subsection 109.02, *Measurement of Bituminous Materials*.

Diluting emulsified tack coat is not ordinarily allowed except when used underneath slurry seal and approved by the Engineer. The composition of diluted emulsified tack coat defined in Subsection 427.3.05, *Construction* is measured by the gallon (liter) of diluted mix.

413.4.01 Limits

General Provisions 101 through 150.

413.5 Payment

The accepted volume of bituminous material will be paid for at the Contract Unit Price per gallon (liter) for bituminous tack coat of the type and grade and approved by the Engineer, complete in place. Payment is full compensation for preparing, cleaning, furnishing, hauling, applying material, and providing incidentals to complete the work.

Payment will be made under:

Item No. 413	Tack coat	Per gallon

END OF SECTION 413

Section 441 Miscellaneous Concrete

441.1 General Description

This work includes placing Portland cement concrete as follows:

- As slope paving on end rolls, cut slopes, paved ditches, spillways, and ditch slopes
- In median pavement
- As sidewalks
- In concrete curbs, gutters, curb and gutters, and valley gutters
- As nonreinforced headwalls
- As velocity dissipators and concrete slope drains
- As concrete spillways
- Curb cut wheel chair ramps
- At other locations designated on the Plans or as

directed This work includes subgrade preparations including:

- Fine grading and backfilling
- Forming, furnishing, placing, and finishing concrete
- Constructing weep holes and furnishing and placing the coarse aggregate
- Furnishing and placing preformed joint fillers as shown on the plans
- Placing driveway concrete as shown on the Plans. Nominal 4 in. (100 mm) or 6 in. (150 mm) thick as specified or to match existing pavement.

441.1.01 Definitions

General Provisions 101 through 150.

441.1.02 Related References

A. Standard Specifications

Section 209—Subgrade Construction

Section 430—Portland Cement Concrete Pavement Section 500—Concrete Structures

Section 832—Curing Agents

Section 833—Joint Fillers and Sealers

Section 853—Reinforcement and Tensioning Steel

B. Referenced Documents

General Provisions 101 through 150.

441.1.03 Submittals

General Provisions 101 through 150.

441.2 Materials

Use concrete that conforms to the minimum requirements for Class “B,” as specified in Section 500, except that a one-bag mixer may be used. The requirements of Subsection 500.1.03.G, *Cold Weather Concrete Curing and Protection Plan* and Subsection 500.3.05.X, *Pour Concrete in Cold Weather* for cold weather concrete placement are deleted.

Place miscellaneous concrete only when the air temperature is 40 °F (4 °C) and rising. Protect concrete from freezing for the first 24 hours. Hand finishing is allowed.

Other materials and their Specifications are as follows:

Material	Section
Steel Bars for Concrete Reinforcement	853.2.01
Membrane Curing Compound, Type 2	832.2.03
Dowel and Tie Bars and Reinforcing Steel	853.2.03
Joint Fillers and Sealers	833
Welded Steel Wire for Concrete Reinforcement	853.2.07

441.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

441.3 Construction Requirements

441.3.01 Personnel

General Provisions 101 through 150.

441.3.02 Equipment

A. Forms

Forms are subject to the Engineer's approval. Use forms that are:

- Wood or metal that is readily available
- Straight and oiled before each use Use metal divider plates and templates.

Use the slip form placement method when applicable. If the slip form method does not produce a product with the proper quality, shape, grade, or alignment, the Engineer may require using fixed forms.

B. Weep Holes

Provide weep hole drain pockets filled with coarse aggregate to use with weep hole drain pipe or formed openings according to the plan details.

441.3.03 Preparation

Before placing the concrete, excavate for toe walls, edge walls, and weep hole drain pockets; place coarse aggregate in weep hole drain pockets; and grade, finish, and compact the subgrade surface. Use mechanical tamps for compaction if necessary.

441.3.04 Fabrication

General Provisions 101 through 150.

441.3.05 Construction

A. Extent and Thickness of Pavement

See the plans to determine the areas to be paved and the dimensions.

Thicknesses are subject to a minus tolerance of 0.5 in. (13 mm). Do not perform overlay pours.

B. Preparation of Subgrade

Finish the subgrade for miscellaneous concrete to the line and grade on the Plans and the following:

1. Compact the subgrade to the same degree as the roadway on which it is placed. Compact the subgrade according to Section 209.
2. If a Contract involves a Roadway and a Bridge Contractor, the Roadway Contractor shall complete the grading for the slope paving.
   The Bridge Contractor shall complete final grading, compacting, dressing, placing, and maintenance to the structures until completion.
3. When placing paving on the front slopes of ditches and shoulders, place any required special materials during the roadway construction.
4. Do not excavate for velocity dissipators, spillways, and slope drains below the foundation elevation. Do not excavate wider than necessary to provide working space or to remove soft, unsuitable material. Backfill with selected material.
5. When fitting spillways to concrete pavement, set the specified dowel bars into the pavement when it is laid. Use metal parting strips to hold the ends of dowels bent into the grooves.

C. Concrete

1. Mixing

   Mix Class B concrete as specified in Section 500 with the following exceptions:

   a. Use of small capacity job-site batchers and one-bag mixers is allowed. The rate of concrete placement in Subsection 500.3.05.P, *Meet the Minimum Placement Rates* is waived for miscellaneous concrete.

   b. Proportion concrete ingredients volumetrically if the Engineer has approved equipment calibration and operation and the operator is certified by the Office of Materials.

2. Placing and Finishing

   Place and finish concrete as follows:

   a. Deposit concrete within forms or against other pavements on a compacted and wetted subgrade to the depth to produce the specified thickness.

   NOTE: Do not place concrete on a muddy or frozen surface.

   b. Vibrate the headwalls.

   c. Strike off the concrete to a plane surface and finish it with a Type IV or Type V finish as defined in Subsection 500.3.05.AB, *Finish Concrete* and complete the following:

      1) **Concrete Slope Paving.** Give a final finish with a stiff-bristle broom. With the Engineer's approval, mechanically convey the concrete to the forms.

      2) **Concrete Sidewalks.** Give a Type V finish unless otherwise noted on the Plans. Test the surface with a 10 ft. (3 m) straightedge laid parallel to the center line. Eliminate irregularities greater than 0.25 in.
      (6 mm) per 10 ft. (3 m) while the concrete is still plastic.

      Ensure that concrete sidewalk constructed as curb cut (wheelchair) ramps has a rough or textured finish.

      3) **Concrete Paved Ditches.** Ensure that the surface of the bottom and sides of paved ditches are uniform and true to grade and cross section.

      Ensure that straight-grade tangents do not deviate more than 1 in. (25 mm) within 10 ft. (3 m) when tested with a 10 ft. (3 m) straightedge. Do not allow deviation if it reduces the ditch paving thickness, causes water to pond, or alters the direction of flow.

Finish the ditch paving by floating with wood or metal floats to bring mortar to the surface to cover the coarse aggregate.

Use reinforcing that conforms to Plan details if required.

4) **Concrete Curbs, Gutters, and Median.** Finish according to Subsection 441.3.05.C.2, *Placing and Finishing*. Remove face forms as soon as possible and finish the exposed surfaces with a wood float.

Use a straightedge to test the edge of the gutter and top of the curb and median to conform to the requirements for the adjacent pavement. Irregularities shall not exceed 0.25 in. (6 mm) in 10 ft. (3 m).

Place the curb and gutter using a machine as long as the results are satisfactory.

5) **Curb Cut Wheel chair Ramps.** Construct a Type I, II, or III ramp according to Georgia Standard 9031W. Tie ramps into adjacent paved or unpaved sidewalk and use a rough or textured finish.

3. Joints

Follow these procedures to construct joints on slopes, ditches, sidewalks, and curbs, gutters, and medians.

a. Slope Paving

Place paving on slopes in horizontal or vertical courses, but not a mixture of both.

1) Construct horizontal courses approximately level and at least 3 ft. (1m) but no more than 6 ft. (1.8 m) wide measured along the slope.

When needed, construct trapezoidal courses at the top and bottom to accommodate sloping berm and ditch line conditions.

2) Edge the paving at construction joints between courses with a 0.25 in. (6 mm) radius tool.

3) Provide vertical contraction or construction joints spaced along the horizontal course at right angles to the horizontal construction joints at approximately 40 ft. (12 m) intervals, in line not staggered.

No other vertical lines will be required in horizontal courses.

When using vertical contraction joints, cut them with a tool one-third the depth of the paving during the finishing operation. Edge the contraction joints the same as construction joints.

Vertical courses approximately equal and at least 3 ft. (1 m) but no more than 5 ft. (1.5 m) wide across the plane of the slope. The desired width is 4 ft. (1.2 m). Horizontal lines are not required in vertical courses.

Separate slope paving from the masonry of structures, sidewalks, curbs, and rigid-type roadway pavements of preformed joint filler that are 0.5 in. (13 mm) thick.

b. Concrete Paved Ditches

Form joints in concrete paved ditches as follows:

1) Space contraction joints at 30 ft. (9 m) intervals.

2) Place expansion joints only where the paved ditch joins the roadway pavement or some other structure.

3) Do not use joint sealers for expansion or contraction joints.

c. Concrete Sidewalk

Form transverse contraction joints using a tool designed to form a groove one-third the depth of the sidewalk at intervals shown on the Plans.

Where sidewalks abut the curb and gutter, ensure that alternate joints coincide. Round the edges with a 0.25 in. (6 mm) edger. Make expansion joints according to the materials, dimensions, and locations specified on the plans.

d. Concrete Curbs, Gutters, and Medians

Form contraction joints or expansion joints on curbs, gutters, and medians.

1) **Contraction Joints.** Ensure that joints in curb, gutters, and medians are spaced the same as the joints in paving. Form joints by using metal divider plates or sawing them as in Section 430.

Form joints at least one-fifth but not greater than one-fourth the depth of the concrete. Except for sawed joints, finish the joints with a 0.25 in. (6 mm) edging tool.

For curbs, gutters, and medians adjacent to pavement other than concrete, contraction joints shall be as follows:

- For header curb and combination curb and gutter, install contraction joints spaced no more than 20 ft. (6 m) apart.
- For gutter median, install a contraction joints spaced no more than 20 ft. (6 m) apart.

2) **Expansion Joints.** Form expansion joints according to the plan details or as directed. Ensure that they coincide with the expansion joints in the adjoining pavement or gutter.

Cut the joint fillers to the same cross section as the construction. Trim flush the material that protrudes after the concrete is finished.

When miscellaneous concrete items are not adjacent to concrete construction, provide expansion joints at an interval of at least 500 ft. (150 m).

e. Curb Cut Wheelchair Ramps

Locate and form expansion joints for curb cut wheelchair ramps according to the Special Details for ramp Type A, B, C, or D.

4. Curing

Use curing methods specified in Subsection 430.3.05.L, *Cure the Concrete*. Ensure that the membrane curing compound is Type 2, if used. Pack honeycombed areas immediately after removing the forms.

D. Backfilling

Backfill the areas as soon as possible without damaging the work.

E. Clean-Up

When concrete work is complete, clean each surface. Protect the work from stains or other damage until Final Acceptance.

441.3.06 Quality Acceptance

General Provisions 101 through 150.

441.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

441.4 Measurement

A. Concrete Slope Paving

Concrete slope paving is measured for payment in square yards (meters) of accepted surface area of paving of the specified thickness. Concrete in toe or edge walls, excavation, backfill, weep holes, and aggregates are not measured for separate payment.

B. Concrete Sidewalks

Concrete sidewalks are measured in square yards (meters) of the specified thickness, complete in place and accepted. The length is the actual measured length along the surface. The width is the plan width or as directed. Excavation and backfill are not measured separately for payment.

C. Concrete Paved Ditches

The area measured for payment is the square yards (meters) of exposed surface area, exclusive of top edges, of the specified thickness placed according to the plans or as directed. Reinforcing steel, excavation, preparation of subgrade including Type I backfill, forms, and concrete in toe or edge walls are not measured separately for payment.

Type II backfill, when required, will be paid according to Section 207.

D. Concrete Curbs, Gutter, Median, Pavement, and Combination Curb and Gutter

The following are measured by the linear foot (meter) along the face of the curb:

- Concrete curb and gutter
- Concrete curb
- Concrete header curb

The following are measured by the square yard (meter) or by the linear foot (meter), whichever is specified:

- Concrete gutter
- Concrete valley gutter
- Concrete valley gutter with curb
- Concrete median pavement
- Concrete gutter with raised edge

The length used to compute the square yards (meters) or linear foot (meter) is measured along the center line of the gutter. The width is the total width of the gutter including the curb or raised edge. Concrete doweled integral curb includes dowels.

E. Concrete Headwalls

Headwalls are measured for payment according to Subsection 500.4.01.B, *Payment per Cubic Yard (Meter)* and Subsection 500.5.01.E, *Filler Concrete*. Filler concrete, where required, will be paid for at 60 percent of the Contract Unit Price for Class B concrete.

F. Concrete Spillways

Concrete spillways regardless of the type specified are measured by the actual number poured complete and accepted.

G. Concrete Slope Drains

Concrete slope drains are measured in square yards (meters) along the surface, complete and accepted.

H. Velocity Dissipators

Velocity dissipators are measured in square yards (meters), surface measure, complete and accepted.

I. Concrete Driveways

Driveway pavement is measured along the surface from the paving edge or back of the curb to where old and new concrete join. The width is the average width constructed.

J. Curb Cut Wheelchair Ramps

For new construction, curb cut wheelchair ramps will not be measured. For new construction, linear feet (meters) of curb and gutter will include the transitioned curb in front of ramps and square yards (meters) of concrete sidewalk will include ramps. No additional payment will be made for curb cut ramps.

For existing sidewalks, curb cut wheelchair ramps are measured as the actual number formed and poured, complete and accepted. No additional payment will be made for sawing existing sidewalk and removal and disposal of removed material for new ramp construction.

441.4.01 Limits

General Provisions 101 through 150.

441.5 Payment

These Items, measured as specified above, will be paid for at the Contract Unit Price per each, per square yard (meter), per linear foot (meter), or per cubic yard (meter).

Payment will be made under:

A. Slope Paving

Item No. 441	N/A	Per square yard (meter)

B. Sidewalks

Item No. 441	N/A	Per square yard (meter)

C. Concrete Ditches

Item No. 441	Reinforced concrete ditch paving (4) in., including reinforcing steel	Per square yard

D. Curbs, Gutters, Combination Curb and Gutter, Headers, and Medians

Item No. 441	Reinforced concrete ditch paving (6) in., including reinforcing steel	Per square yard

E. Spillways, Drains and Velocity Dissipators

Item No. 441	Concrete spillway type_____	Per each
Item No. 441	Concrete slope drain	Per square yard (meter)
Item No. 441	Velocity dissipators	Per square yard (meter)

F. Headwalls

Item No. 441	Concrete headwalls	Per cubic yard (meter)

G. Driveway Concrete

Item No. 441	Driveway concrete_____ in. (mm) thick	Per square yard (meter)

H. Curb Cut Wheelchair Ramps

Item No. 441	Curb cut wheelchair ramps, Type	Per each

441.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 441

Section 550 Storm Drain Pipe, Pipe-Arch Culverts, and Side Drain Pipe

550.1 General Description

This work includes furnishing and installing the following:

- Storm drain pipe
- Side drain pipe
- Pipe-arch culverts
- Elliptical pipe
- Flared end sections
- Safety end sections
- Tapered pipe inlets

Install structures according to the Specifications and the details shown on the Plans, or as directed by the Engineer.

550.1.01 Definitions

Side Drain – All driveway pipes (commercial, non-commercial, residential, utility, farm, logging, and mining).

Storm Drain Pipe –All pipe used in the highway drainage system that receives surface water through inlets and conveys the water through conduits to a pipe outlet

Thermoplastic Pipe – High Density Polyethylene (HDPE), Polypropylene (PP) and Polyvinyl Chloride (PVC).

General Provisions 101 through 150.

550.1.02 Related References

A. Standard Specifications

Section 205—Roadway Excavation

Section 207—Excavation and Backfill for Minor Structures

Section 208—Embankments

Section 645—Repair of Galvanized Coatings

Section 812—Backfill Materials

Section 815—Graded Aggregate

Section 834—Masonry Materials

Section 840—Corrugated Aluminum Alloy Pipe

Section 841—Iron Pipe

Section 843—Concrete Pipe

Section 844—Steel Pipe

Section 845—Thermoplastic Pipe

Section 847—Miscellaneous Pipe

Section 848—Pipe Appurtenances

B. Referenced Documents

General Provisions 101 through 150.

GDOT Manual on Drainage Design for Highways

Ga. Std. 1030D

Ga. Std. 1030P

GDT 136

ASTM C 1479

ASTM D 2321

550.1.03 Submittals

General Provisions 101 through 150.

550.2 Materials

Ensure materials meet the requirements of the following Specifications:

Material	Section
Backfill Materials	207
Graded Aggregate	815
Reinforced Concrete Pipe	843.2.01
Nonreinforced Concrete Pipe	843.2.02
Mortar And Grout	834.2.03
Bituminous Plastic Cement	848.2.05
Rubber Type Gasket Joints (Concrete Pipe)	848.2.01
Preformed Plastic Gaskets	848.2.06
Corrugated Steel Pipe	844.2.01
Bituminous Coated Corrugated Steel Pipe	844.2.02
Corrugated Aluminum Alloy Pipe	840.2.01
Bituminous Coated Corrugated Aluminum Pipe	840.2.03
Aluminized Type 2 Corrugated Steel Pipe	844.2.06
Ductile Iron Pipe, Fittings and Joints	841
Precoated, Galvanized Steel Culvert Pipe	844.2.05
Smooth Lined Corrugated High Density (HDPE) Polyethylene Culvert Pipe	845.2.01
Polyvinyl Chloride (PVC) Profile Wall Drain Pipe	845.2.02
Polyvinyl Chloride (PVC) Corrugated Smooth Interior Drain Pipe	845.2.03
Smooth Lined Corrugated Polypropylene (PP) Pipe	845.2.05
Miscellaneous Pipe	847

Use any of the following types of pipe:

Rigid Pipe Types

- Reinforced concrete
- Nonreinforced concrete
- Ductile Iron Flexible PipeTypes
- Corrugated steel or Aluminum
- Smooth-lined corrugated high density polyethylene (HDPE)
- Polyvinyl Chloride (PVC) Profile Wall Drain Pipe
- Polyvinyl Chloride (PVC) Corrugated Smooth Interior Drain Pipe
- Precoated, Galvanized Steel Culvert Pipe (Polymer)
- Smooth Lined Corrugated Polypropylene (PP) Pipe

Use the type of pipe designated on the Plans, or acceptable alternate types when applicable. For a listing of acceptable alternate pipe types see the GDOT Approved Material Selections List in Chapter **7**– Storm Drain Design of the Department's Manual on Drainage Design for Highways. This document summarizes general applications for pipe.

For concrete, corrugated steel and aluminum pipes see Ga. Std. 1030D for minimum thicknesses, minimum cover, maximum fill, allowable pipe diameters and trench construction detail.

For thermoplastic pipes see Ga. Std. 1030P for minimum cover, maximum fill, allowable pipe diameters and trench construction details.

A. Thermoplastic Pipe Project Restrictions

Thermoplastic pipe is restricted to the following project conditions:

1. Storm Drain
   a. Travel Bearing: ADT less than 15,000
   b. Non-Travel Bearing: Non-Interstate
2. Side Drain
   a. Allowed on all projects

550.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

550.3 Construction Requirements

550.3.01 Personnel

General Provisions 101 through 150.

550.3.02 Equipment

General Provisions 101 through 150.

550.3.03 Preparation and Backfill

Before installing pipe, shape the foundation material as shown on the Plans.

Prepare structure excavations, foundation and backfill according to Section 207. Except, use the following foundation and backfill material requirements for thermoplastic pipe installations:

1. For storm drain applications (cross and longitudinal) use graded aggregate material meeting Section 815.
   a. 20 ft. (6.1 m) maximum fill height for High Density (HDPE) Polyethylene Culvert Pipe.
   b. 25 ft. (7.6 m) maximum fill height for Polyvinyl Chloride (PVC) and Polypropylene (PP) Pipe.
2. For side drain applications (driveway) use backfill material based on fill height.
   a. Fill heights up to 10 ft (3 m), use normal backfill material meeting the following soil classes per Subsection 810.2.01.
      - High Density (HDPE) Polyethylene Culvert Pipe use Class II B2 soil or better.
      - Polyvinyl Chloride (PVC) and Polypropylene (PP) Pipe use Class II B3 soil or better.
      - If the required soil Class is not available use graded aggregate material meeting Section 815.
   b. Fill heights above 10 ft. (3 m), use graded aggregate material meeting Section 815.

550.3.04 Fabrication

General Provisions 101 through 150.

550.3.05 Construction

A. Drainage

Provide necessary temporary drainage. Periodically remove any debris or silt constricting the pipe flow to maintain drainage throughout the life of the Contract.

B. Damage

Protect the structure by providing sufficient depth and width of compacted backfill before allowing construction over a culvert. Repair damage or displacement from traffic or erosion occurring after installing and backfilling at no additional cost to the Department.

C. Installation

Check vertical and horizontal alignment of the pipe culvert or pipe barrel by sighting along the crown, invert and sides of the pipe, and by checking for sagging, faulting and invert heaving. Repair any issues involving incorrect horizontal and/or vertical alignment before backfilling pipe.

1. Concrete Pipe
   Install Concrete Pipe according to ASTM C 1479 and as per plans. Lay sections in a prepared trench with the socket ends pointing upstream. Join section using rubber gasket installed according to Subsection 848.2.01 and the manufacturer's recommendations.
2. Ductile Iron Pipe
   Lay pipe sections in a prepared trench, with bells pointing upstream. Construct joints according to Subsection
   841.2.02.A.
3. Corrugated Metal
   Lay pipe sections in a prepared trench, with outside laps of circumferential joints pointing upstream and longitudinal joints at the sides. Join the sections with coupling bands, fastened by two or more bolts. Before backfilling the structure:
   a. Repair areas of damaged coatings and exposed base metal according to applicable AASHTO Standard Specification specified in Section 844.
4. Thermoplastic Pipe
   Install smooth-lined corrugated HDPE, PVC, and smooth-lined polypropylene pipe according to ASTM D 2321 and as per plans using backfill requirements in Subsection 550.3.03. Use fitting

and couplings that comply with the joint performance criteria of AASHTO Standard Specifications for Highway Bridges, Division II. Ensure all joints are “silt tight” as stated in the AASHTO bridge specifications.

5. Specials (Wyes, Tees, and Bends)
   Install wyes, tees, and bends as shown on the Plans or as directed.
6. Tapered Pipe Inlets
   Locate and install tapered pipe inlet end sections as shown on the Plans or as directed.
7. Elongation
   Elongate metal pipe as shown on the Plans. Order the elongation of the vertical axis of the pipe to be done in the shop.

   Ensure the manufacturer ships metal pipe with wire ties in the pipe ends. Remove wire-ties immediately after completing the fill.
8. Flared End Sections
   Use flared end sections on the inlet, outlet, or on both ends of storm drain pipe, according to Plan details.

550.3.06 Quality Acceptance

The Engineer will visually inspect all pipe for alignment, deflection, cracking, joint separation, sagging, or other exterior damage

The Department may elect to conduct Quality Assurance verifications of any pipe inspections. These verifications will be performed by Department personnel.

The Department will require video inspection on projects that have more than 500 linear feet of storm drain pipe and on routes with an AADT greater than 3,000 vehicles. Conduct video inspection in accordance with the requirements of this Specification and GDT 136 on 20% of all storm drain pipe and 10% of all side drain pipe installations. The Engineer will randomly select installations to be tested.

Unless the Engineer directs otherwise, schedule the video inspections for the selected locations no sooner than 30 days after completing pipe installations to be tested.

A. Post Installation Inspection

Before post installation inspection, dewater installed pipe (if necessary) and provide the Engineer with a post installation inspection schedule. Notify the Engineer at least seven days in advance of beginning inspection. Perform post installation inspections once compacted backfill has reached a depth of 8 feet or after completion of the pipe installation and final cover, which includes the embankment and all non-asphalt bases and/or subgrades. Notify the Engineer if distresses or locations of improper installation are discovered. When camera testing shows distresses or improper installation in the installed pipe, the Engineer may require additional sections to be tested or may require corrective action.

Video and laser profiling and measurement technology must be certified by the company performing the work to meet the requirements of GDT 136. Inspection contractor personnel completing remote inspections shall be NASSCO – PACP Certified Technicians. Testing performed by a company failing to meet these requirements will result in non-payment of the pipeline video inspection and non-certification of the pipe tested.

For video recorded, laser profiled pipe indicating deflection is in excess of Specification requirements, the Contractor may elect to further test the pipe with the use of a mandrel. Ensure mandrel meets requirements of GDT 136 and the Engineer has approved before use.

Mandrel or manual post installation inspection allowed for pipe diameters greater than 48 inches.

B. Requirements for Rigid Pipe – Concrete

1. Joints**:** Note differential movement, cracks, spalling, improper gasket placement, movement or settlement of pipe sections, and leakage in the inspection report. Repair or replace pipe sections to the satisfaction of the Engineer where joint separation is greater than 1 inch (25 mm). Repair or replace pipe sections where soil migration through the joint is occurring.
2. Longitudinal and Transverse Cracks: Cracks with a width less than 0.01 inch (0.25 mm) are considered hairline and minor and only need to be noted in the inspection report, no corrective action is necessary. When cracks exceed the cracking and installation thresholds indicated in the Rigid Pipe Remediation Table in Section 550.5.01.B, regardless of position in the wall of the pipe, measure the width, length, and locations of the cracks and diameter of the pipe, both horizontally and vertically, use remediation methods in accordance with recommendations of the pipe manufacturer and submit to the Engineer for review and approval an evaluation utilizing a Professional Engineer registered in the State of Georgia that takes into consideration structural integrity, environmental conditions, and the design service life of the pipe. Based on the evaluation, the Department may allow the pipe to remain in place if the cracking is remediated according to an approved remediation plan submitted in writing to the Engineer. Provide 10 business days for the Department to review the evaluation. When the pipe shows cracking 0.01 inch (0.25 mm) or greater and extending for a length of 12 inches (300mm), remediate or replace as directed by the Engineer. When the camera/video cracking results are called into question, the Department may require manual inspection measurements.

C. Requirements for Flexible Pipe – Thermoplastic, Corrugated Metal

1. Joints: Remediate pipe showing evidence of crushing at the joints. Note differential movement, improper joint sealing, movement or settlement of pipe sections, and leakage in the inspection report. Remediate joint separation of greater than 1 inch (25 mm) per manufacturer's recommendation. Repair or replace pipe sections where soil migration through the joint is occurring.
2. Cracks: Remediate cracks or splits in the interior wall of the pipe. Use remediation methods in accordance with recommendations of the pipe manufacturer and accepted and authorized by the Engineer.
3. Buckling, bulging, and racking: Note in the inspection report flat spots or dents at the crown, sides or flowline of the pipe due to racking. Note areas of wall buckling and bulging in the inspection report. The Engineer will determine if corrective action is necessary.
4. Deflection: If flexible pipes exceed the deflection and installation thresholds indicated in the Flexible Pipe Deduction Table in Section 550.5.01.C, provide the Department with an evaluation of each location conducted by a Professional Engineer registered in the State of Georgia addressing the severity of the deflection, structural integrity, environmental conditions, and design service life. Based on the evaluation, the Department may allow the pipe to remain in place at a reduced unit price as shown in the Flexible Pipe Deduction Table. Provide 10 business days for the Department to review the evaluation. When the pipe shows deflection 10 percent or greater, remove and replace. When the laser deflection results are problematic, the Department may require mandrel or manual testing.
5. Coating on Corrugated Metal: Note areas of the pipe where the original coating has been scratched, scoured or peeled.

550.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

550.4 Measurement

A. Excavation and Backfill

Foundation backfill materials Types I, II and III are measured according to Subsection 207.4, *Measurement.*

Normal backfill is not measured separately.

No measurement will be made for graded aggregate used for structural backfill of thermoplastic pipe.

B. Flat Bottom and Circular Pipe (All Types)

The overall length of pipe installed, excluding tapered inlets, is measured in linear feet (meters), along the central axis of the diameter of the pipe. Wyes, tees, and bends are included in this measurement.

C. Pipe-Arches

The overall length of pipe-arch installed is measured in linear feet (meters), along the bottom center line of the pipe.

D. Multiple Installations

In multiple installations, each single line of culvert structure is measured separately.

E. Tapered Pipe Inlets

Tapered pipe inlet sections are measured as a unit; do not include them in the overall length of the pipe.

F. Flared-End Sections

Flared-end sections are measured separately by the unit and not included in the overall pipe length.

G. Smooth-Flow Pipe

Smooth-flow pipe is measured by the linear foot (meter) along the pipe invert.

H. Elliptical Pipe

Elliptical pipe is measured in linear feet (meters) along the bottom center line of the pipe.

I. Video Inspection

Video Inspection is measured by the linear feet of quantity of pipe inspected. When inspection above the quantity specified in the Contract is performed due to the possibility of additional distresses or non-compliance noted by the Department and the pipe is found to be in compliance, the Department will measure this quantity as Extra Work as per Specification 104.04. However, if additional distresses are found, the additional linear feet of video inspection will not be measured for payment.

J. Deduction for Pipe Deflection

Quantity of deflected pipe will be determined using the pipe inspection summarization report in accordance with GDT 136. Deductions will be made for pipe sections that do not meet the requirements of this specification in accordance with the table in sub-section 550.5.01. The section length is determined by the length of the pipe between joints where the failure occurred.

550.4.01 Limits

Excavation and normal backfill are not measured for payment.

550.5 Payment

A. Backfill

Foundation backfill material Type II and III will be paid for according to Section 207.

Foundation backfill material Type I will be paid for according to Section 205 or Section

206.

Graded aggregate used for structural backfill of thermoplastic pipe will not be paid for separately, payment will be included in the overall price bid for pipe.

B. Pipe Installations

Pipe installations complete in place and accepted will be paid for at the Contract Price for each item.

This payment is full compensation for excavating, furnishing, and hauling materials; installing, cutting pipe where necessary; repairing or replacing damaged sections; making necessary connections; strutting, elongating, providing temporary drainage; joining an extension to an existing structure where required; and removing, disposing of, or using excavated material as directed by the Engineer.

1. Smooth Flow Pipe
   The quantity of each diameter and steel thickness of smooth flow pipe as measured will be paid for at the Contract Unit Price per linear foot (meter) bid for the various sizes. Payment is full compensation for furnishing labor, materials, tools, O-ring mechanical joints, equipment, and incidentals to complete this Item, including removing and disposing excavation material.
2. Flared-End Sections
   Flared-end sections, measured as specified above, will be paid for at the Contract Unit Price for each section of the specified size.

Payment will also include sawing, removing, and replacing existing pavement removed to install a new drainage structure.

Payment for this item is made as follows:

One hundred percent of the Contract Price bid per linear foot (meter) is paid when the pipe is installed per the specifications including the required material documentation. The Contract Price is paid before post installation inspection.

C. Video Inspection

Include the cost of Video Inspection in the bid submitted for this pay item. Video Inspection will be paid for up to the maximum number of linear feet included in the contract. Testing performed by a company failing to meet the requirements of GDT 136 will result in non-payment of the pipeline video inspection and non-certification of the pipe tested.

D. Temporary Drainage

Temporary Drainage items will be paid for at 75% of contract price for each item when installed. The final 25% will be paid when the temporary drainage item is removed or filled with flowable fill as specified in the plans.

Payments will be made under:

Item No. 550	Storm drain pipe 18 in, Class III RCP	Per linear foot
Item No. 550	Storm drain pipe 24 in, Class III RCP	Per linear foot

550.5.01 Adjustments

A. Excavation

Excavation will not be paid for separately, but the other provisions of Section 205 and Section 208 shall govern.

B. Rigid Pipe

RIGID PIPE REMEDIATION TABLE	
Crack Width (inches)	Payment
Greater than or equal to 0.01 (0.25mm) and extend 12 in. (300 mm) but less than or equal to 0.1 in. (2.5 mm)	Remediate - 100% of the Unit Bid Price (1)
Greater than 0.1 in. (2.5 mm)	Remediate or Replace (1)

(1) Provide in writing a method for repairing the observed cracking. Do not begin work until the method has been approved.

C. Flexible Pipe

FLEXIBLE PIPE DEDUCTION TABLE	
Amount of Deflection (%)	Payment
0.0 to 5.0	100% of the Unit Bid Price
5.1 to 7.5	75% of the Unit Bid Price (1)
7.6 to 9.9	50% of the Unit Bid Price (1)
10 or greater	Remove and Replace

(1) Provide Structural Analysis for Flexible Pipe. Based on the structural analysis, the pipe may be allowed to remain in place at the reduced price.

END OF SECTION 550

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Section 603 Rip Rap

603.1 General Description

This work includes placing protective coverings of sand-cement bag rip rap or stone rip rap.

When required, this work includes placing crushed stone filter material or plastic filter fabric beneath stone rip rap on:

- Fill slopes
- Cut slopes
- End rolls
- Shoulders
- Ditches
- Stream banks
- Channel banks
- Other locations

603.1.01 Definitions

General Provisions 101 through 150.

603.1.02 Related References

A. Standard Specifications

Section 800—Coarse Aggregate Section 801—Fine Aggregate

Section 805—Rip Rap and Curbing

Stone Section 815—Graded Aggregate

Section 830—Portland Cement Section 832—Curing Agents Section 880—Water

Section 881—Fabrics

B. Referenced Documents

AASHTO T 134

QPL 28

603.1.03 Submittals

General Provisions 101 through 150.

603.2 Materials

Ensure that the materials meet the requirements of the following specifications:

Material	Specification
Portland cement	830.2.01
Rip Rap (Stone)	805.2.01
Membrane Curing Compound	832.2.03
Stone Filter Blanket	815.2.01 or 800.2.01 (Size No. 467*)
Fine Aggregate for Sand Cement Rip Rap	801.2.03
Water	880.2.01
Woven Plastic Filter Fabric	881.2.05
*Except that up to 10% is allowed to pass the No. 4 (4.75 mm) sieve.	

A. Bags for Sand-Cement Bag Rip Rap

Use cotton, burlap, or fiber reinforced paper bags that can contain the sand-cement mixture without leaking during handling and placing. Do not use bags that previously held sugar or other material that will adversely affect the sand-cement mixture.

Ensure that the capacity is at least 0.75 ft.³ (0.02 m³) but not greater than 2 ft.³ (0.5 m³).

B. Stone Dumped Rip Rap

Stone dumped rip rap is designated on the Plans as Type 1 or Type 3 as defined in Subsection 805.2.01.

603.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

603.3 Construction Requirements

603.3.01 Personnel

General Provisions 101 through 150.

603.3.02 Equipment

General Provisions 101 through 150.

603.3.03 Preparation

General Provisions 101 through 150.

603.3.04 Fabrication

General Provisions 101 through 150.

603.3.05 Construction

Construct this Work according to the following requirements:

A. Preparing the Foundations

Prepare the ground surface where the rip rap will be placed to conform with the correct lines and grades before beginning the placement.

1. When filling depressions, compact the new material with hand or mechanical tampers.

Dispose of excess material by spreading it neatly within the right-of-way as an incidental part of the work.

2. Unless otherwise shown or provided below, begin placing the rip rap in a toe ditch constructed in original ground around the toe of the fill or the cut slope.

Ensure that the toe ditch is 2 ft. (600 mm) deep in original ground and the side next to the fill or cut has the same slope.

3. After placing the rip rap, backfill the toe ditch and spread the excess dirt neatly within the right-of-way as an incidental part of the work.
4. When beginning rip rap in water or below normal water level, substitute an apron of rip rap for the toe ditch. Ensure that the width and thickness of this apron is as shown on the plans or determined by the Engineer.

B. Placing Stone Rip Rap

Place rip rap to the limits shown on the Plans or as directed by the Engineer. Place and classify rip rap as follows:

1. Stone Plain Rip Rap

Dump and handle stone plain rip rap into place to form a compact layer to the design thickness.

Ensure that the thickness tolerance for the course is plus 12 in. (300 mm) with no under-tolerance. If the plans do not show a thickness, place stone rip rap to at least 12 in. (300 mm) thick, but no greater than 2 ft. (600 mm) thick.

2. Stone Dumped Rip Rap

Dump stone dumped rip rap into place to form a uniform surface as thick as specified in the Plans.

a. Ensure that the thickness tolerance for the course is minus 6 in. (150 mm) and plus 12 in. (300 mm). If the plans or proposal do not specify a thickness, place the course to at least 2 ft. (600 mm) thick.
b. Recycled concrete that meets the requirements of Subsection 805.2.01 may be used instead of stone when shown on the plans or approved by the Engineer.
Use recycled concrete only when materials do not contain steel after processing.

NOTE: Do not use recycled concrete in aesthetically sensitive areas.

3. Stone Grouted Rip Rap

Place stone grouted rip rap according to specifications for stone plain rip rap and these guidelines:

a. Prevent earth from filling the spaces between the stones.
b. After placing the stone, fill the spaces between them with 1:3 grout composed of Portland cement and sand mixed thoroughly with enough water to make a thick, creamy consistency.
c. Place the grout beginning at the toe. Finish it by sweeping with a stiff bristle broom.
d. After grouting, cover the rip rap and keep it wet for 5 days, or cover and keep wet for 24 hours and then coat with white pigmented membrane curing compound.

C. Placing Filter

Place woven plastic filter fabric under all rip rap. Follow these requirements for placing the filter fabric:

1. Prepare the surface to receive the fabric until it is smooth and free from obstructions, depressions, and debris.
2. Place the fabric with the long dimension running up the slope. Minimize the number of overlaps.
3. Place the strips to provide a width of at least 1 ft. (300 mm) of overlap for each joint.
4. Anchor the filter fabric in place with securing pins of the type recommended by the fabric manufacturer. Place the pins on or within 3 in. (75 mm) of the centerline of the overlap.
5. Place the fabric so that the upstream strip will overlap the downstream strip.
6. Loosely place the fabric to prevent stretching and tearing during

   stone placement. Do not drop the stones more than 3 ft. (1 m)

   during construction.
7. Always protect the fabric during construction from clogging due to clay, silts, chemicals, or other contaminants.
8. Remove contaminated fabric or fabric damaged during installation or rip rap placement. Replace with uncontaminated or undamaged fabric at no expense to the Department.

D. Placing Sand-Cement Bag Rip Rap

Place rip rap to the limits shown on the plans or as directed by the Engineer.

1. Proportioning Materials

Mix sand and Portland cement at the maximum ratio of 5:1 by weight.

   a. Obtain a minimum compressive strength of 500 psi (3 MPa) in 7 days.
   b. For sand-cement bag rip rap, use enough water to make up the optimum moisture content of the aggregate and cement as determined by AASHTO T 134.
   c. When sand-cement rip rap is to be prebagged, mix the sand cement dry. After placing each course, wet the bags until the bags are wet enough for proper cement hydration.

2. Placement

Before placing sand-cement bag rip rap, fill the bags full, but allow room to tie the bags.

   a. Place the bagged rip rap by hand with the tied ends facing the same direction. Produce close, broken joints.
   b. Place header courses when directed by the Engineer or required by the plans.
   c. After placing the bags, ram or pack them against one another to produce the required thickness and form a consolidated mass.
   d. Do not allow the top of each bag to vary more than 3 in. (75 mm) above or below the required plane.

E. Placing Stone Blanket Protection

Ensure that the stone blanket protection meets the materials Specifications for stone filter blanket as specified in Subsection 603.2, *Materials*, except stone size No. 357 will be allowed instead of size No. 467.

Place stone blanket protection to the limits shown on the plans, or as directed by the Engineer.

Uniformly place this material to the thickness shown on the plans and to a thickness tolerance of 0.5 in. (± 15 mm).

Do not use stone blanket protection on slopes steeper than two horizontal to one vertical or in areas highly susceptible to erosion. Do not use plastic filter fabrics with stone blanket protection.

603.3.06 Quality Acceptance

General Provisions 101 through 150.

603.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

603.4 Measurement

This work is measured for payment in square yards (meters) of accepted material of the specified thickness. Area measurements are made parallel to the surface on which the material is placed. Plastic filter fabric will be measured as the area of rip rap placed and accepted. No separate measurement will be made for fabric overlap joints, seams, or vertical sections at toe of slopes. No separate measurement is made for grout or cushioning sand.

Plan dimensions are figured by the use of filled bags 12 by 18 by 6 in. (300 by 450 by 150 mm) thick.

When filled bags are less than plan dimensions or are of varying lengths or width, plan square yards (meters) will be used to determine pay quantities, if overall dimensions are equal to or greater than those shown on the plans.

603.4.01 Limits

General Provisions 101 through 150.

603.5 Payment

This work will be paid for at the Contract Price per square yard (meter) of material complete in

place. Payment will be made under:

Item No. 603	Stone plain rip rap 18 in. thick	Per square yard

603.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 603

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Section 610 Removal of Miscellaneous Roadway Items

610.1 General Description

This work includes removing, salvaging, or disposing of items listed in the proposal as Pay Items to be removed, and backfilling the excavations made during removal.

Remove structures not separately listed as Pay Items in the Contract as specified in Sections 201, 202, or 205.

610.1.01 Definitions

General Provisions 101 through 150.

610.1.02 Related References

A. Standard Specifications

Section 201—Clearing and Grubbing Right-of-Way

Section 202—Random Clearing and Grubbing

Section 205—Roadway Excavation

Section 208—Embankments

Section 540—Removal of Existing Bridge

Section 611—Relaying, Reconstructing, or Adjusting to Grade of Miscellaneous Roadway Structures

B. Referenced Documents

General Provisions 101 through 150.

610.1.03 Submittals

General Provisions 101 through 150.

610.2 Materials

610.2.01 Delivery, Storage, and Handling

A. Materials Retained by the Department

Unless removed under Sections 201, 202, or 205, or unless otherwise provided for in the plans or proposal, carefully remove materials with a salvage value.

1. Neatly stack or stockpile the materials along the right-of-way near the removal point and above high water.
2. Store highway signs standing on edge and protected from the elements.
3. Replace materials damaged, defaced, or destroyed by removing them carelessly at no cost to the Department.
4. Notify the Engineer when the materials have been stockpiled and are ready to be transported.
5. Keep materials secure and replace (at the Contractor's expense) materials lost, stolen, or missing within a maximum of 10 days after the Engineer has been notified that the materials are ready to be transported.

B. Materials Reused in the Work

Maintain structures, portions of structures, and other materials to be salvaged and reused in reconstruction work.

Assume responsibility for the material until Project Final Acceptance.

Repair or replace materials lost or stolen before reuse at the Contractor's expense.

Spread suitable surplus excavation material on the slopes of the roadway embankments. Otherwise, dispose of the waste materials off the right-of-way at the Contractor's expense.

C. Bridge Components

Dispose of bridge components according to Section 540. Replace or repair at the Contractor's expense structures, portions of structures, or materials to be salvaged, retained, or used in the reconstructed work but that were carelessly damaged or destroyed by the Contractor.

610.3 Construction Requirements

610.3.01 Personnel

General Provisions 101 through 150.

610.3.02 Equipment

General Provisions 101 through 150.

610.3.03 Preparation

If removing a structure may endanger a new construction, finish that part of the work before beginning the new construction.

610.3.04 Fabrication

General Provisions 101 through 150.

610.3.05 Construction

A. Protection of Remaining Structures

Do not use explosives, equipment, or devices that may endanger structures, facilities, or other property to remain in place. If parts of structures are to remain in place, protect them from damage during construction. Protect and preserve the salvage value of materials to be salvaged.

B. Extent of Removal

Separate and remove existing structures, with their attached parts and connections, as shown on the plans or designated to be removed.

1. When a part of an existing structure is to remain in place, ensure that the part to be removed extends to a construction joint or is cut off to the lines shown on the Plans, leaving reasonably smooth faces.
2. Remove walls and other masonry construction to the bottoms of the foundations unless otherwise specified.
3. Remove walls and their foundations within the roadbed area to an elevation at least 3 ft. (900 mm) below the top of the finished subgrade, unless otherwise specified.
4. See Subsection 201.3.05.C.1.c, *Abandoned Obstructions*, for guidelines for rigid surfaces.

C. Railway Tracks

Removing railway tracks includes removing rails, ties, switches, towers, concrete structures, sign posts, and other related railway structures. Leave ballast in place, unless otherwise specified.

D. Inlets, Catch Basins, Manholes, and Culverts

1. Remove gratings, traps, and other metal castings of inlets, catch basins, and manholes without damaging them. Reuse them on new structures or salvage them, whichever the Engineer directs.
2. Remove old culverts down to the ground level or to the adjacent water level, unless otherwise

shown on plans.

3. Remove the bottom slabs of inlets, catch basins, manholes, and culverts. If the Engineer permits them to remain in place, break them up so that water will readily pass through them.

E. Removing Pipe

Uncover the pipe to remove it without damage. Exercise care in removing the pipe. Replace pipe sections damaged by negligence at the Contractor's expense.

After removing the pipe, clean it and neatly stack it at points directed by the Engineer along the line of the work. Unless otherwise specified, the pipe is the property of the Department.

F. Septic Tanks

When encountering septic tanks, completely remove the contents of each tank.

1. Remove and dispose of the tank's contents as required by the State Department of Health and local health authorities.
2. Before backfilling the remaining portion of the septic tank, drill holes in the bottom of the tank or break it up as the Engineer directs, to permit drainage.

G. Backfilling

Backfill trenches and other excavations dug for removing miscellaneous structures.

1. Use approved materials in the backfill.
2. Compact the backfill in layers no more than 6 in. (150 mm) thick and with the proper moisture content. Use pneumatic tampers or other approved equipment.
3. Under the roadway, ensure that the degree of compaction conforms to Section 208.

   Elsewhere, compact the backfill equal to the soil surrounding it.

H. Structures to Remain

Preserve unharmed the miscellaneous structures, including fences, buildings, pipe lines, pole lines, water and sewer lines, and other improvements that owners or the Department will retain or that others will remove.

I. Culverts to be Extended

Where concrete culverts are to be extended, remove a minimum amount of concrete in parapets, wing walls, and wing wall footings to clear the new construction. Make the joint or connection as shown on the plans or as directed by the Engineer.

J. Fences

When removing fences, do not allow livestock to escape. If fences are to be reset according to Section 611, protect the spelter coating of fence fabric, steel fence posts, and braces.

The Engineer will require that reusable posts removed be clean and free of concrete. If desired, furnish new posts instead of cleaning the old ones at no additional cost to the Department.

K. Raised Edge Curb

Remove raised edge curb to a reasonably true line at the elevation of normal finished pavement.

If the average of the plus and minus deviations approximate the original normal edge of pavement, a tolerance of approximately 1 in. (25 mm) above or below this elevation will be accepted.

Do not shatter pavement that will be retained.

L. Highway Signs

Remove the entire sign from the supports and remove the supports from the concrete foundation.

M. Lighting Standards and Appurtenances

Disassemble the lighting standard and separate each component part including the transformer base. Cut the underground duct before removing these items.

N. Removal of Existing Building Structures

Demolish, remove, and dispose of all building structures within the right of way and easement areas including concrete slabs, footings, foundations, etc. as shown on the plans. Grade all disturbed ground to a reasonably smooth and pleasing appearance, free from loose boulders and other debris that would interfere with the use of power mowers. Grass all disturbed areas.

Prior to demolition or removal:

1. Inspect all building structures for the presence of asbestos. The inspection shall be done by an EPA Asbestos Hazard Emergency Response Act (AHERA) accredited inspector whose certification is current.
2. Provide a copy of all inspection reports including the inspector's credentials to the Engineer.
3. Provide written notice of intent to demolish to the Georgia Environmental Protection Division (EPD) of the Georgia Department of Natural Resources in accordance with EPD regulations with a copy to the engineer. This notice is required even if there is no asbestos present.

If there is asbestos present, its removal shall be done by a contractor licensed with the EPD in accordance with the Rules of Georgia Department of Natural Resource Environmental Protection Division chapter 391-3-14-04. All asbestos removal and disposal shall be done in accordance with EPD regulations. All asbestos removal shall be considered as Extra Work and payment will be made in accordance with Subsection 109.05.

610.3.06 Quality Acceptance

General Provisions 101 through 150.

610.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

610.4 Measurement

Removing miscellaneous roadway items is measured to determine the Unit or Units of each type specified in the Proposal and on the Plans. Only when listed as a Pay Item in the Contract will a removed item be measured for separate payment.

610.4.01 Limits

General Provisions 101 through 150.

610.5 Payment

Removing miscellaneous roadway items will be paid for at the Contract Unit Price. Payment is full compensation for removing and disposing of the structures according to these specifications.

Payment will be made under:

Item No. 610	Remove existing asphalt pavement	Per square yard

610.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 610

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Section 615 Jacking or Boring Pipe

615.1 General Description

This work includes installing different sizes and types of pipe by jacking or boring through various materials.

615.1.01 Definitions

General Provisions 101 through 150.

615.1.02 Related References

A. Standard Specifications

Section 205—Roadway Excavation

Section 208—Embankments

Section 550—Storm Drain Pipe, Pipe-Arch Culverts, and Side Drain Pipe

Section 841—Iron Pipe

Section 847—Miscellaneous Pipe

B. Referenced Documents

General Provisions 101 through 150.

615.1.03 Submittals

A. Handling Method

Furnish for the Engineer's approval, a plan showing the proposed method of handling, including:

- Design for the jacking head, jacking support, or back stop
- Arrangement and position of jacks, pipe guides, etc., complete as assembled

B. Welding Procedure

Before welding steel pipe or ductile iron pipe as casing and carrier, submit to the State Materials and Research

Engineer a written welding procedure. Include joint details, preheat temperature, and electrodes to be used. Do not use welded steel pipe as a sanitary sewer carrier.

615.2 Materials

Use pipe types and sizes that conform to the plans and the following:

Material	Section
Corrugated Metal Pipe	550
Concrete Pipe	550
Steel Pipe	847.2.02
Ductile Iron Pipe (Plain Ends)	841

615.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

615.3 Construction Requirements

615.3.01 Personnel

General Provisions 101 through 150.

615.3.02 Equipment

General Provisions 101 through 150.

615.3.03 Preparation

General Provisions 101 through 150.

615.3.04 Fabrication

General Provisions 101 through 150.

615.3.05 Construction

Dispose of the excavated material from the following jacking or boring operations or use it as directed by the Engineer at no additional cost to the Department.

A. Jacking

Follow these requirements when jacking:

1. Excavate suitable pits or trenches for the jacking operation and for placing the end joints of pipe, when required. Securely sheet and brace the pits or trenches to prevent caving, where necessary.

2. When installing pipe under railroads, highways, streets, or other facilities by jacking or boring, perform construction and prevent:

    - Interfering with the facility operation

- Weakening the roadbed or structure

3. To force the pipe through the roadbed, use a jack with a head constructed to apply uniform pressure around the ring of the pipe.

4. Set the pipe to be jacked on guides, braced together to properly support the pipe section and to direct it to the proper line and grade.

5. Excavate the roadbed as follows:

   a. Excavate roadbed material just ahead of the pipe.

   b. Remove the excavated material through the pipe.

   c. Ensure that the excavation diameter conforms to the outside diameter and circumference of the pipe as closely as possible.

6. Force the pipe through the roadbed into the excavated space.

7. Use an approved mix to pressure grout voids that develop during installation and that the Engineer determines are detrimental to the work.

8. Ensure that the excavation does not extend beyond the pipe more than 2 ft. (600 mm). Decrease the distance at the Engineer's direction or if the character of the excavated material allows.

9. Jack the pipe from the low or downstream end. The line and grade from the pipe's final position established by the Engineer may vary no more than two percent in lateral alignment and one percent in vertical grade. Ensure that the final grade of the flow line is in the direction indicated on the plans.

10. Use a cutting edge around the head end. Extend it a short distance beyond the pipe end with inside angles or lugs to keep the cutting edge from slipping back into the pipe.

11. Once the pipe jacking has begun, proceed with the operation without interruption to prevent the pipe from becoming firmly set in the embankment.

12. Remove and replace pipe damaged in jacking operations at no additional expense to the Department.

13. After completing the jacking, immediately backfill the excavation pits or trenches.

B. Boring

Proceed with the boring from a pit provided for boring equipment and workmen. Complete these steps:

1. Excavate for pits and shoring installation as outlined above.
2. Locate the pit at the Engineer's approval.
3. Bore the holes mechanically using a pilot hole approximately 2 in. (50 mm) in diameter that is bored the entire length of the installation.
    a. Check the pilot hole for line and grade on the opposite end of the bore from the work pit.
    b. Use the pilot hole to serve as the center line of the larger diameter hole to be bored.
4. Place excavated material near the top of the working pit and dispose of it as required. Use water or other fluids with the boring operation to lubricate the cuttings. Do not perform jetting.
5. In unconsolidated soil formations, use a gel-forming collodial drilling fluid with at least 10 percent of high grade carefully processed bentonite to consolidate excavated material, seal the walls of the hole, and lubricate subsequent removal of material and immediate pipe installation.
6. Ensure that the diameter of the excavation conforms to the outside diameter of the pipe as closely as possible.
7. See Subsection 615.3.05.A, Jacking, for the allowable variation from line and grade.
8. Use an approved mix to pressure grout voids that develop during the installation operation and that the Engineer determines are detrimental to the Work.

615.3.06 Quality Acceptance

General Provisions 101 through 150.

615.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

615.4 Measurement

Pipe installed by jacking or boring is measured by the linear foot (meter) of pipe complete in place. Measurement is made between the ends of the pipe along the control axis as installed.

615.4.01 Limits

General Provisions 101 through 150.

615.5 Payment

Work performed and materials furnished as prescribed by this item and measured as provided above will be paid for at the Contract Price per linear foot (meter) for jacking and boring of the pipe type, size, and class specified. Payment is full compensation for furnishing the pipe and the incidentals to complete the Item.

Excavation will not be paid for separately but will conform to Section 205 and Section 208.

Payment will be made under:

Item No. 615	**Jack or bore pipe (DIP), (class), (8”)**	**Per linear foot**

615.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 615

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Section 652 Painting Traffic Stripe

652.1 General Description

This work includes furnishing and applying reflectorized high build standard and high build wet weather traffic line paint according to the plans and these specifications.

This Item also includes applying words and symbols according to plan details, specifications, and the current Manual on Uniform Traffic Control Devices.

652.1.01 Definitions

Painted Stripes: Solid or broken (skip) lines. The location and color are designated on the plans.

Skip Traffic Stripes: Painted segments with unpainted gaps as specified on the plans. The location and color are designated on the plans.

652.1.02 Related References

A. Standard Specifications

General Provisions 101 through 150.

Section 656—Removal of Pavement Markings

Section 870 – Paint

EPA Method 3052

EPA Method 6010

B. Referenced Documents

ASTM	ASTM	Other
D711	E4941	AASHTO M 247
D3335	E1710	QPL 46, QPL 71
D3718	E2177	SOP 39
D4144		TT-P-1952E

652.1.03 Submittals

General Provisions 101 through 150.

652.2 Materials

Ensure that materials for painting traffic stripe, words, and symbols meet the following requirements:

A. Traffic Line Paint

Material	Section
Traffic Line Paint 6A and 6B	870.2.02.A.4 and 870.2.02.A.5

B. Glass Spheres and Reflective Composite Optics

Use glass spheres and/or reflective composite optics for the reflective media system that ensures the high build paint pavement markings meet the reflectance performance requirements in Subsection 652.3.06. Do not use glass spheres and/or reflective composite optics containing greater than 200 ppm total arsenic, 200 ppm total antimony, or 200 ppm total lead when tested according to the most recent US EPA Methods 3052 and 6010, or other approved methods.

Ensure glass spheres meet the requirements of AAHTO M 247. Use glass spheres produced from an approved source listed on QPL 71. Glass beads conforming to an alternative gradation may be used provided all other requirements of AASHTO M 247 and this specification are met. Obtain approval from the Office of Materials and Research to use alternate gradations.

652.2.01 Delivery, Storage, and Handling

A. Storage

Ensure the paint does not cake, liver, thicken, curdle, gel, or show any other objectionable properties after storage for six months above 32 °F (0 °C).

B. Handling

Mix thoroughly before use.

652.3 Construction Requirements

652.3.01 Personnel

General Provisions 101 through 150.

652.3.02 Equipment

A. Traveling Traffic Stripe Painter

Use a traffic stripe painter that can travel at a predetermined speed both uphill and downhill, applying paint uniformly. Ensure that the painter feeds paint under pressure through nozzles spraying directly onto the pavement.

Use a paint machine equipped with the following:

1. Three adjacent spray nozzles capable of simultaneously applying separate stripes, either solid or skip, in any pattern.
2. Nozzles equipped with the following:
   - Cutoff valves for automatically applying broken or skip lines
   - A mechanical bead dispenser that operates simultaneously with the spray nozzle to uniformly distribute glass spheres and/or reflective composite optics at an application rate to meet the reflectance performance requirements in Subsection 652.3.06.
   - Line-guides consisting of metallic shrouds or air blasts
3. Tanks with mechanical agitators
4. Small, portable applicators or other special equipment as needed

B. Hand Painting Equipment

Use brushes, templates, and guides when hand painting.

C. Cleaning Equipment

Use brushes, brooms, scrapers, grinders, high-pressure water jets, or air blasters to remove dirt, dust, grease, oil, and other foreign matter from painting surfaces without damaging the underlying pavement.

652.3.03 Preparation

Locate approved paint manufacturers on QPL 46.

Before starting each day's work, thoroughly clean paint machine tanks, connections, and spray nozzles, using the appropriate solvent.

Thoroughly mix traffic stripe paint in the shipping container before putting it into machine tanks.

Before painting, thoroughly clean pavement surfaces of dust, dirt, grease, oil, and all other foreign matter.

652.3.04 Fabrication

General Provisions 101 through 150.

652.3.05 Construction

A. Alignment

Ensure that the traffic stripe is the specified length, width, and placement. On sections where no previously applied markings are present, ensure accurate stripe location by establishing control points at spaced intervals. The Engineer will approve control points.

B. Application

Apply traffic stripe paint by machine. If areas or markings are not adaptable to machine application, use hand equipment.

1. Application Rate

   Paint will be subject to application rate checks.

   Apply 5 in (125 mm) wide traffic stripe at the following minimum rates:

   a. Solid Traffic Stripe Paint: At least 34 gal/mile (80 L/km)

   b. Skip Traffic Stripe Paint: At least 10 gal/mile (24 L/km)

NOTE: Change minimum rate proportionately for varying stripe widths.

2. Thickness

   Maintain 25 mils (0.58mm) minimum wet average thickness above the surface of the pavement.

3. Do not apply paint to areas of pavement when:
   - The surface is moist or covered with foreign matter.
   - Air temperature in the shade is below 50 °F (10 °C)
   - Wind causes dust to land on prepared areas or blows paint and glass spheres and/or reflective composite optics around during application

4. Apply a layer of glass spheres and/or reflective composite optics immediately after laying the paint. Apply glass spheres and/or reflective composite optics at a rate to meet the reflectance performance requirements in Subsection 652.3.06.

C. Protective Measures

Protect newly applied paint as follows:

1. Traffic

   Control and protect traffic with warning and directional signs during painting. Set up warning signs before beginning each operation and place signs well ahead of the painting equipment. When necessary, use a pilot car to protect both the traffic and the painting operation.

2. Fresh Paint

   Protect the freshly painted stripe using cones or drums. Repair stripe damage or pavement smudges caused by traffic according to Subsection 652.3.06.

D. Appearance and Tolerance of Variance

Continually deviating from stated dimensions is cause for stopping the work and removing the nonconforming stripe. (See Section 656—Removal of Pavement Markings.) Adhere to the following measurements:

1. Width

   Do not lay stripe less than the specified width. Do not lay stripe more than 1/2 in. (13 mm) over the specified width.

2. Length

   Ensure that the 10 ft. (3 m) painted skip stripe and the 30 ft. (10 m) gap between painted segments vary no more than ± 1 ft. (300 mm) each.

3. Alignment

   a. Ensure that the stripe does not deviate from the intended alignment by more than 1 in. (25 m) on straight lines or curves of 1 degree or less.

   b. Ensure that the stripe does not deviate by more than 2 in. (50 mm) on curves exceeding 1 degree.

652.3.06 Quality Acceptance

A. General

For a minimum of 30 days from the time of placement, ensure the high build traffic paint pavement marking material shows no signs of failure due to blistering, excessive cracking, shipping, bleeding, staining, discoloration, oil content of the pavement materials, smearing or spreading under heat, deterioration due to contact with grease deposits, oil, diesel fuel, or gasoline drippings, spilling, poor adhesion to the pavement material, vehicular damage, and normal wear. In the event that failures mentioned above occur, ensure corrective work is completed at no additional cost to the Department.

Obtain pavement marking retro-reflectivity values with a 30-meter geometry retro-reflectometer.

B. Initial Retro-reflectivity

1. Longitudinal Lines

   Within 30 days of installation, ensure the in-place markings meet the following minimum reflectance values:

   a. High Build Wet Weather Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m^2	250 mcd/lux/m^2
Wet recovery (ASTM E 2177)	150 mcd/lux/m^2	100 mcd/lux/m^2

   b. High Build Standard Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m^2	250 mcd/lux/m^2

   For each center line, edge line, and skip line, measure retro-reflectivity 9 times for each mile; 3 times within the first 500 feet, 3 times in the middle, and 3 times within the last 500 feet. For projects less than one mile in length, measure retro-reflectivity 9 times as above.

Record all retro reflectivity measurements on the form OMR CVP 66 in SOP 39.

2. Messages, Symbols, and Transverse Lines

Within 30 days of installation, ensure the in-place markings when tested according to ASTM E 1710 meet the following minimum reflectance value of 275 mcd/lux/m^2.

Perform at a minimum, one retro-reflectivity measurement at one message, one symbol and one transverse line per intersection. Take one measurement per mile for locations other than intersections (i.e. school messages, railroad messages, bike symbols etc.)

C. Six Month Retro-reflectivity (Longitudinal Lines)

Maintain the following minimum reflectance values for 180 days after installation:

a. Wet Weather High Build Wet Weather Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m^2	250 mcd/lux/m^2
Wet recovery (ASTM E 2177)	150 mcd/lux/m^2	100 mcd/lux/m^2

b. High Build Standard Traffic Paint

	White	Yellow
Dry (ASTM E 1710)	300 mcd/lux/m^2	250 mcd/lux/m^2

Retest the in-place markings according to Subsection 652.3.06.B.1, 180 days after installation to ensure these minimum retroreflectance values are maintained.

NOTE: The Contractor is responsible for retro-reflectivity testing. Furnish initial test results to the Engineer within 30 days of application. Furnish 6-month test results to the Engineer within 180 days of application or prior to final acceptance, whichever comes first.

D. Thickness

At the time of installation, check the thicknesses on all skip lines, edge lines and center lines according to ASTM D 4114.

For each center line, edge line, and skip line, measure thickness above the pavement 3 times for each mile; once within the first 500 ft., once in the middle, and once within the last 500 ft. For projects less than one mile in length, measure the thickness above the pavement 3 times.

Record thickness measurements on the form OMR CVP 66 in SOP 39. Submit results to the Engineer.

E. Corrective Work

For each mile section, if paint stripe fails to meet plan details or specifications or deviates from stated dimensions, correct it at no additional cost to the Department. If removal of pavement markings is necessary, perform it according to Section 656 and place it according to this specification. No additional payment will be made for removal and replacement of unsatisfactory striping. Ensure corrective work is completed at no additional cost to the Department. Perform testing according to this specification. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department.

Retro-reflectivity and Thickness Longitudinal Line Deficiency: A deficiency will ensure when two or more Location Average results as recorded on form OMR CVP 66 within a One-Mile Section do not meet the performance criteria herein. The entire line within this one-mile section will be determined to be deficient. If the evaluated section is less than 1.0 mile, a single Location Average result not meeting the performance criteria herein will result in the entire line to be determined to be deficient.

Retro-reflectivity Transverse Markings and Symbol Deficiency: A single Location Average result on the marking or symbol not meeting the performance criteria herein will result in the marking or symbol to be determined to be deficient.

F. Acceptance Criteria

Ensure that stripes and segments of stripes are clean-cut and uniform. Markings that do not appear uniform or satisfactory, either during the day or night, or do not meet specifications, will be corrected at the Contractor's expense. Paint will be subject to application rate checks.

1. Correction of Alignment

   When correcting a deviation that exceeds the permissible tolerance in alignment, do the following:

   a. Remove the affected portion of stripe, plus an additional 25 ft. (8 m) in each direction according to Section 656—Removal of Pavement Markings.

   b. Paint a new stripe according to these specifications.

2. Removal of Excess Paint

   Remove misted, dripped, or spattered paint to the Engineer's satisfaction. Do not damage the underlying pavement during removal.

   Refer to the applicable portions of Section 656—Removal of Pavement Markings.

652.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

652.4 Measurement

When traffic stripe is paid for by the square yard (meter), the number of square yards (meters) painted is measured and the space between stripes is included in the overall measurement.

Linear measurements are made on the painted surface by an electronic measuring device attached to a vehicle. On curves, chord measurements, not exceeding 100 linear feet (30 linear meters), are used.

Traffic stripe and markings, complete in place, are measured and accepted for payment as follows:

A. Solid Traffic Stripe

Solid traffic stripe is measured by the linear foot (meter), linear mile (kilometer), or square yard (meter). Breaks or omissions in solid lines or stripes at street or road intersections are not measured.

B. Skip Traffic Stripe

Skip traffic stripe is measured by the gross linear foot (meter) or gross linear mile (kilometer). Unpainted spaces between the stripes are included in the overall measurements if the plan ratio of 1 to 3 remains uninterrupted. Measurement begins and ends on a stripe.

C. Pavement Markings

Markings are words and symbols completed according to plan dimensions. Markings are measured by the unit.

652.4.01 Limits

General Provisions 101 through 150.

652.5 Payment

Payment will be full compensation for the work under this section, including the following:

- Cleaning and preparing surfaces

- Furnishing materials, including paints, beads, and thinners
- Applying, curing, and protecting paints
- Protecting traffic, including providing and placing necessary warning signs
- Furnishing tools, machines, and other equipment necessary to complete the Item Payment will

be made under:

Item No. 652	Solid traffic stripe, 6 in., yellow	Per linear foot

652.4.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 652

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Section 660 Sanitary Sewers

660.1 GENERAL DESCRIPTION: This work includes permitting, furnishing materials and installing a septic tank system and appurtenances for the new terminal building.

660.1 Related References

A. Standard Specifications

City of Claxton/Evans County Standard Specifications and appropriate GDOT Standards 660 Construction. The work shall be in accordance with Georgia Department of Human Resources, Division of Public Health, Rules and Regulations for On-site Sewage Management Systems, Chapter 290-5-26.

660.2 MATERIALS:

Ensure that materials meet the requirements of the following Specification:

Material	Section
Plastic PVC Sewer Pipe	847.2.07

660.3 CONSTRUCTION REQUIREMENTS:

The construction shall be in accordance with the City of Claxton/Evans County Water and Sewerage Standards, Georgia DOT Specifications, and Georgia Department of Human Resources, Division of Public Health, Rules and Regulations for On-Site Sewage Management Systems, Chapter 290-5-26.

Connections

Locate connection according to the Plan, or as directed by the Engineer.

1. Terminal Building Connection

   Install wyes and tees for sewer for connection according to the Plans, or as directed by the Engineer.

   Unless otherwise indicated, use 6-inch diameter connection ends.

660.4 MEASUREMENT

A. Excavation, foundation preparation material, sand bedding, and normal backfill will not be measured separately for payment. Their cost is included in the Contract Price for related items.

B. Septic Tank (1,500 gallon), distribution box, field lines, and sealed line to tie from stub out from concrete slab, complete in place and operation per lump sum.

660.5 PAYMENT

Septic tank field line, septic tank, distribution box, sealed line, and field lines shall be paid for per lump sum. Installations, sanitary or combination, complete in place and accepted, will be included in the lump sum price.

Payment is full compensation for the Item, including the following:

- Furnishing and hauling materials
- Excavating and backfilling for all necessary connections

Payment will be made under:

Item No. 660	Septic Tank (1,500 gallon min.), Distribution Box, Field Lines, 6' Service Lines, and Appurtenances, Designed, Permitted, Installed and Complete with Connection to New Terminal Building	- per Lump Sum

END OF SECTION 660

Section 668 Miscellaneous Drainage Structures

668.1 General Description

This work includes constructing catch basins, drop inlets, manholes, junction boxes, spring boxes, drain inlets, special inlets with safety grates, and vertical tee sections.

Construct according to these specifications and the lines and grades shown on the plans, or as established by the Engineer.

668.1.01 Definitions

General Provisions 101 through 150.

668.1.02 Related References

A. Standard Specifications

Section 207—Excavation and Backfill for Minor Structures

Section 500—Concrete Structures

Section 607—Rubble Masonry

Section 608—Brick Masonry

Section 801—Fine Aggregate

Section 830—Portland Cement

Section 834—Masonry Materials

Section 843—Concrete Pipe

Section 853—Reinforcement and Tensioning Steel

Section 854—Castings and Forgings

Section 866—Precast Concrete Catch Basin, Drop Inlet, and Manhole Units

B. Referenced Documents

General Provisions 101 through 150.

668.1.03 Submittals

General Provisions 101 through 150.

668.2 Materials

The structures in this section may be constructed of brick, cast-in-place concrete, or pre-cast concrete, unless the plans or proposal specifies a specific type of construction.

Use rubble masonry only when specified on the plans. Ensure that materials meet the following specifications:

Material	Section
Class “A” or “B” Concrete	500

Sand for Bedding Material	801.2.01
Fine Aggregate for Mortar	801.2.02
Portland Cement	830.2.01
Brick	834
Masonry Stone	834
Mortar and Grout	834
Nonreinforced Concrete Pipe	843
Steel Bars for Reinforcement	853.2.01
Gray Iron Castings	854.2.01
Precast Reinforced Concrete Catch Basin, Drop Inlet, and Manhole Units	866

Ensure that the materials for fabricating special inlets and their safety grates are according to plan details. Construct the following manholes and drainage structures from pre-cast or cast-in-place concrete:

- Structures within the backfill limits of mechanically stabilized embankment retaining walls
- Structures within 5 ft. (1.5 m) of the wall foundation's front.

668.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

668.3 Construction Requirements

668.3.01 Personnel

General Provisions 101 through 150.

668.3.02 Equipment

General Provisions 101 through 150.

668.3.03 Preparation

General Provisions 101 through 150.

668.3.04 Fabrication

General Provisions 101 through 150.

668.3.05 Construction

A. Excavation and Backfill

Excavate and prepare foundations for the structures included in this section; place pipe through the structures according to Section 207.

B. Concrete

Concrete units may be either poured-in-place or precast. Construct units as follows:

1. Poured-in-Place Units

The throat or other nonreinforced portions of catch basins may be Class B concrete. Use Class A concrete for the top slab. Construct units according to Section 500.

2. Pre-Cast Reinforced Concrete Units

   Construct pre-cast reinforced concrete units as follows:

   a. Holes for Pipe

      Cast each unit with the number and dimensions of pipe holes necessary to incorporate the unit into the drainage system according to plan details.

      Installation conditions may require additional pipe for which no holes have been cast. If so, make the holes and repair or replace, to the Engineer's satisfaction, pipe damaged during the process.

   b. Pipe Connections

      Use mortar or Class A concrete to connect pipe to units.

   c. Installation of Pre-cast Concrete

      1) Pre-cast Reinforced Units: Set these units to within 1/2 in. (± 13 mm) of grade on a bed of compacted sand 2 in. to 3 in. (50 mm to 75 mm) thick.

      2) Sectional Precast Reinforced Units: When using these units to build-up extra-depth catch basins or drop inlets, fill the joints between sections with mortar and wipe smooth.

C. Brick Masonry

Construct brick masonry structures according to Section 608.

D. Mortar Rubble Masonry

Construct rubble masonry structures according to Section 607.

E. Castings

Hold frame castings securely in place to proper line and grade. Make castings an integral part of the complete structure. After completion, ensure that castings subject to traffic use are firm and stable under traffic.

F. Maintenance

Thoroughly clean fallen masonry, silt, debris, and other foreign matter from structures.

G. Safety Grates

Fabricate safety grates according to plan details.

H. Sanitary Sewer Manholes

Ensure that sanitary and combination sanitary and storm sewer manholes conform to the following requirements and the related specifications.

1. Form Invert Channels

   Shape invert channels to the lines and grades shown on the plans, or as established by the Engineer. Ensure that channel surfaces are smooth.

   Form invert channels by one of the following methods:

   - Directly form the invert channel in the concrete base of the manhole.
   - Construct the invert channel of brick and mortar.
   - Lay half-round tile in the concrete base of the manhole.
   - Lay round sewer pipe through the manhole and cut out the top half of the pipe after the

concrete base has set. Do not use this method if the plans provide for an offset drop in the invert.

2. Plaster Outside Walls

   Plaster outside walls as follows:

   a. Saturate the outside wall of each brick manhole with water.

   b. Plaster the wall smooth with a mortar coat at least 1/2 in. (13 mm) thick. Manufacture the mortar according to Section 834 with the following exceptions:

      - Manufacture the mortar with one-part cement to two parts mortar sand.
      - Do not add hydrated lime.

3. Connections to Manholes

   Complete manhole connections to the Engineer's satisfaction and as follows:

   a. Carefully connect existing sewer lines to new manholes to prevent infiltration of foreign substances.

   b. Construct manholes in or adjacent to existing sewer lines according to Section 660 to maintain continuous sewage flow in existing lines.

668.3.06 Quality Acceptance

General Provisions 101 through 150.

668.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

668.4 Measurement

Catch basins, drop inlets, manholes, junction boxes, drain inlets, special inlets, and safety grates, complete in place and accepted, are measured for payment according to the following:

A. Catch Basins and Drop Inlets

Each catch basin or drop inlet is grouped for measurement as follows:

- Group 1: Structures connected to pipe 36 in. (900 mm) or less in diameter, regardless of the pipe skew
- Group 2: Structures connected to pipe over 36 in. (900 mm) diameter regardless

of the pipe skew Catch basins or drop inlets, complete in place and accepted, are

measured by the unit.

In addition, each catch basin or drop inlet deeper than 6 ft. (1.8 m) is measured for additional payment. The extra depth is measured in linear feet (meters).

B. Manholes

Manholes are measured for payment as follows:

1. Sanitary and Storm Sewer Manholes

   Sanitary sewer manholes and storm sewer manholes are measured separately and divided into two types:

   - Type 1: Structures connected to pipe 42 in. (1050 mm) or less in diameter regardless of the pipe skew
   - Type 2: Structures connected to pipe 48 in. to 84 in. (1200 mm to 2100 mm) diameter

regardless of the pipe skew

Each manhole is measured by the unit.

2. Manhole Additional Depth

In addition to Types 1 and 2 above, each Manhole deeper than 6 ft. (1.8 m) is measured for additional payment, termed “manhole additional depth.” This additional depth is measured in linear feet (meters) and does not include the upper 6 ft. (1.8 m). Manhole additional depth is classed as follows:

- Manhole Additional Depth, Class 1: Applies to each manhole deeper than 6 ft. (1.8 m), but not deeper than 10 ft. (3.0 m) Class 1 payment is for the manhole depth between 6 ft. and 10 ft. (1.8 m and 3.0 m).
- Manhole Additional Depth, Class 2: Applies to each manhole deeper than 10 ft. (3.0 m), but not deeper than 20 ft. (6.1 m). Class 2 payment is for the manhole depth between 6 ft. and 20 ft.
  (1.8 m and 6.1.1 m).
- Manhole Additional Depth, Class 3: Applies to each manhole deeper than 20 ft. (6.1 m), but not deeper than 30 ft. (9 m). Class 3 payment is for the manhole depth between 6 ft and 30 ft. (1.8 m and 9.1 m).
- Manhole Additional Depth, Class 4: Applies to each manhole deeper than 30 ft. (9.1 m), but not deeper than 45 ft. (13.7 m). Class 4 payment is the manhole depth between 6 ft. and 45 ft. (1.8 m and 13.7 m).

Manhole additional depth is measured for payment at the class that includes the greatest depth below the original 6 ft. (1.8 m).

For example, a manhole 32 ft. (9.8 m) deep would be measured and paid for as follows:

Storm (or sanitary) sewer manhole, type_____	Per each
Storm (or sanitary) sewer manhole, type_____, additional Depth Class 4	26 linear feet (9 linear meters)

C. Junction Boxes, Spring Boxes, and Drain Inlets

Junction boxes, spring boxes, and drain inlets are measured by the unit.

1. Each junction box will be complete according to plan details.
2. Each drain inlet will consist of a pipe elbow or tee, concrete collar, and casting of the required diameter.
3. Each spring box will be complete according to plan details.

D. Safety Grates

Safety grates fabricated and installed according to plan details are measured by the square foot (meter), computed from the overall surface dimensions of each grate.

E. Special Inlets for Safety Grates

Special inlets, complete in place, are measured for payment in cubic yards (meters) according to Section 500.

F. Vertical Tee Sections (or Saddles)

Vertical tee sections are not measured for separate payment.

668.4.01 Limits

General Provisions 101 through 150.

668.5 Payment

Payment for the various structures under this Section will be made as follows:

A. Catch Basins and Drop Inlets

Catch basins or drop inlets will be paid for at the Contract Price per each.

Depth in excess of 6 ft. (1.8 m) will be paid for at the Contract Price per linear foot (meter).

Payment is full compensation for the following:

- Furnishing castings
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

B. Manholes

Sanitary sewer and storm sewer manholes, complete in place, will be paid for at the Contract Price per each. Manhole additional depth of the appropriate class will be paid for at the Contract Price per linear foot (meter). Payment is full compensation for the following:

- Furnishing castings, fittings, and other appurtenances called for on the plans to complete the Item
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

NOTE: No additional payment will be made for connecting manholes to existing or new sewer lines. Include costs related to connections in the Contract Price for the structure.

C. Junction Boxes, Spring Boxes, and Drain Inlets

Junction boxes, spring boxes, or drain inlets will be paid for at the Contract Price per each. Payment is full compensation for the following:

- Furnishing castings, fittings, and other appurtenances called for on the plans to complete the Item
- Making pipe connections regardless of skew
- Providing materials, making forms, and disposing of surplus material

D. Pipe

Pipe entering or exiting catch basins, drop inlets, manholes, junction boxes, spring boxes, or drain inlets, will be paid for under the section of the specifications governing the pipe.

E. Sand Bedding Material for Precast Structures

No separate payment will be made for this material. Its cost is included in the Contract Price for the structure under which it is used.

F. Excavation and Normal Backfill

No separate payment will be made for excavation and normal backfill. Their cost is included in the Contract Price for the structure being excavated.

G. Safety Grates

Safety grates will be paid for at the Contract Price per square foot (meter).

H. Inlets for Safety Grates

Inlets for safety grates will be paid for at the Contract Price per cubic yard (meter) of Class "A" concrete, including reinforcing steel.

I. Vertical Tee Sections (or Saddles)

Vertical tee sections will be included in payment for the section of structure they are incorporated in.

No separate payment will be made for excavation, backfill, and disposal of surplus material.

Payment will be made under:

Item No. 668	Catch basin	Per each
Item No. 668	Drop inlet,	Per each
Item No. 668	Sanitary sewer manhole	Per each
Item No. 668	Junction box	Per each
Item No. 668	Trench Drain (incl grate, fittings, backfill, piping, and structures)	Per linear foot
Item No. 668	Pedestal-top Area Inlet	Per each
Item No. 500	Headwall	Per each

668.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 668

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Section 670 Water Distribution System

670.1 GENERAL DESCRIPTION: This work includes permitting, furnishing materials and installing water service to the new terminal building. Work includes connecting new Terminal Building to existing well, boring under the airport driveway, and 1.5" Sch 80 PVC service line to the new terminal building.

670.2 MATERIALS:

Water Hydrants

The water hydrants (yard) shall be Simmons Brand Freeze Proof Water Spigot or equal.

Water Piping

Water piping to be 1.5" Schedule 80 PVC.

670.3 CONSTRUCTION REQUIREMENTS:

Construction requirements shall be in accordance with the City of Claxton/Evans County Standard Specifications and Georgia Department of Human Resources, Division of Public Health, Rules and Regulations.

670.4 MEASUREMENT

The drinking water well system, water service line, electrical service line, and appurtenances will not be measured separately.

660.5 PAYMENT

The contract unit price for each item, complete and accepted, will include all costs incidental to the construction of the item according to the plans and as specified in this section.

Payment for any item listed below is full compensation for the item or items, complete in place.

A. Water service line, boring under the airport driveway, and appurtenances will be paid as a lump sum item. Item to include everything necessary to create a complete and operational system.

Payment will be made under:

Item No. 670	Water Service, 3/4" Copper Service Line and appurtenances; Permitted, Installed and Complete with Connection to New Hangar Buildings	- per Linear Foot

END OF SECTION 670

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Section 700 Grassing

700.1 General Description

This work includes preparing the ground, furnishing, planting, seeding, fertilizing, sodding, and mulching disturbed areas within the Right-of-Way limits and easement areas adjacent to the right-of-way as shown on the plans except as designated by the Engineer to remain natural.

700.1.01 Definitions

General Provisions 101 through 150.

700.1.02 Related References

A. Standard Specifications

Section 160—Reclamation of Material Pits and Waste Areas

Section 163—Miscellaneous Erosion Control Items

Section 718—Wood Fiber

Section 822—Emulsified Asphalt Section 882—Lime

Section 890—Seed and Sod

Section 891—Fertilizers

Section 893—Miscellaneous Planting Materials

Section 895—Polyacrylamide

B. Referenced Documents

QPL 33

QPL 84

700.1.03 Submittals

Submit manufacturer's product expiration date along with written instructions to ensure proper application, safety, storage, and handling of Polyacrylamide products used in the work.

700.2 Materials

Use materials that meet the requirements of the following specifications:

Material	Section
Wood Fiber Mulch	718.2
Agricultural Lime	882.2.01
Seed	890.2.01
Sod	890.2.02
Fertilizer	891.2.01
Plant Topsoil	893.2.01
Mulch	893.2.02
Inoculants	893.2.04

Material	Section
Tackifiers	QPL 33
Anionic Polyacrylamide	QPL 84 & Section 895

A. Seeds

Whenever seeds are specified by their common names, use the strains indicated by their botanical names.

B. Water

Obtain the water for grassing from an approved source. Use water free of harmful chemicals, acids, alkalies, and other substances that may harm plant growth or emit odors. Do not use salt or brackish water.

C. Agricultural Lime

Agricultural lime rates will be based on a laboratory soil test report. The Contractor is responsible for ensuring the tests are performed by an approved laboratory. Provide a copy of test results to the Engineer. Refer to Section 882 Lime and GSP 18 of the Sampling and Testing Inspection manual for additional information on rates, use, handling and sampling procedures.

D. Fertilizer Mixed Grade

Fertilizer analysis and rates will be based on a laboratory soil test report. The Contractor is responsible for ensuring the tests are performed by an approved laboratory. Provide a copy of test results to the Engineer. Refer to Section 891 Fertilizer and GSP 18 of the Sampling and Testing Inspection manual for additional information on rates, use, handling and sampling procedures.

E. Mulch

Use straw or hay mulch according to Subsection 700.3.05.G.

Use wood fiber mulch in hydroseeding according to Subsection 700.3.05.F.1.

700.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

700.3 Construction Requirements

700.3.01 Personnel

General Provisions 101 through 150.

700.3.02 Equipment

Use grassing equipment able to produce the required results.

Never allow the grading (height of cut) to exceed the grassing equipment's operating range.

A. Mulch Material Equipment

Use mulching equipment that uniformly cuts the specified materials into the soil to the required control depth.

B. Hydroseeding Equipment

For hydroseeding equipment, see Subsection 700.3.05.F.

700.3.03 Preparation

General Provisions 101 through 150.

700.3.04 Fabrication

General Provisions 101 through 150.

700.3.05 Construction

Follow the planting zones, planting dates, types of seed, seed mixtures, and application rates described throughout this Section. The Engineer has the authority to alter the planting dates as set forth by a period of 2 weeks. This 2-week period may be applied to either the beginning of the specified planting and/or to the end of the end of the specified planting season.

In general:

- Obtain the Engineer's approval before changing the ground cover type.
- Do not use annual rye grass seeds with permanent grassing.
- Follow the planting zones indicated on the Georgia State Planting Zone Map, below.
- Sod may be installed throughout the year, weather permitting.
- For permanent grassing, apply the combined amounts of all seeds for each time period within each planting zone and roadway location listed in the Seeding Table, below. Do not exceed the amounts of specified seed.

Planting Zone Map

NON-NATIVE GRASS SEEDING TABLE 1

(Temporary and Permanent Seed Types for Shoulders, Medians and Slopes 3:1 or Flatter)

Common Name	Botanical Name	Class/Type	Rate/Acre	Planting Zone	Planting Dates
Common Bermuda Grass (Hulled)	*Cynodon dactylon*	Required Permanent Grass	10 (11)	1	April 16 – August 31
Common Bermuda Grass (Unhulled)			10 (11)		
Common Bermuda Grass (Hulled)	*Cynodon dactylon*	Required Permanent Grass	10 (11)	2,3,4	April 1 – October 15
Common Bermuda Grass (Unhulled)			10 (11)		
Bahaia Grass	*Paspalum motatum*		10 (11)		
Rye Grass, Millet, Cereal Grass (Oats)	*Lolium penne spsp. Multiflorum, Echinochloa cursgalli, Avena sativa*	Temporary Grass	50 (56)	1	September 1- April 15
Rye Grass, Millet, Cereal Grass (Oats)	*Lolium penne spsp. Multiflorum, Echinochloa cursgalli, Avena sativa*	Temporary Grass	50 (56)	2,3,4	October 16- March 31

NON-NATIVE SEEDING TABLE 2

(Temporary and Permanent Seed Types for back slopes, fill slopes and areas which will not be subject to frequent mowing, slopes steeper than 3:1)

Common Name	Botanical Name	Class/Type	Rate/Acre	Planting Zone	Planting Dates
Interstate Lespedeza	*Lespedeza sericea*	Permanent Grass	50(56)	1,2	March 1 – August 31
Weeping Lovegrass	*Eragrostis curvula*	Temporary Grass	10(11)		
Interstate Lespedeza	*Lespedeza sericea*	Permanent Grass	75(84)	1,2	September 1- February 28
Tall Fescue	*Festuca arundinacea*	Temporary Grass	50(56)		
Interstate Lespedeza	*Lespedeza sericea*	Permanent Grass	50(56)	3,4	April 1 – October 31
Weeping Love Grass	*Eragrostis curvula*	Temporary Grass	10(11)		
Interstate Lespedeza	*Lespedeza sericea*	Permanent Grass	50(56)	3,4	November 1 – March 31
Weeping Love Grass	*Eragrostis curvula*	Temporary Grass	10(11)		

NATIVE GRASS SEEDING TABLE 3

For Non-mowable Slopes or Areas Designated as Permanent Native Grass Plots.

(Plant native seed mixes on back slopes, fill slopes and areas which will not be subject to frequent mowing (slopes steeper than 3:1).

Common Name	Botanical Name	Class/Type	Rate/Acre	Planting Zone	Planting Dates
Canada Wild Rye	*Elymus canadensis*	Cool Season	Minimum 2 (2)	1,2,3,4	October 31 - March 31
Virginia Wild Rye	*Elymus virginicus*	Cool Season	Minimum 2 (2)	1,2,3,4	October 31 - March 31
Bottle-brush Grass	*Hystrix patula*	Cool Season	Minimum 2 (2)	1,2,3,4	October 31 - March 31
Little Bluestem	*Schizachyrium scoparium* (*Andropogon scoparius*)	Warm Season	Minimum 2 (2)	1,2,3,4	March31- August 31
Indiangrass	*Sorghastrum nutans*	Warm Season	Minimum 2 (2)	1,2,3,4	March 31- August 31
Eastern Gama Grass	*Tripsacum dactyloides*	Warm Season	Minimum 2 (2)	1,2,3,41,2,3,4	March 31- August 31
Rice Cut Grass	*Leersia oryzoides*	Warm Season	Minimum 2 (2)	1,2,3,4	March 31- August 31
Deertongue	*Panicum clandestinum*	Warm Season	Minimum 2 (2)	1,2,3,4	March 31- August 31
Switchgrass	*Panicum virgatum*	Warm Season	Minimum 2 (2)	1,2,3,4	March 31- August 31
Woolgrass	*Scirpus cyperinus*	Cool Season	Minimum 2 (2)	1,2,3,4	October 31 - March 31
River Oats	*Chasmanthium latifolium*	Cool Season	Minimum 2 (2)	1,2,3,4	October 31 - March 31
Purple Top	Tridens flavus	Warm Season	Minimum 2 (2)	1,2,3,4	March 31- August 31

See plan sheets/plant lists for detailed native restoration and riparian mitigation seed mix combinations to be applied at a minimum rate total of 10 (11) lbs. per acre (kg/hectare) for each combined mix. If the mix is not provided in the plan sheets, use a minimum of 3 species based on planting dates shown above.

HERBACEOUS PLANT SEEDING TABLE 4

(Approved for Riparian Mitigation or for Seed Mixes on Slopes Steeper than 3:1-Requiring Permanent Planting)

Common name	Botanical name	Class/type	Rate/Acre	Planting Zone	Planting Dates
Joe Pye Weed	*Eupatorium fistulosum*	Herbaceous Perennial	Minimum 2 (2)	1,2,3,4	September 1 – May 1
Ironweed	*Vernonia novaboracensis*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	March 1 - August 31,
White snakeroot	*Ageratina altissima* (*Eupatorium rugosum)*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Swamp milkweed	*Asclepias incarnata*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	March 1 - August 31,
Frost aster	*Aster pilosus* (*Symphyotrichum pilosum*)	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Partridge pea	*Chamaecrista fasciculata* (*Cassia fasciculata*)	Herbaceous Perennial	Up to 10(11)	1,2,3,4	March 1 - August 31,
Lance-leaf coreopsis	*Coreopsis lanceolata*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Tall coreopsis	*Coreopteris tripteris*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Boneset	*Eupatorium perfoliatum*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Sneezeweed	*Helenium autumnale*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Swamp sunflower	*Helianthus angustifolius*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	March 1 - August 31,
Fringed loosestrife	*Lysimachia ciliata*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1

Wild bergamot	*Monarda fistulosa*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Mountain mint	*Pycnanthemum tenuifolium*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Black-eyed susan	*Rudbeckia hirta*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Goldenrod	*Solidago nemoralis*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	September 1 – May 1
Butterfly Weed	*Aesclepias tuberose*	Herbaceous Perennial	Up to 10(11)	1,2,3,4	March 1 - August 31,

Species	Rates per 1000 sq. ft.	Rates per Acre	Planting Date By Zone		
			1 & 2	2	3 & 4
Rye (Grain)	3.9 lbs	168 lbs	8/1 - 11/30	8/15 - 12/1	9/1 - 2/28
Ryegrass	0.9 lbs	40 lbs	8/1 - 11/30	9/1 - 12/15	9/15 - 1/1
Rye & Annual Lespedeza	0.6 lbs 0.6 lbs	28 lbs 24 lbs	3/1 - 4/1	2/1 - 3/1	2/1 - 3/1
Weeping Lovegrass	0.1 lbs	4 lbs	3/15 - 6/15	3/15 - 7/15	3/15 - 7/15
Sudangrass	1.0 lbs	60 lbs	4/1 - 8/31	4/1 - 8/31	3/15 - 8/1
Browntop Millet	1.1 lbs	50 lbs	4/1 - 6/30	4/1 - 7/15	4/1 - 7/15
Wheat	3.9 lbs	168 lbs	9/1 - 12/31	9/1 - 12/31	9/15 - 1/31

For native restoration and riparian mitigation seed mix combinations, use Table 4 for approved native herbaceous seed types in combination with Table 3 of native grass seeds. Native restoration and riparian seed mixes should incorporate a mix of 60% native grass types (see Table 3) and 40% native herbaceous types (see Table 4) applied at a minimum rate total of 10 (11) lbs. per acre (kg/hectare) for each combined mix.

TABLE 5: TEMPORARY GRASS - SPECIES, SEEDING RATES AND PLANTING DATES

When stage construction or other conditions prevent completing a roadway section continuously, apply temporary grassing to control erosion. Temporary grassing is used to stabilize disturbed areas for more than sixty (60) calendar days. Temporary grass may be applied any time of the year, utilizing the appropriate seed species and application rate as shown in the chart above. Apply mulch to areas planted in temporary grass at the rate of ¾ inch to 1.5 inches. Do not place slope mats on areas planted in temporary grass.

A. Ground Preparation

Prepare the ground by plowing under any temporary grass areas and preparing the soil as follows:

1. Slopes 3:1 or Flatter

On slopes 3:1 or flatter, plow shoulders and embankment slopes to between 4 in. and 6 in. (100 mm and 150 mm) deep.

Plow front and back slopes in cuts to no less than 6 in. (150 mm) deep. After plowing, thoroughly disk the area until pulverized to the plowed depth.

2. Slopes Steeper Than 3:1

Serrate slopes steeper than 3:1 according to plan details when required.

On embankment slopes and cut slopes not requiring serration (sufficient as determined by the Engineer), prepare the ground to develop an adequate seed bed using any of the following methods as directed by the Engineer:

- Plow to a depth whatever depth is practicable.
- Use a spiked chain.
- Walk with a cleated track dozer.
- Scarify.

Disking cut slopes and fill slopes is not required.

3. All Slopes

a. Obstructions

Remove boulders, stumps, large roots, large clods, and other objects that interfere with grassing or may slide into the ditch.

b. Topsoil

Spread topsoil stockpiled during grading evenly over cut and fill slopes after preparing the ground.

Push topsoil from the top over serrated slopes. Do not operate equipment on the face of completed serrated cuts.

4. Native Restoration Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas.

For Permanent Grassing in native restoration areas, multitrophic native planting areas, riparian areas, stream restoration areas, and wetland and stream mitigation areas, provide the minimum ground preparation necessary to provide seed to soil contact. Riparian areas may also be seeded using the no-till method. The no-till method is defined by planting permanent grass seeds using a drill-type seeder over existing vegetation without plowing or tilling soil. Ensure that existing vegetation is less than 3 inches in height (this may be achieved by mowing or using a mechanical string trimmer).

B. Grassing Adjacent to Existing Lawns

When grassing areas adjacent to residential or commercial lawns, the Engineer shall change the plant material to match the type of grass growing on the adjacent lawn. The Contract Unit Price will not be modified for this substitution.

C. Temporary Grassing

Apply temporary grassing according to Subsection 163.3.05.F. Determine lime requirements by a laboratory soil test. Refer to seeding Table 5 for species, amounts of seed and planting dates.

In March or April of the year following planting and as soon as the weather is suitable, replace all areas of temporary grass with permanent grass by plowing or overseeding using the no-till method.

If the no-till method is used, ensure that temporary grass is less than 3 in. in height (this may be achieved by mowing). Additional mulch will be required only if the temporary grass does not provide adequate mulch to meet the requirements of Subsection 700.3.05.G, *Mulching*.

Temporary grass, when required, will be paid for according to Section 163.

Projects that consist of asphalt resurfacing with shoulder reconstruction and/or shoulder widening: Type II Wood Fiber Blanket is used to stabilize disturbed areas, no till seeding will be used when permanent grassing is applied and the areas will not be re-disturbed.

D. Applying Agricultural Lime and Fertilizer Mixed Grade

Apply and mix lime and fertilizer as follows:

1. Agricultural Lime

Uniformly spread agricultural lime on the ground at the approximate rate determined by the laboratory soil test.

a. Agricultural Lime may be used as filler material in mixed grade fertilizer in lieu of inert material. The use of agricultural lime as filler material is to be shown on the fertilizer bag or invoice from the supplier. Do not deduct any amount of fertilizer when lime is used as filler.

2. Fertilizer Mixed Grade

Uniformly spread the fertilizer selected according to Subsection 700.2.D over the ground or by use of hydroseeding.

For bid purposes base estimated quantities on an initial application of 400 lb./acre of 19-19-19.

3. Mixing

Before proceeding, uniformly work the lime and fertilizer into the top 4 in. (100 mm) of soil using harrows, rotary tillers, or other equipment acceptable to the Engineer.

On cut slopes steeper than 3:1, other than serrated slopes, reduce the mixing depth to the maximum practical depth as determined by the Engineer.

Omit mixing on serrated slopes.

4. Native Restoration Areas, Multitrophic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas

Omit the application of lime and fertilizer within riparian areas.

E. Seeding

Prepare seed and sow as follows:

1. Inoculation of Seed

Inoculate each kind of leguminous seed separately with the appropriate commercial culture according to the manufacturer's instructions for the culture.

When hydroseeding, double the inoculation rate.

Protect inoculated seed from the sun and plant it the same day it is inoculated.

2. Sowing

Weather permitting, sow seed within 24 hours after preparing the seed bed and applying the fertilizer and lime.

Sow seed uniformly at the rates specified in the seeding tables. Use approved mechanical seed drills, rotary hand seeders, hydroseeding equipment, or other equipment to uniformly apply the seed. Do not distribute by hand.

To distribute the seeds evenly sow seed types separately, except for similarly sized and weighted seeds. They may be mixed and sown together.

Do not sow during windy weather, when the prepared surface is crusted, or when the ground is frozen, wet, or otherwise non-tillable.

3. Overseeding

Temporary grass areas that were prepared in accordance with Subsection 700.3.05.A, may be overseeded using the no-till method. The no-till method is defined by planting permanent grass seeds using a drill-type seeder over existing temporary grass without plowing or tilling soil and in accordance with Subsection
700.3.05.C.

4. Riparian Seed Mix shall be used when specified in the plans. A mix of at least three (3) species from Seeding Table 3 (Native Grasses) and at least two (2) species from Seeding Table 4 (Approved Riparian Mitigation - Herbaceous Plants). The seed, shall be applied as Permanent Grassing within those areas designated on the plans. The kinds of seed, shall be used according to the appropriate Planting Dates given in the tables.

F. Hydroseeding

Hydroseeding may be used on any grassing area. Under this method, spread the seed, fertilizer, and wood fiber mulch in the form of a slurry. Seeds of all sizes may be mixed together. Apply hydroseeding as follows:

1. Use wood fiber mulch as a metering agent and seed bed regardless of which mulching method is chosen. Apply wood fiber mulch at approximately 500 lbs./acre (560 kg/ha).
2. Prepare the ground for hydroseeding as for conventional seeding in Subsection 700.3.05.A.
3. Use specially designed equipment to mix and apply the slurry uniformly over the entire seeding area.
4. Agitate the slurry mixture during application.
5. Discharge slurry within one hour after being combined in the hydroseeder. Do not hydroseed when winds prevent an even application.
6. Closely follow the equipment manufacturer's directions unless the Engineer modifies the application methods.
7. Mulch the entire hydroseeded area according to Subsection 700.3.05.F.1, above, and Subsection 700.3.05.G, below. Native Restoration Areas, Multitropic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas may be hydroseeded. When hydroseeding in these areas only use water, seed and wood fiber mulch.

G. Mulching

Except as noted in Subsection 700.3.05.B and Subsection 700.3.05.C, apply mulch immediately after seeding areas as follows:

Areas with permanent grass seed and covered with slope mats or blankets will not require mulch.

Evenly apply straw or hay mulch between 3/4 in. and 1-1/2 in. (20 mm and 40 mm) deep, according to the texture and moisture content of the mulch material.

Mulch shall allow sunlight to penetrate and air to circulate as well as shade the ground, reduce erosion, and conserve soil moisture. If the type of mulch is not specified on the plans or in the Proposal, use any of the following as specified.

1. Mulch with Tackifier

Apply mulch with tackifier regardless of whether using ground or hydroseeding equipment for seeding.

a. Mulch uniformly applied manually or with special blower equipment designed for the purpose. When using a blower, thoroughly loosen baled material before feeding it into the machine so that it is broken up.
b. After distributing the mulch initially, redistribute it to bare or inadequately covered areas

in clumps dense enough to prevent new grass from emerging (if required). Do not apply mulch on windy days.

c. Apply enough tackifier to the mulch to hold it in place. Immediately replace mulch that blows away. If distributing the mulch by hand, immediately apply the tackifier uniformly over the mulched areas.

- Tackifier: Use a tackifier listed in the Laboratory Qualified Products Manual and apply at the manufacturer's recommended rates.

2. Walked-in-Mulch

Apply walked-in-mulch on slopes ranging in steepness from 5:1 to 2:1 and treat as follows:

a. Immediately walk it into the soil with a cleated track dozer. Make dozer passes vertically up and down the slope.

b. Where walked-in-mulch is used, do not roll or cover the seeds as specified in Subsection 700.3.05.E.3.

3. Apply only wheat straw mulch on Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas after they have been seeded. The wheat straw mulch is to be applied with a maximum thickness of 1 in.

H. Sod

Furnish and install sod in all areas shown on the plans or designated by the Engineer.

1. Kinds of Sod

Use only Common Bermudagrass (Cyndon dactylon) or one of the following Bermudagrass varieties: Tifway 419, Tifway II, Tift 94, Tifton 10, Midlawn, Midiron, GN 1 Vamont

No dwarf Bermuda types shall be used. Sod shall be nursery-grown and be accompanied with a Georgia Department of Agriculture Live Plant License Certificate or Stamp. Sod shall consist of live, dense, well-rooted material free of weeds and insects as described by the Georgia Live Plant Act.

2. Type and Size Of Sod:

Furnish either big roll or block sod. Ensure that big roll sod is a minimum of 21 in. wide by 52 ft. long. Minimum dimensions for block sod are 12 in. wide by 22 in. long. Ensure all sod consists of a uniform soil thickness of not less than 1 in.

3. Ground Preparation

Excavate the ground deep enough and prepare it according to Subsection 700.3.05.A to allow placing of sod. Spread soil, meeting the requirements of Subsection 893.2.01, on prepared area to a depth of 4 in.

4. Application of Lime and Fertilizer

Apply lime and fertilizer according to Subsection 700.3.05.D within 24 hours prior to installing sod.

5. Weather Limitation

Do not place sod on frozen ground or where snow may hinder establishment.

6. Install Sod

Install Sod as follows:

- Place sod by hand or by mechanical means so that joints are tightly abutted with no overlaps or gaps. Use soil to fill cracks between sod pieces, but do not smother the grass.
- Stake sod placed in ditches or slopes steeper than 2:1 or any other areas where sod slipping can occur.

- Use wood stakes that are at least 8 in (200 mm) in length and not more than 1 in. (25 mm) wide.
- Drive the stakes flush with the top of the sod. Use a minimum of 8 stakes per square yard (meter) to hold sod in place.
- Once sod is placed and staked as necessary, tamp or roll it using adequate equipment to provide good contact with soil.
- Use caution to prevent tearing or displacement of sod during this process. Leave the finished surface of sodded areas smooth and uniform.

7. Watering Sod

After the sod has been placed and rolled or tamped, water it to promote satisfactory growth. Additional watering will be needed in the absence of rainfall and during the hot dry summer months. Water may be applied by Hydro Seeder, Water Truck or by other means approved by the Engineer.

8. Dormant Sod

Dormant Bermuda grass sod can be installed. However, assume responsibility for all sod through establishment and until final acceptance.

9. Establishment

I. Application of Nitrogen

Apply nitrogen at approximately 50 lbs./acre (56 kg/ha) when specified by the Engineer after plants have grown to 2 in. (50 mm) in height.

One application is mandatory and must be applied before Final Acceptance.

Apply nitrogen with mechanical hand spreaders or other approved spreaders capable of uniformly covering the grassed areas. Do not apply nitrogen on windy days or when foliage is damp.

Do not apply nitrogen between October 15 and March 15 except in Zone 4.

1. Native Restoration Areas, Multitropic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas

   Do not apply nitrogen to these areas.

J. Application of Polyacrylamide (PAM)

1. Prepare soil according to project plans and specifications prior to applying PAM.
2. Apply PAM according to manufacturer's recommendations and the requirements listed herein.
3. Apply Polyacrylamide (PAM) to all areas that receive permanent grassing.
4. Apply PAM (powder) before grassing or PAM (emulsion) to the hydroseeding operation.
5. Use only anionic PAM.
6. Ensure that the application method provides uniform coverage to the target and avoids drift to non-target areas including waters of the state.
7. Achieve > 80% reduction in soil loss as measured by a rainfall simulator test performed by a certified laboratory (1-hour storm duration, 3 in. (75 mm) rainfall per hour).
8. Ensure uniform coverage to the target area and minimize drift to non-target areas. Apply anionic PAM to all cut and fill slopes, permanently grassed or temporarily grassed, either prior to grassing or in conjunction with hydroseeding operations. Mulch will not be eliminated.
9. Use application rates in accordance with manufacturer's instructions.
10. Do not exceed 200 lbs./acre/year (224 kg/ha/year).

11. Do not include polyacrylamide when planting in Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas

700.3.06 Quality Acceptance

The Engineer may require replanting of an area that shows unsatisfactory growth for any reason at any time.

Except as otherwise specified or permitted by the Engineer, prepare replanting areas according to the specifications as if they were the initial planting areas. Use a soil test or the Engineer's guidance to determine the fertilizer type and application rate, then furnish and apply the fertilizer.

700.3.07 Contractor Warranty and Maintenance

A. Plant Establishment

Before Final Acceptance, provide plant establishment of the specified vegetation as follows:

1. Plant Establishment

Preserve, protect, water, reseed or replant, and perform other work as necessary to keep the grassed areas in satisfactory condition.

2. Watering

Water the areas during this period as necessary to promote maximum growth.

3. Mowing

Mow seeded areas of medians, shoulders, and front slopes at least every 6 months. Avoid damaging desirable vegetation.

In addition, mow as necessary to prevent tall grass from obstructing signs, delineation, traffic movements, sight distance, or otherwise becoming a hazard to motorists.

Do not mow lespedezas or tall fescue until after the plants have gone to seed.

4. Do not mow riparian areas, stream restoration areas, or wetland and stream mitigation areas after planting.

B. Additional Fertilizer Mixed Grade

Apply fertilizer based on the initial soil test report at half the recommended rate each spring after initial plant establishment. For bid purposes apply 200 lbs./acre of 19-19-19. Continue annual applications until Final Acceptance. This additional fertilizer will be measured and paid for at the Contract Unit Price for fertilizer mixed grade.

Do not apply additional fertilizer to Native Restoration Areas, Multitropic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas.

C. Growth and Coverage

Provide satisfactory growth and coverage, ensuring that vegetation growth is satisfactory with no bare spots larger than1 ft.² (0.1 m²). Bare spots shall comprise no more than 1 percent of any given area. An exception is given for seed not expected to have germinated and shown growth at that time.

D. Permissible Modifications

When all Items of the work are ready for Final Acceptance except for newly planted repaired areas or other areas with insufficient grass, the Contractor may fill the eroded areas or treat bare areas with sod obtained, placed, and handled according to Subsection 700.3.05.H.

Carefully maintain the line and grade established for shoulders, front slopes, medians, and other critical areas.

Sod as described above will not be paid for separately but will be an acceptable substitute for the satisfactory growth and coverage required under this specification. These areas treated with sod are measured for payment under the Item for which the sod is substituted.

700.4 Measurement

A. Permanent Grassing

Permanent Grassing will be measured for payment by the acre (hectare).

B. Mulches

Straw or hay mulch applied to permanent grassing areas will be measured by the ton (megagram). Wood fiber mulch furnished by the Contractor for permanent grassing is not measured for separate payment.

C. Quantity of Sod

Sod is measured for payment by the number of square yards (meters) , surface measure, completed and accepted.

D. Water

Water furnished and applied to promote a satisfactory growth is not measured for payment.

E. Quantity of Lime and Fertilizer Mixed Grade

Lime and fertilizer are measured by the ton (megagram). Lime used as a filler in fertilizer is measured by the ton (megagram).

F. Quantity of Nitrogen Used for Permanent Grassing

Nitrogen is measured in pounds (kilograms) based on the weight of fertilizer used and its nitrogen content.

G. Replanting and Plant Establishments

No measurement for payment is made for any materials or work required under Subsection 700.3.06 and Subsection 700.3.07.

H. Temporary Grass

Temporary grass is measured for payment by the acre (hectare) according to Section 163.

I. Seeded Native Restoration Areas, Multitropic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas

Seeded Native Restoration Areas, Multitropic Native Planting Areas, Riparian areas, Stream Restoration area, and Wetland and Stream Mitigation areas will be measured by the acre (hectare). and included under the pay item *Native Restoration and Riparian Seeding*.

700.4.01 Limits

General Provisions 101 through 150.

700.5 Payment

As grassing and planting progress, the Contractor will receive full measurement and payment on regular monthly estimates provided the work complies with the specifications.

A. Permanent Grassing

Permanent grassing will be paid for at the Contract Price per acre (hectare), complete and in place. Payment is full compensation for preparing the ground, seeding, wood fiber mulch, polyacrylamide, and providing plant establishment, soil tests and other incidentals.

B. Straw or Hay Mulch

Straw or hay mulch required for Permanent Grassing will be paid for according to Section 163.

C. Fertilizer Mixed Grade

Fertilizer mixed grade will be paid for at the Contract Price per ton (megagram). Payment is full compensation for furnishing and applying the material.

D. Lime

Lime will be paid for at the Contract Price per ton (megagram). Lime used as filler in fertilizer will be paid for per ton (megagram). Payment is full compensation for furnishing and applying the material.

E. Nitrogen

Nitrogen will be paid for at the Contract Price per pound (kilogram) of nitrogen content. Payment is full compensation for furnishing and applying the material.

F. Sod

1. Sod will be paid by the square yard (meter) in accordance with the following schedule of payments. Payment is full compensation for ground preparation, including addition of topsoil, furnishing and installing live sod, and for Plant Establishment.
2. 70 percent of the Contract Price per square yard will be paid at the satisfactory completion of the installation.
3. 20 percent of the Contract Price will be paid upon satisfactory review of sod which is healthy, weed free and viable at the inspection made at the end of the first spring after installation.
4. 10 percent of the contract price will be paid upon satisfactory review of sod that is healthy, weed free and viable at the Final Acceptance.

G. Temporary Grass

Temporary Grass will be paid for under Section 163.

H. Seeded Native Restoration Areas, Multitropic Native Planting Areas, Riparian Areas, Stream Restoration Areas, and Wetland and Stream Mitigation Areas

Seeded Native Restoration Areas, Multitropic Native Planting Areas, Riparian areas, Stream Restoration area, and Wetland and Stream Mitigation areas will be paid for at the Contract Price per acre (hectare), complete and in place. Payment is full compensation for preparing the ground, seeding, and providing plant establishment and other incidentals. and included under the pay item “Native Restoration and Riparian Seeding”.

Payment will be made under:

Item No. 700	Permanent grassing	Per acre

700.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 700

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Section 716 Erosion Control Mats (Slopes)

716.1 General Description

This work includes furnishing and placing erosion control mats (blankets) made of fiberglass, excelsior, jute mesh, bituminous treated roving, and straw, synthetic, or coconut over grass areas prepared according to Section 700 for permanent grass. Place according to the plans or as directed by the Engineer. This specification is not applicable for waterways.

716.1.01 Definitions

General Provisions 101 through 150.

716.1.02 Related References

A. Standard Specifications

Section 712—Fiberglass Blanket

Section 713—Organic and Synthetic Material Fiber Blanket

Section 714—Jute Mesh Erosion Control

B. Referenced Documents

General Provisions 101 through 150.

716.1.03 Submittals

General Provisions 101 through 150.

716.2 Materials

General Provisions 101 through 150.

716.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

716.3 Construction Requirements

716.3.01 Personnel

General Provisions 101 through 150.

716.3.02 Equipment

General Provisions 101 through 150.

716.3.03 Preparation

General Provisions 101 through 150.

716.3.04 Fabrication

General Provisions 101 through 150.

716.3.05 Construction

The contractor may elect to use either Section 712 – Fiberglass Blanket, Section 713 – Organic and Synthetic Material Fiber Blanket (except do not use Type II Wood Fiber Blanket), or Section 714 – Jute Mesh Erosion Control on slopes. All of the materials, construction and measurement portions of the noted sections apply to the type mat (blanket) selected for use.

Place blankets or mats vertically on the slopes beginning at the top of the slope and extending to the bottom of the slope. Horizontal installation of the blankets or mats is not permitted.

The application of mulch is not required for permanent grassing when one of the above noted mats or blankets is placed on the previously prepared and grassed slopes with 24 hours.

716.3.06 Quality Acceptance

General Provisions 101 through 150.

716.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

716.4 Measurement

Erosion control mats (Slopes) are measured according to the specification sections referenced in Subsection 716.3.05.

716.4.01 Limits

General Provisions 101 through 150.

716.5 Payment

Erosion control mats (Slopes), measured as specified in Section 712, Section 713, or Section 714 will be paid for at the Contract Unit Price per square yard (meter).

This payment is full compensation for constructing the mat (blanket) and providing materials, equipment, tools, labor, and incidentals needed to maintain mats (blankets) for the life of the Contract or until a stand of grass has developed enough to prevent erosion.

Payment will be made under:

Item No. 716	Erosion control mats (slopes)	Per square yard

716.5.01 Adjustments

General Provisions 101 through 150.

END OF SECTION 716

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Section 797 Buildings

797.1 General Description

Specifications for this work will be included elsewhere in the Contract.

END OF SECTION

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Section 828 Hot Mix Asphaltic Concrete Mixtures

828.1 General Description

This specification includes the requirements for hot mix asphaltic concrete mixtures, including:

- Open-graded surface mixtures (OGFC and PEM)
- Stone Matrix Asphalt mixtures (SMA)
- Superpave mixtures
- Fine-graded (4.75 mm) mixtures

828.1.01 Definitions

The Nominal Maximum Sieve Size is one standard sieve size larger than the first sieve to retain more than ten percent of the aggregate, per AASHTO R35. Mixture types in this section are identified according to Nominal Maximum Sieve Size.

828.1.02 Related References

A. Standard Specifications

Section 400-Hot Mix Asphaltic Concrete Construction

Section 402-Hot Mix Recycled Asphaltic Concrete

Section 800–Coarse Aggregate

Section 802–Aggregates for Asphaltic Concrete

Section 819–Fiber Stabilizing Additives

Section 820–Asphalt Cement

Section 831–Admixtures

Section 882–Lime

Section 883–Mineral Filler

B. Referenced Documents

AASHTO R30

AASHTO R35

AASHTO T 321

AASHTO T 112

AASHTO T 209

AASHTO T 305

AASHTO T 312

AASHTO T 245

AASHTO T 324

AASHTO T 340

SOP-36

SOP-2

GDT 1

GDT 56

GDT 63

GDT 66

GDT 114

GDT 115

GDT 123

QPL 1

QPL 2

QPL 7

QPL 26

QPL 41

QPL 77

QPL 81

828.2 Materials

A. Requirements

Use approved hot mix asphalt concrete mixtures that meet the following requirements:

1. Produce each asphalt mixture according to a Department approved Job Mix Formula and Asphalt Mix Design, see Subsection 400.1 for submittal and approval of Job Mix Formulas.
2. Ensure individual acceptance test results meet the Mixture Control Tolerances specified in the appropriate table below, Subsections 828.2.01 through 828.2.04.
3. Ensure the Engineer approves all materials used to prepare and place the mixtures before incorporating them into the Work. Use only the ingredients listed in the approved Asphalt Mix Design and Job Mix Formula. For virgin aggregates use sources meeting the requirements of Section 802 and are listed in QPL 1 or QPL 2; for mixes in which local sand is permitted, use the approved sand source identified in the mix design. For mixtures containing Reclaimed Asphalt Pavement (RAP), use only RAP from the approved stockpile identified in the mix design. Use asphalt cement meeting the requirements of Section 820, from a source listed in QPL 7.
4. Obtain approved SMA mix designs, Superpave mix designs and 4.75 mm mix designs from a mix design laboratory certified by the Department. Obtain approved mix designs for types PEM and OGFC mixtures from the Department's Office of Materials, which produces and furnishes these mix designs.
5. Ensure all SMA mix designs are designed in accordance with GDT-123 (“Determining the Design Proportions of Stone Matrix Asphalt Mixtures”). Ensure SMA mix designs are verified and approved by the Department prior to use. Ensure Superpave and 4.75 mm mix designs are designed in accordance with SOP-2 ("Control of Superpave Bituminous Mixture Designs") and are approved by the Department as provided therein. Ensure these mixes are designed by a laboratory and technician certified in accordance with SOP-36, ("Certification of Laboratories and Personnel for Design of SMA and Superpave Asphalt Mixtures").
6. Use only mixtures composed of the aggregate groups and blends indicated in the Proposal and Plans by their pay item designations, defined as follows:

TABLE 1 – AGGREGATE GROUPS

Pay Item Designation	Allowable Aggregate Groups
Group I or II	Group I, Group II, or Blend I
Group II only	Group II only
Blend I	Either 100% Group II material or a blend of Group I and Group II. Do not use Group I material for more than 60%, by weight, of the total aggregate nor more than 50%, by weight, of the coarse aggregate fraction.

7. For patching or leveling use Group I, Group II, or Blend I. Mix types for patching and leveling are specified in Subsection 400.3.03.B.

8. Include lime (hydrated lime) from an approved source and meeting the requirements of Section 882 in all paving courses except as otherwise provided in the Contract. For a list of approved sources of lime, see QPL 41.

   a. Add lime to each mixture at the rate prescribed in the approved mix design.

   b. Ensure mix designs using only virgin aggregate include lime at a minimum rate of 1.00% of the total dry aggregate weight. Ensure mix designs using RAP include lime at a minimum rate equal to 1.00% of the virgin aggregate fraction plus 0.50% of the aggregate in the RAP fraction.

   c. Add more lime or add lime plus an approved Heat-Stable Anti-Stripping Additive meeting the requirements of Section 831, if necessary to meet requirements for mixture properties, and pursuant to an approved mix design. However, the Department will not make additional payment for these materials. For a list of sources of Heat-Stable Anti-Stripping Additives, see QPL 26.

   d. Where specifically allowed in the contract on LARP, airport, and parking lot projects, an approved Heat- Stable Anti-Stripping Additive meeting the requirements of Section 831 may be substituted for hydrated lime. Ensure the mix gradation is adjusted to replace the lime with an equivalent volume of fines passing the 0.075 mm sieve. Add Heat-Stable Anti-stripping Additive at a minimum rate of 0.5 percent of the asphalt cement portion.

9. Use performance grade PG 64-22 or PG 67-22 asphalt cement in all mix designs and mixtures except as follows:

   a. The State Materials Engineer will determine the performance grade to be used, based on Table 2 – Binders Selection Guideline for Reclaimed Asphalt Pavement (RAP) Mixtures, AASHTO M323 and laboratory testing results as required in Section 828.2.B for mixtures containing ≥ 25% equivalent binder replacement for RAP/RAS mixtures.

   b. Use only grade PG 76-22, excluding shoulder construction in the following mixes: all SMA, 12.5 mm PEM, 9.5 mm and 12.5 mm OGFC, 12.5 mm Superpave, on projects with two-way ADT greater than 25,000; and in all mixtures for which polymer-modified asphalt is specified in the pay item.

10. Use of local sand is restricted as follows:

   a. Do not place mixtures containing local sand on the traveled way of the mainline or ramps of the Interstate System. Mixtures with local sand may be used for shoulder construction on these facilities.

   b. Ensure local sand will not constitute more than 20 % of the total aggregate weight of any mix design or production mix.

   c. Subject to the above limits, 19 mm, 12.5 mm, and 9.5 mm Superpave mix designs and 4.75 mm mix designs containing local sand may be used on projects with a current ADT not exceeding 4,000 VPD providing that all performance testing meets specified requirements.

   d. 25 mm Superpave mix designs containing not more than 20 % local sand may be used on all

facilities except the main line and ramps of the Interstate System.

e. Obtain local sand for use in asphalt mixtures from a source approved by the Department.

f. Approval of local sand sources: The Department will sample, test, and approve sources of local sand. Ensure local sand contains no more than 7.0% clay by weight and is free of foreign substances, roots, twigs, and other organic matter. Ensure sand is free of clay lumps, as determined by AASHTO T 112, and has a sand equivalent value exceeding 25%, as determined by GDT 63.

B. Fabrication

1. Design procedures: For all Superpave and 4.75 mm mixes, ensure conformance with the Superpave System for Volumetric Design (AASHTO T 312 and AASHTO R30), as adapted in SOP-2. Ensure Superpave mixes are designed at a design gyration number (N_{des}) of 65 gyrations and initial gyration number (N_{ini}) of 6 gyrations.
   Ensure 4.75 mm mixes, (N_{des}) are designed at 50 gyrations, and (N_{ini}) at 6 gyrations. Open-graded mix designs will be designed by the Department in accordance with GDT 114. In all cases, the procedure for measuring Maximum Specific Gravity (G_{mm}) is AASHTO T 209. In addition to gradation and volumetric analysis, ensure mix designs include the following performance tests, as applicable.

2. Performance Test:

   a. Permeability test: Ensure Superpave and Stone Matrix mix designs include testing according to GDT -1 Measurement of Water Permeability of Compacted Asphalt Paving Mixtures. Ensure specimen air voids for this test are 6.0 ±1.0 %. The average permeability of three specimens may not exceed 3.60 ft per day (125 ×10−5cm per sec).

   b. Moisture susceptibility test: Fabricate and test specimens in accordance with GDT 66, when required by the Office of Materials and Testing due to visible signs of stripping in laboratory fabricated or plant produced asphaltic concrete mixtures, ensure specimen air voids for this test are 7.0 ±1.0% for all mixes excluding Stone Matrix mixes. Ensure specimen air voids for this test are 6.0 ± 1.0% for Stone Matrix mixes. The minimum tensile splitting ratio is 0.80, except a tensile splitting ratio of no less than 0.70 may be acceptable if all individual strength values exceed 100 psi (690 kPa). Ensure average splitting strength of the three conditioned and three controlled samples are not less than 60 psi (415 kPa) for either group. Ensure retention of coating as determined by GDT 56 is not less than 95%.

   c. Hamburg Wheel-Tracking Test for rutting and moisture susceptibility test: Ensure mix designs of all mix types except Open-graded Surface Mixes (OGFC and PEM), and Open-graded Crack Relief Interlayer (OGI) mix, include testing in accordance with AASHTO T 324. Ensure specimen air voids for this test are
   7.0 ± 1.0% for all mix types and at a testing temperature of 50°C (122°F). Use the testing and acceptance criteria established in Table 2.

TABLE 2 – HAMBURG WHEEL TRACKING DEVICE TESTING AND ACCEPTANCE CRITERIA

Binder Performance Grade (PG)	Mix Type	Number of Passes	Maximum Rut Depth	Stripping Inflection Point
PG 64-22 and PG 67-22	4.75 mm, 9.5 mm SP Type I, and 9.5 mm SP Type II	15,000	≤ 12.5 mm	> 15,000
PG 64-22 and PG 67-22	12.5 mm SP, 19 mm SP and 25 mm SP	20,000	≤ 12.5 mm	> 20,000
PG 76-22	All Mix types	20,000	≤ 12.5 mm	> 20,000

Tested specimens shall be inspected for any visible signs of stripping and any mix design's tested specimens that fail to maintain 95% of asphalt cement coating, as described in GDT 56 section D.2.d, will be required to meet specified requirements for GDT 66 as detailed in 828.2.B.2.b.

d. Fatigue testing: The Department may verify dense-graded mix designs by fatigue testing according to AASHTO T 321 or other procedure approved by the Department.

C. Acceptance

See Subsection 106.03 and Section 400. Ensure individual test results meet the Mixture Control Tolerances listed in Subsections 828.2, 828.2.01 ,828.2.02, 828.2.03, or 828.2.04, whichever applies with the following exception.

Ensure field verification results for rutting susceptibility tests performed on laboratory fabricated and/or roadway cores obtained from asphalt plant produced mixtures meet specified requirements for AASHTO T 324 as detailed in Subsection 828.2.B.2.c. All GDOT approved mix designs are required to have full field mix design verifications, using plant produced mixture, sampled by the contractor and submitted to the applicable GDOT laboratory (Central or District) at a minimum of once per two years. Field mix design verification results that fail to comply with performance testing specified in Subsection 828.2.B will require a complete laboratory mix design verification, to be completed by the original mix designer, for continued use of that design. If a mix design has not been produced within two years, a full field mix design verification will be sampled by the contractor and submitted to the applicable GDOT laboratory (Central or District) on the first Lot produced thereafter. Any mix design that fails to meet performance test requirements established in Subsection 828.2.B, using laboratory fabricated specimens due to failing field mix design results, may subject that mix design to invalidation after the field mix design verification results are confirmed with a second field mix design verification. Field mix design verifications as specified in Section 402, Section 400, SOP 2 and GSP 21, are not precluded by the requirements specified herein.

D. Materials Warranty

See General Provisions 101 through 150.

828.2.01 Open-Graded Surface Mixtures

A. Requirements

Produce the mixture according to an approved mix design and Job Mix Formula. Ensure Open-Graded Surface Mixtures meet the following mixture control tolerances and mix design criteria:

Sieve Size	Mixture Control Tolerance, %	Design Gradation Limits, % Passing		
		9.5 mm OGFC	12.5 mm OGFC	12.5 mm PEM
3/4 in. (19 mm) sieve	±0.0		100*	100*
1/2 in. (12.5 mm) sieve	±6.1	100*	85-100	80-100
3/8 in. (9.5 mm) sieve	±5.6	85-100	55-75	35-60
No. 4 (4.75 mm) sieve	±5.7	20-40	15-25	10-25
No. 8 (2.36 mm) sieve	±4.6	5-10	5-10	5-10
No. 200 (75 µm) sieve	±2.0	2-4	2-4	1-4
Range for % AC	±0.4	6.0-7.25	5.75-7.25	5.5-7.0
Class of stone (Section 800)		"A" only	"A" only	"A" only
Drain-down (AASHTO T305), %		<0.3	<0.3	<0.3

* Mixture control tolerance is not applicable to this sieve for this mix.

1. In 12.5 mm and 9.5 mm OGFC and 12.5 mm PEM mixes, use only PG 76-22 asphalt cement (specified in Section 820).

2. Ensure all OGFC and PEM mixes include a stabilizing fiber of the type (cellulose or mineral) specified in the mix design and meeting the requirements of Section 819. Ensure the dosage rate is as specified in the mix design and sufficient to prevent drain-down exceeding the above tolerance.

B. Fabrication

See Section 400.

828.2.02 Stone Matrix Asphalt Mixtures

A. Requirements

Produce the mixture according to an approved mix design and Job Mix Formula. Ensure Stone Matrix Asphalt mixtures meet the following mixture control tolerances and mix design criteria:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing		
		9.5 mm SMA	12.5 mm SMA	19 mm SMA
1 in. (25 mm) sieve	±0.0			100*
3/4 in. (19 mm) sieve	±7.0	100*	100*	90-100
1/2 in. (12.5 mm) sieve	±6.1	98-100**	85-100	44-70
3/8 in. (9.5 mm) sieve	±5.6	70-100	50-75	25-60
No. 4 (4.75 mm) sieve	±5.7	28-50	20-28	20-28
No. 8 (2.36) mm sieve	±4.6	15-30	16-24	15-22
No. 50 (300 µm) sieve	±3.8	10-17	10-20	10-20
No. 200 (75 µm) sieve	±2.0	8-13	8-12	8-12
Range for % AC (Note 1)	±0.4 (Note 2)	6.0-7.5	5.8-7.5	5.5-7.5
Design optimum air voids (%)		3.5 ±0.5	3.5 ±0.5	3.5 ±0.5
% aggregate voids filled with AC (VFA)		70-90	70-90	70-90
Tensile splitting ratio after freeze-thaw cycle GDT-66		80%	80%	80%
Drain-down (AASHTO T305), %		<0.3	<0.3	<0.3

*Mixture control tolerance is not applicable to this sieve for this mix.

**Mixture control tolerance is ± 2.0% for this sieve for 9.5 mm SMA mixes placed at spread rates greater than 135 lb./yd^2. For 9.5 mm SMA mixes placed at spread rates of 135 lb./yd^2 or less, 100 % passing is required on this sieve.

Note 1: Range for % AC is Original Optimum AC (OOAC) at 35 gyrations (Gyratory compactor) or 50 blows (Marshall compactor) prior to Corrected Optimum AC (COAC) calculation detailed in GDT 123 (Appendix A)

Note 2: Quality Acceptance Test Results for AC content that deviate > ± 0.3% from the approved Job Mix Formula (JMF) consistently over three lots may subject the mix to a revised AC content on project JMF at the discretion of the State Materials Engineer based on statistical trend.

1. Ensure SMA mixtures are compacted at 35 gyrations with the Superpave Gyratory compactor or 50 blows with the Marshall compactor.

2. Ensure SMA mixtures contain mineral filler and fiber stabilizing additives and meet the following requirements:

   a. Asphalt cement grade PG-76-22 (specified in Section 820) is required in all SMA mixtures.
   b. Aggregates for SMA meet the requirements of Subsection 802.2.02.A.3.
   c. Use the approved mineral filler specified in the mix design and meeting the requirements of Section 883 Approved sources of mineral filler are listed in QPL 81.

   Use the approved Fiber Stabilizing Additive of the type (cellulose or mineral) specified in the mix design and meeting the requirements of Section 819. Approved sources of Fiber Stabilizing Additive are listed in QPL 77.

   The dosage rate will be as specified in the mix design and sufficient to prevent drain-down exceeding the above tolerance.

B. Fabrication

See Section 400.

828.2.03 Superpave Asphalt Concrete Mixtures

A. Requirements for Superpave Mixtures (except Parking Lot Mixtures)

Produce the mixture according to an approved mix design and Job Mix Formula. Ensure Superpave Asphalt Concrete mixtures meet the following mixture control tolerances and mix design limits:

1. Gradation limits for Superpave mixtures are as follows:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing				
		9.5 mm Superpave Type I	9.5 mm Superpave Type II	12.5 mm Superpave (Note 1)	19 mm Superpave	25 mm Superpave
1½ in. (37.5 mm)						100*
1 in. (25.0 mm)	± 8.0			100*	100*	90-100
3/4 in. (19.0 mm)	±8.0**	100*	100*	98-100****	90-100	55-89**
1/2 in. (12.5 mm)	±6.0***	98-100****	98-100****	90-100	60-89***	50-70
3/8 in. (9.5 mm)	±5.6	90-100	90-100	70-89	55-75	
No. 4 (4.75 mm)	±5.6	65-85	55-75			
No. 8 (2.36 mm)	±4.6	48-55	42-47	38-46	32-36	30-36
No. 200 (75 µm)	±2.0	5.0-7.0	5.0-7.0	4.5-7.0	4.0-6.0	3.5-6.0
Range for % AC (Note 3)	± 0.4 (Note 2)	5.50-7.25	5.25-7.00	5.00-6.25	4.25-5.50	4.00-5.25

* Mixture control tolerance is not applicable to this sieve for this mix.

** Ensure mixture control tolerance is within ± 10.0% for this sieve for 25 mm Superpave.
***Ensure mixture control tolerance is within ± 8.0% for this sieve for 19 mm Superpave.
***Ensure mixture control tolerance is within ± 2.0% for this sieve for 12.5 mm and 9.5 mm mixes.

Note 1: Use PG 76-22 in 12.5 mm Superpave, excluding shoulder construction, on all projects with ADT greater than 25,000 as detailed in the Contract Pay Item.

Note 2: Quality Acceptance Test Results for AC content deviating > ± 0.3 % from the approved Job Mix Formula (JMF) consistently over three Lots may subject the mix to a revised AC content on the project JMF at the discretion of the State Materials Engineer based on statistical trend.

Note 3: Range for % AC is Original Optimum AC (OOAC) at 65 gyrations prior to the Corrected Optimum AC (COAC) calculation detailed in SOP 2 (Appendix D).

2.Volumetric limits are as follows:

Design Parameter	Mix Type	Limits
% of Max. Specific Gravity (Gmm) at design gyrations, (Ndes)	All	96%
% Gmm at the initial number of gyrations, Ni	All	91.5% maximum
% voids filled with asphalt (VFA) at Ndes	9.5 mm Type I	Min. 72; Max. 80
	9.5 Type II and 12.5 mm	Min. 72; Max. 76
	19 mm	Min. 71; Max 76
	25 mm	Min. 69; Max 76
Fines to effective asphalt binder ratio (F/Pbe)	9.5 mm Type I	0.6 to 1.4
	All other types	0.8 to 1.6
Minimum Film Thickness (microns)*	All	> 7.00
Minimum % Voids in Mineral Aggregate (VMA) Note: VMA shall be calculated using the effective specific gravity of the aggregate (Gse). See SOP-2SP.	25 mm	13.0
	19 mm	14.0
	12.5 mm	15.0
	9.5 Type I	16.0
	9.5 Type II	16.0

*Superpave Mixtures approved prior to January 31, 2012, may be adjusted to meet Minimum Film Thickness requirements by the State Materials Engineer.

B. Requirements for Superpave Parking Lot Mixes (NOT FOR STANDARD HIGHWAY/STREET PAVING)

1.Surface layers for parking facilities:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing		
		4.75 mm Mix	9.5 mm Superpave Type I	9.5 mm Superpave Type II
1 in. (25.0 mm) sieve	± 8.0			
3/4 in. (19.0 mm) sieve	±8.0**		100*	100*
1/2 in. (12.5 mm) sieve	±6.0	100*	98-100****	98-100****
3/8 in. (9.5 mm) sieve	±5.6	90-100	90-100	90-100
No. 4 (4.75 mm) sieve	±5.6	75-95	65-85	55-75
No. 8 (2.36 mm) sieve	±4.6	60-65	48-55	42-47

No. 50 (300 µm) sieve	+3.8	20-50		
No. 200 (75 µm) sieve	±2.0	4-12	5.0-7.0	5.0-7.0
Range for Total AC	+ 0.4	6.00 - 7.50	5.50 - 7.25	5.25 - 7.00

2.Subsurface layers for parking facilities:

Sieve Size	Mixture Control Tolerance	Design Gradation Limits, Percent Passing		
		12.5 mm Superpave	19 mm Superpave	25 mm Superpave
				100*
1 in. (25.0 mm) sieve	± 8.0	100*	100*	90-100
3/4 in. (19.0 mm) sieve	±8.0**	98-100****	90-100	55-89**
1/2 in. (12.5 mm) sieve	±6.0***	90-100	60-89***	50-70
3/8 in. (9.5 mm) sieve	±5.6	70-89	55-75	
No. 8 (2.36 mm) sieve	±4.6	38-46	32-36	30-36
No. 200 (75 µm) sieve	±2.0	4.5-7.0	4.0-6.0	3.5-6.0
Range for Total AC	+ 0.4	5.00 - 6.25	4.25 - 5.50	4.00 - 5.25

All * and notes apply to both 828.2.03.B.1 and 828.2.03.B.2.

*Mixture control tolerance is not applicable to this sieve for this mix.

**Ensure mixture control tolerance is within ±10.0% for this sieve for 25 mm Superpave mixes.

*** Ensure mixture control tolerance is within ±8.0% for this sieve for 19 mm Superpave mixes.

****Ensure mixture control tolerance is within ±2.0% for this sieve for 12.5 mm and 9.5 mm Superpave mixes.

Note 1: Quality Acceptance Test Results for AC content deviating > ± 0.3 % from the approved Job Mix Formula (JMF) consistently over three Lots may subject the mix to a revised AC content on the project JMF at the discretion of the State Materials Engineer based on statistical trend.

Note 2: Range for % AC is Original Optimum AC (OOAC) at 65 gyrations prior to the Corrected Optimum AC (COAC) calculation detailed in SOP 2 (Appendix D).

3.Volumetric limits for parking facilities are as follows:

Design Parameter	Mix Type	Limits
% of Max. Specific Gravity (Gmm) at design gyrations, Ndes)	All	96%
% Gmm at the initial number of gyrations, Ni	All	91.5 % maximum
% voids filled with asphalt (VFA) at Ndes	9.5 mm Type I	Min. 72; Max. 80
	9.5 Type II and 12.5 mm	Min. 72; Max. 78
	19 and 25 mm	Min. 71; Max 76
Fines to effective asphalt binder ration (F/Pbe)	9.5 mm Type I	0.6 to 1.4
	All other types	0.8 to 1.6
Minimum Film Thickness (microns)*	4.75 mm	> 6.00
	All other types	> 7.00

Minimum % Voids in Mineral Aggregate (VMA)	25 mm	13.0

Design Parameter	Mix Type	Limits
Note: VMA shall be calculated using the effective specific gravity of the aggregate (Gse). See SOP-2	19 mm	14.0
	12.5 mm	15.0
	9.5 mm Types I, II	16.0

* Mixtures approved prior to January 31, 2012, may be adjusted to meet Minimum Film Thickness requirements by the State Materials Engineer.

C. Fabrication

See Section 400.

828.2.04 Fine-Graded Mixtures

A. Requirements

Produce the mixture according to an approved mix design and Job Mix Formula. Ensure that fine-graded mixtures meet the following mixture control tolerances and design limits:

ASPHALTIC CONCRETE - 4.75 mm Mix		
Sieve Size	**Mixture Control Tolerance**	**Design Gradation Limits, % passing**
1/2 in. (12.5 mm) sieve*	±0.0	100*
3/8 in. (9.5 mm) sieve	±5.6	90-100
No. 4 (4.75 mm) sieve	±5.7	75-95
No. 8 (2.36 mm) sieve	±4.6	60-65
No. 50 (300 µm) sieve	±3.8	20-50
No. 200 (75 µm) sieve	±2.0	4-12
Range for % AC	±0.4	6.00 – 7.50
Design optimum air voids (%)		4.0 – 7.0
% Aggregate voids filled with AC		60 - 80
Minimum Film Thickness (microns)		> 6.00

* Mixture control tolerance is not applicable to this sieve for this mix.

Note 1: Quality Acceptance Test Results for AC content deviating > ± 0.3 % from the approved Job Mix Formula (JMF) consistently over three Lots may subject the mix to a revised AC content on the project JMF at the discretion of the State Materials Engineer based on statistical trend.

Note 2: Range for % AC is Original Optimum AC (OOAC) at 50 gyrations prior to the Corrected Optimum AC (COAC) calculation detailed in SOP 2 (Appendix D).

B. Fabrication

See Section 400.

C. Acceptance

See Subsection 106.3 and Section 400. Ensure individual test results meet the Mixture Control Tolerances listed in Subsections 828.2, 828.2.01, 828.2.02, 828.2.03, 828.2.04, whichever applies.

D. Materials Warranty

See General Provisions 101 through 150.

END OF SECTION 828

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Section 900 Miscellaneous

900.1 General Description

Specifications for this work will be included elsewhere in the contract.

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APPENDIX A: Supplemental Contract Forms

CONSENT OF SURETY TO FINAL PAYMENT

Project Name: _____

Location: _____

Project #: _____

TO SPONSOR (Name and Address): _____

_____

_____

Contractor: _____ Contract Date: _____

In accordance with the provisions of the Contract between the Sponsor and the Contractor as indicated above, the

(Insert name and address of Surety) , Surety,

on bond of

(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 of any of its obligations to

(Insert name and address of Sponsor) , Sponsor,

as set forth in the said Surety's bond.

IN WITNESS WHEREOF,
The Surety has hereunto set its hand on this _____ day of _____, _____

_____
Surety

_____
Signature of Authorized Representative

Attest:
(Seal)

_____
Printed Name and Title

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CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

PROJECT:	**SPONSORS' PROJECT NUMBER:**	SPONSOR: ☐
		ARCHITECT: ☐
	CONTRACT FOR: General Construction	CONTRACTOR: ☐
TO SPONSOR:	**CONTRACT DATED:**	SURETY: ☐
		OTHER: ☐

STATE OF: GEORGIA
COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied 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 Sponsor or Sponsor's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose.

Indicate Attachment: ☐ Yes ☐ No

The following supporting documents should be attached hereto if required by the Sponsor:

1. Contractor Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Sponsor, accompanied by a list thereof.

3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR:

BY: _____
(Signature of authorized representative)

_____
(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:
My Commission Expires:

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CONTRACTOR'S FINAL RELEASE AND WAIVER OF LIEN

Project / Sponsor	Contractor
Project:_____	Name: _____
Address:_____	Address: _____
_____	_____
City State Zip Code	City State Zip Code

Sponsor: _____Contract Date: _____

TO ALL WHOM IT MAY CONCERN:

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned Contractor hereby waives, discharges, and releases any and all liens, claims, and rights to liens against the above-mentioned project, and any and all other property owned by or the title to which is in the name of the above-referenced Sponsor and against any and all funds of the Sponsor appropriated or available for the construction of said project, and any and all warrants drawn upon or issued against any such funds or monies, which the undersigned Contractor may have or may hereafter acquire or possess as a result of the furnishing of labor, materials, and/or equipment, and the performance of Work by the Contractor on or in connection with said project, whether under and pursuant to the above-mentioned contract between the Contractor and the Sponsor pertaining to said project or otherwise, and which said liens, claims or rights of lien may arise and exist.

The undersigned further hereby acknowledges that the sum of:

_____

Dollars **($_____)** constitutes the entire unpaid balance due the undersigned in connection with said project whether under said contract or otherwise and that the payment of said sum to the Contractor will constitute payment in full and will fully satisfy any and all liens, claims, and demands which the Contractor may have or assert against the Sponsor in connection with said contract or project.

Notary Public:
My Commission Expires:

Dated this ____ day of _____, 20____

BY: _____
(Signature of authorized representative)

_____
(Printed name and title)

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APPENDIX B: Erosion and Sediment Control Forms

Daily Rainfall Log

Project Name: _____

Project Location: _____

Month: _____ **Year:** _____

Type of Device Used to Measure Rainfall: _____

Device Location: _____

Daily Rainfall Monitoring Data

Date	Rainfall Amount, Inches	Time	Reported By

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B.M.P Inspection Report

Project: _____ Inspection Date: _____ Time: _____

Type of Inspection: Routine _____ Re-Inspection _____

Stage of Construction: BMP Installation/Clearing Grading Curb/Gutter Building Other _____

Weather/Soil Condition: Raining/Wet Light Rain/Medium Clear/Dry

Erosion Device Inspected	Status
Bf: Buffer Zone	Passed Failed Comment
Ds1: Soil Stabilization: mulch only 6" to 10"	Passed Failed Comment
Ds2: Soil Stabilization: (temp. seeding)	Passed Failed Comment
Ds3: Soil Stabilization: (permanent vegetation)	Passed Failed Comment
Ds4: Soil Stabilization: (soding)	Passed Failed Comment
Ga: Gablon	Passed Failed Comment
Du: Dust Control	Passed Failed Comment
Cd: Check Dams: rock/other	Passed Failed Comment
Cb: Channel Stabilization: (rip rap or vegetation)	Passed Failed Comment
Co: Construction Exit Pad	Passed Failed Comment
Mb: Geotextiles (matting Blanket)	Passed Failed Comment
Rd: Rock Filter Dam	Passed Failed Comment
Rt: Retrofit: Detention/Sediment Pond	Passed Failed Comment
Sd1: Sediment Barrier	Passed Failed Comment
Sd2: Inlet Sediment Trap	Passed Failed Comment
Sd3: Temporary Sediment Basin	Passed Failed Comment
Sr: Temporary Stream Crossing	Passed Failed Comment
St: Storm Drain Outlet Protection	Passed Failed Comment
Dn1: Temporary Down Drain Structure	Passed Failed Comment
Sb: Stream Bank Stabilization	Passed Failed Comment
Sd1-C: Silt Fence	Passed Failed Comment
Wt: Veg. Waterway or St/Water Conv. Channel	Passed Failed Comment
Tree Preservation Fencing	Passed Failed Comment
Trash	Passed Failed Comment

1. What action(s) was taken for any failed activities listed above? Verbal Notification:_____

Written Notification:_____ Stop Work Order:_____ Citation #:_____

2. What time frame was given to comply with the above violation: Days:____ Other:_____

3. Have any complaints or violations been issued on this project previously? Yes:_____ No:_____

4. If yes, explain violations/fines:_____

_____

5. Are there state waters present? Yes:_____ No:_____

6. Were all permits posted? Yes:_____ No:_____

7. Is an approved E&S plan on site? Yes:_____ No:_____

Comments:

Inspected By:_____

Site Inspection Report

Erosion and Sedimentation Inspection Report

Maintain Reports on-site

Site:	**Date:**	**Time:**
Inspector:	**Accompanied By:**	
Stage of Construction:		
Site:		
Observation:		
Recommendations:		
Contractors's Corrective Action (and Date):		
Site:		
Observation:		
Recommendations:		
Contractors's Corrective Action (and Date):		

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Inspection Summary

Site:_____ LDA No._____

Map Site	Violation	First Date	Date Corrected

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Daily Inspection Report

Inspection performed by certified personnel each day construction activity occurs on-site

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5"? Inspection Required ☐
Inspection Observations	
Petroleum Product Storage Areas: Are all of the temporary and permanent controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Vehicle Entrances and Exits: Is there tracking of sediment from locations where vehicles enter and leave the project? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

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Weekly Inspection Report

Inspection performed by certified personnel at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater

Project Information	
Date:	Project Name:
Project Location:	
Name of Inspector:	
Inspection Event	
Regular weekly inspection: ☐	Inspection within 24 hours of 0.5" storm event ☐

Inspection Observations

Disturbed areas that have not undergone final stabilization:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Material storage areas exposed to precipitation:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Discharge locations or points.

Are erosion control measures preventing impacts to receiving waters? ☐ Yes ☐ No

If no, describe observations:

Structural control measures:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Control Measures	Location	Deficiency	Date Corrected

Other Observations:

Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:

Signature of Certified Personnel

Printed Name of Certified Personnel

Monthly Inspection Report

Inspection performed by certified personnel at least once per month

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5"? Inspection Required ☐
Inspection Observations	
Areas that have undergone final stabilization: Are all permanent stabilization controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Other observations: Are pollutants entering the drainage system or receiving waters? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken. Are all erosion and sediment control measures operating properly? ☐ Yes ☐ No If no, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

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Stormwater Monitoring Records

Month:_____ Year: _____ **Sheet ___ of___**

Submit to EPD by 15th of Following Month

Project Name: _____ Project Location: _____

Date Sampled	Rainfall Amount, Inches	Exact Location of Samples	Time Sampled	Sampling Technique Manual or Automatic Grab	Sampled By	Date of Analysis	Time of Analysis	Analyzed By	Analytical Method	Results (NTU)

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Storm Water Discharge Data

Site:_____ LDA No._____

Date	Rainfall (in.)	Location	Reading (NTU)	Comments

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SECTION 01230
ALTERNATES

PART 1 - GENERAL

1.01 SUMMARY

A. Description of Requirements:
   1. Alternate: Amount proposed by Bidders, stated on Bid Form, added to, deducted from Base Bid amount if Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems or installation methods described in Contract Documents.
   2. In the event that alternates are not accepted, the work added herein will be accomplished by others. Under the base bid, the general contractor will still be required to coordinate and schedule work.

B. Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.

C. Notification: Immediately following award of Contract, prepare and distribute to each party involved, notification of status of each alternate.
   1. Indicate whether alternates have been accepted, rejected or deferred for consideration at later date.

D. Schedule: "Schedule of Alternates" included at end of this Section.
   1. Specification sections referenced in Schedule contain requirements for materials and methods necessary to achieve work described under each alternate.
   2. Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for complete installation whether or not mentioned as part of alternate.

1.02 RELATED DOCUMENTS SPECIFIED ELSEWHERE

A. Drawings, general provisions of Contract, General Conditions, Supplementary Conditions ,Division-1 Specification sections, apply to work of this Section.

PART 2 - PRODUCTS (Not Used).

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES:

A. ALTERNATE NO. 1: ADD Resinous Flooring to the 120 x 80 hangar.
   1. Under the base bid cure and seal the slabs as specified in Section 03300.
   2. Under this Alternate, ADD the material and installation as scheduled in the drawings and specified in Section 096723.

B. ALTERNATE NO. 2: ADD Resinous Flooring to the 60 x 60 hangar.
   1. Under the base bid cure and seal the slabs as specified in Section 03300.
   2. Under this Alternate, ADD the material and installation as scheduled in the drawings and specified in Section 096723.

C. ALTERNATE NO. 3: ADD Resinous Flooring to the T hangars.
   1. Under the base bid cure and seal the slabs as specified in Section 03300.
   2. Under this Alternate, ADD the material and installation as scheduled in the drawings and specified in Section 096723.
   3. Coating not required in storage rooms in this building.

END OF SECTION 01230

SECTION 01732

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. Definitions:
1. Cutting and Patching:
a. Cutting into existing construction for installation, performance of other work, subsequent fitting, patching to restore surfaces to original condition.
b. Performed for:
(1) Coordination of work
(2) Uncovering work for access, inspection
(3) Obtaining samples for testing
(4) Permitting alterations to be performed
(5) Other similar purposes
2. Not Cutting and Patching if performed during:
a. Manufacture of products
b. Initial fabrication
c. Erection
d. Installation processes
e. Drilling of holes to install fasteners, similar operations

1.02 RELATED DOCUMENTS SPECIFIED ELSEWHERE

A. Drawings, General provisions of Contract, General Conditions, Supplementary Conditions, other Division-1 Specification sections apply to this Section.

B. Unless otherwise specified, this Section applies to mechanical, electrical work; see Divisions 15 and 16 for additional requirements, limitations.

1.03 QUALITY ASSURANCE

A. Structural Work:
1. Do not cut and patch structural work if reducing load-carrying capacity, of load-deflection ratio.
2. When in doubt, notify Architect.
3. Before cutting and patching, submit proposed procedures, obtain Architect's approval to proceed, on:
a. Structural steel.
b. Structural concrete.
c. Piping, ductwork, vessels, equipment.

B. Operational and Safety Limitations:
1. Do not cut and patch operational elements, safety related components if reducing performance intended (energy performance, increased maintenance, decreased operational life, decreased safety).
2. Before cutting and patching, submit proposed procedures, obtain Architect's approval to proceed, on:
a. Shoring, bracing, sheeting
b. Primary operational systems, equipment
c. Water/moisture/vapor/air/smoke barriers, membranes, flashings
d. Noise, vibration control elements, systems
e. Control, communication, conveying, electrical wiring systems

C. Visual Requirements:
1. Do not cut and patch work exposed on building's exterior, in occupied spaces, if, in Architect's opinion, lessen building's aesthetics
2. Do not cut and patch work if substantial visual evidence of cut and patch work occurs
3. Remove, replace work if, in Architect’s opinion, visually unsatisfactory
4. Retain original installer, fabricator, another recognized experienced, specialized firm to cut and patch exposed work
a. Roofing
b. Tile
c. HVAC enclosures, cabinets or covers

1.04 SUBMITTALS

A. Procedural Proposal:
   1. Where prior approval of cutting and patching required, submit proposed procedures in advance of performance, request approval to proceed
   2. Include information, as applicable, in submittal:
      a. Nature of work, how performed, why cutting and patching unavoidable
      b. Anticipated results of work, changes to existing work (structural, operational, visual changes, other significant elements)
      c. Products used, firms to perform work
      d. Dates when work performed
      e. Utilities disturbed, otherwise affected by work (those relocated, to be out-of-service temporarily, etc.), indicated length of disruption

B. Architect's approval to proceed does not waive Architect's right to later require removal, replacement of work found unsatisfactory

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:
   1. Unless otherwise indicated, directed by Architect, use materials identical to existing materials
   2. If identical materials not available, cannot be used, use materials matching existing adjacent surfaces for visual effect
   3. Use materials having equal-or-better performance characteristics.

PART 3 - EXECUTION

3.01 INSPECTION

A. Before cutting, examine surfaces, conditions under which work performed
   1. If unsafe, otherwise unsatisfactory conditions found, take corrective action before proceeding.

3.02 PREPARATION

A. Provide temporary support of work cut

B. Protect other work to prevent damage
   1. Provide protection from adverse weather conditions for exposed areas during operations.
   2. Avoid interference with use, interruption of free passage to adjoining areas
   3. Do not cut existing pipe, conduit or duct serving building, if to be relocated, until provisions made for bypass.

3.03 PERFORMANCE

A. General:
   1. Employ skilled workmen
   2. Except as otherwise indicated, approved by Architect, proceed at earliest feasible time, complete without delay

B. Cutting:
   1. Use methods least likely to damage work retained, adjoining work
   2. Where possible, review procedures with original installer, comply with his recommendations
   3. Where cutting required, use hand, small power tools for sawing, grinding; do not hammer, chop
   4. Cut concrete, masonry with carborundum saw, core drill, similar equipment, for neat hole
   5. Cut holes, slots to size required; min. disturbance of adjacent work
   6. Do not mar existing finished surfaces; cut, drill from exposed, finished side to concealed side
   7. Temporarily cover openings not in use
   8. Comply with requirements of Division 2 if procedure requires excavating, backfilling

C. Patching:
   1. Make seams durable, invisible as possible.
   2. Comply with specified tolerances
   3. Where feasible, inspect, test patched areas for integrity
   4. Restore exposed finishes; where necessary, extend finish to retained adjoining work, eliminate evidence of refinishing
   5. Where wall, partition removal extends one area into another, patch, repair floor, wall surfaces in new space for even surface of uniform color, appearance
      a. If necessary for uniform color, appearance, remove existing floor, wall coverings, replace with new materials
   6. Where smooth painted surface patched, paint final coat over entire unbroken surface, after prime and base coating patch
   7. Patch, repair, rehang existing ceilings for even plane surface, uniform appearance

3.04 CLEANING

A. Thoroughly clean areas, spaces where work performed. used as access
   1. Remove completely paint, mortar, oils, putty, items of similar nature
   2. Thoroughly clean piping, conduit, similar features before applying paint, other finishes
   3. Restore damaged pipe covering to original condition.

END OF SECTION 01732

SECTION 02362

TERMITE CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Soil treatment for termite control specified herein
   1. Building Foundations
   2. Building Slab on Grade

B. Related Documents
   1. Drawings, general provisions of Contract, General and Supplementary Conditions, Division-1 Specification sections

1.02 SUBMITTALS

A. Product Data: Manufacturer's technical data, application instruction

1.03 QUALITY ASSURANCE

A. Comply with specified requirements, manufacturer's instructions, recommendations for preparation of substrate, application

B. Professional pest control operator: Licensed in State of Georgia

C. No termiticides permitted unless bearing Federal registration number, U. S. E. P. A.

1.04 SUBMITTALS

A. Submit for approval to architect product data sheets published by the manufacturer showing the ingredients and recommended application rates.
B. Submit to the architect Material Safety Data Sheets.

1.05 JOB CONDITIONS

A. Apply no solution until excavating, filling, grading operations completed, unless required in construction operations

B. Apply no treatment to:
   1. Frozen soils
   2. Excessively wet soils
   3. During inclement weather

C. Follow toxicant manufacturer’s handling, application instructions

1.06 SPECIFIC PRODUCT WARRANTY

A. Written Warranty:
   1. Applicator and Contractor sign
   2. Certify applied soil poisoning treatment to prevent infestation of subterranean termites
   3. If termite activity discovered in warranty period, Contractor retreat soil, repair, replace damage caused

B. Warranty Period: 5 years from date of Final Approval

PART 2 - PRODUCTS

2.01 SOIL TREATMENT SOLUTION

A. Emulsible concentrate insecticide, dilution with water, formulated to prevent termite infestation
   1. Fuel oil not permitted as dilutent
   2. Working solution of one of the following:
      a. "Dragnet FT", FMC Corp.; Permethrin 36.8%, inert ingredients 63.2%; 0.5% to 1.0% in water emulsion.
      b. "Torpedo", ICI Americas, Inc.; Permethrin 25.6%, inert ingredients 74.4%; 1.5% in water emulsion.
      c. "Dursban TC", Chlorpyrifos 42.8%, inert ingredients 57.2%; 1% in water emulsion.
      d. Other solutions approved if acceptable to Architect; contain termitacides registered with U.S.E.P.A. and Georgia D.O.A.
      e. Verify that products listed above are currently acceptable to the U.S.E.P.A. and Georgia D.O.A. Do not use any solution, including those listed above, not currently approved for this use by the U.S.E.P.A. and Georgia D.O.A.
   3. Use only solutions not injurious to planting

PART 3 - EXECUTION

3.01 APPLICATION

A. Surface Preparation:
   1. Remove foreign matter in area which decrease treatment effectiveness
   2. Loosen, rake, level soil, except previously compacted areas under slabs, foundations
   3. Apply solution before placement of compacted fill under slabs, only if recommended by manufacturer

B. Application Rates:
   1. Under slab-on-grade structures: Treat before concrete slabs placed, use power sprayer or tank-type garden sprayer
      a. Critical areas under slab: 4 gal. solution per 10 lin. ft.
         (1) Inside perimeter inside foundation walls
         (2) Along both sides interior partition walls
         (3) Around plumbing pipes, electric conduit penetrating slab
         (4) Around interior column footers
      b. Overall treatment under slab, attached slabs:
         (1) Soil fill, unwashed gravel: 1 gal. solution per 10 sq. ft.
         (2) Washed gravel, other coarse absorbent fill: 1½ gal. per 10 sq. ft.
      c. Per foot of depth, grade to footing (outside edge of building: 4 gal. solution per 10 lin. ft. of trench
         (1) Trench: 6" - 8" wide outside foundation; min. 12" deep
         (2) Punch holes to top of footing 12" o.c. max.; apply solution
         (3) Mix solution with soil as replaced in trench
   2. Expansion joints, control joints, slab penetrations: 4 gals. per 10 lin. ft. of penetration

C. Post soil poisoning warning signs in application areas; remove signs when areas covered by other construction

D. Reapply solution to areas disturbed by subsequent excavation, other construction activities after application

END OF SECTION 02362

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Concrete Formulation
2. Concrete Admixtures
3. Formwork
4. Concrete finishing

B. Related Requirements Specified Elsewhere:
1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this Section.
2. Concrete Paving: Site Drawings
3. Concrete Curbs and Gutters: Site Drawings
4. Concrete Walks: Site Drawings
5. Joint Sealants: Section 07900

1.02 REFERENCES

A. Codes and Standards: Comply with, except where more stringent requirements shown. specified:
1. ACI 117 "Standard Tolerances for Concrete Construction and Materials".
2. ACI 301 "Specifications for Structural Concrete for Buildings".
3. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete".
4. ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures".
5. ACI 318 "Building Code Requirements for Reinforced Concrete."
6. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".

1.03 SUBMITTALS

A. Product Data:
1. Submit for proprietary materials, items:
a. Reinforcement
b. Admixtures
c. Patching compounds
d. Joint systems.
e. Curing compounds
f. Dry-shake finish materials.
g. Others requested by Architect.

1.04 Shop Drawings:

A. Reinforcement: Complete drawings for fabrication, bending, and placement
1. ACI 315; show:
a. Bar schedules
b. Diagrams of bent bars
c. Arrangement
2. Sufficient plans, sections, details, notes for accurate orderly placement without reference to design drawings
3. Reproducibles of Contract Drawings prohibited for use as shop drawings

B. Laboratory Test Reports:
1. Concrete materials
2. Mix design.

1.05 QUALITY ASSURANCE

A. Laboratory Testing Service:
   1. Contractor employ, pay testing laboratory acceptable to Architect
      a. Perform material evaluation tests and to design concrete mixes
      b. Test, retest materials, installed work during progress of work if required
      c. Allow free access to material stockpiles, facilities

1.06 PROJECT CONDITIONS

A. Protection:
   1. Cover (maintain for time necessary) completed work with sufficient temporary or permanent material to protect footings, adjacent subgrade against possible freezing
   2. Protect adjacent finishes against spatter during concrete placement

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Products: One of listed, subject to compliance with requirements:
   1. Air-Entraining Admixture: ASTM C 260.
      a. "Air-Mix": Euclid Chemical Co.
      b. "Sika Aer"; Sika Corp.
      c. "MB-VR or MB-AE"; Master Builders.
      d. "Darex AEA" or "Daravair"; W.R. Grace.
      e. "Edoco 2001 or 2002"; Edoco Technical Products.
      f. "Air-Tite"; Gifford-Hill/American Admixtures.
   2. Water-Reducing Admixture:
      a. "WRDA Hycol"; W.R. Grace.
      b. "PSI N"; Gifford-Hill/American Admixtures
      c. "Eucon WR-75"; Euclid Chemical Co.
      d. "Pozzolith Normal"; Master Builders.
      e. "Plastocrete 160;" Sika Chemical Corp.
      f. "Chemtard"; Chem-Masters Corp.
      g. "Pro-Kete-N"; Protex Industries, Inc.
   3. Fibrous Reinforcement::
      a. "Forta CR"; Forta Corp.
      b. "Fibermesh"; Fibermesh, Inc.
   4. Non-Shrink Grout:
      a. Non-metallic
         (1) "Set Grout"; Master Builders.
         (2) "Sonogrout"; Sonneborn-Rexnord.
         (3) "Euco-NS"; Euclid Chemical Co.
         (4) "Supreme"; Gifford-Hill/American Admixtures.
         (5) "Crystex" L & M Cons. Chemical Co.
         (6) "Sure-Grip Grout", Dayton Superior Corp.
         (7) "Horngrout"; A.C. Horn, Inc.
         (8) "Five Star Grout"; U.S. Grout Corp.
   5. Epoxy Adhesive:
      a. "Thiopoxy"; W.R. Grace.
      b. "Epoxtite"; A.C. Horn, Inc.
      c. "Edoco 2118 Epoxy Adhesive"; Edoco Technical Prod.
      d. "Sikadur Hi-Mod"; Sika Chemical Corp.
      e. "Euco Epoxy 452 or 620"; Euclid Chemical Co.
      f. "Patch and Bond Epoxy"; The Burke Co.
      g. "Concresive 1001"; Adhesive Engineering Co.

   6. Liquid Membrane-Forming Curing Compound (ASTM):

a. "Masterseal"; Master Builders.
b. "A-H 3 Way Sealer"; Anti-Hydro Waterproofing Co.
c. "Ecocure"; Euclid Chemical Co.
d. "Clear Seal"; W.R. Grace.
e. "J-20 Acrylic Cure"; Dayton Superior.
f. "Sure Cure"; A.C. Horn
g. "Spartan-Cote"; Kaufman Products Inc.
h. "Sealkure"; Toch Div. - Carboline.
i. "Kure-N-Seal"; Sonneborn-Contech.
j. "Polyclear"; Upco Chemical/USM Corp.
k. "L&M Cure"; L & M Construction Chemicals.
l. "Klearseal"; Setcon Industries.
m. "LR-152"; Protex Industries.
n. "Hardtop"; Gifford-Hill.

2.02 MATERIALS

A. Forms:
1. Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, other acceptable panel-type materials, for continuous, straight, smooth, exposed surfaces
a. Largest practicable sizes; minimize joints, conform to joint system shown
b. Sufficient thickness to withstand newly-placed concrete pressure; no bow, deflection
c. Overlaid plywood, U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form", Class I
2. Unexposed Finish Concrete: Plywood, lumber, metal, other acceptable material
a. Lumber dressed on min. 2 edges, one side for tight fit
3. Form Coatings: Commercial formulation form-coating compounds, not bond with, stain, adversely affect concrete surfaces, not impair subsequent surface treatment.
4. Forms Ties: Factory-fabricated, adjustable-length, removable or snap-off metal ties, prevent deflection, prevent spalling when removed
a. Units to leave no metal closer than 1½" to surface
b. Units to leave holes max. 1" dia. in surface

B. Reinforcing:
1. Bars : ASTM A 615, Grade 60, (except where Grade 40 indicated), deformed
2. Steel Wire: ASTM A 82, plain, cold-drawn, steel
3. Welded Wire Fabric: ASTM A 185, welded steel wire fabric
4. Reinforcement Supports: Bolsters, chairs, spacers, other devices for spacing, supporting, fastening bars, welded wire fabric in place
a. Concrete bricks for supporting bars in footings and thickened slabs.

C. Concrete:
1. Portland Cement: ASTM C 150, Type I
a. One cement brand of throughout project
2. Fly Ash: Not Allowed
3. Normal Weight Aggregates: ASTM C 33, and as herein specified
a. Aggregates from single source for exposed concrete
b. Exterior exposed surfaces: No fine or coarse aggregates with spalling-causing deleterious substances

c. Local aggregates (not ASTM C 33) if, by special test, actual service, producing adequate strength, durable concrete permitted when acceptable to Architect

4. Lightweight Aggregates: ASTM C 330
5. Water: Drinkable
6. Air-Entraining Admixture: ASTM C 260
7. Water-Reducing Admixture: ASTM C 494, Type A, with max. 0.05% chloride ions
8. Fibrous Reinforcement: Collated, fibrillated, polypropylene fibers for secondary reinforcement

D. Related Materials:
1. Polyethylene Sheet: 6 mil polyethylene sheet where indicated over prepared base material
   a. Materials resistant to decay per ASTM E 154
2. Non-Shrink Grout: CRD-C 621, factory pre-mixed.
3. Absorptive Cover: Jute or kenaf burlap cloth, approx. 9 oz./s.y., AASHTO M 182, Class 2.
4. Moisture-Retaining Cover: ASTM C 171
   a. Waterproof paper
   b. Polyethylene film
   c. Polyethylene-coated burlap.
5. Liquid Membrane-Forming Curing Compound: Liquid type membrane-forming curing compound, ASTM C 309, Type I, Class A.; moisture loss max. 0.055 gr./sq. cm. if 200 sq. ft./gal. Application.
6. Epoxy Adhesive: ASTM C 881, two component, for dry or damp surfaces
   a. Provide material "Type", "Grade", "Class" to suit project requirements
7. Bond Breaker: 30# building felt

2.03 MIX DESIGN, PROPORTION

A. Design Mixes: Each concrete type, strength, ACI 301, laboratory trial batch or field experience methods
1. Trial batch method:
   a. Independent testing facility acceptable to Architect to prepare, report proposed mix designs
   b. Testing facility not same used for field quality control testing

B. Submit written report on each proposed mix, each concrete class, min. 15 days prior to work start
1. Begin no concrete production until mix reports reviewed by Architect

C. Design mixes, normal weight concrete, 28 day compressive strength indicated, scheduled:
1. 4000 psi: Min. 564 lbs. cement/c.y.; W/C ratio, 0.44 max. (non-air-entrained), 0.35 max. (air-entrained)
2. 3000 psi; Min. 517 lbs. cement/c.y.; W/C ratio, 0.58 max. (non-air-entrained), 0.46 max. (air-entrained)
3. 2500 psi; Min. 470 lbs. cement/c.y.; W/C ratio, 0.67 max. (non-air-entrained), 0.54 max. (air-entrained)

D. Mix Design Adjustment:
1. Contractor request when material characteristics, job conditions, weather, test results, other circumstances warrant; no additional Owner cost if accepted by Architect
2. Obtain Architect’s approval of revised mix design, strength results before

using in work

E. Admixtures:
1. Water-reducing admixture If required for placement, workability
2. Non-chloride accelerating admixture: S labs placed at ambient temperatures below 50ºF (10ºC)
3. Air-entraining admixture: Exterior exposed concrete, unless otherwise indicated.
a. Add at manufacturer's prescribed rate for concrete at point of placement with total air content, plus-or-minus 1½%:
(1) All Concrete: 2% to 4%
4. Water-reducing, set-control admixtures: Comply strictly with manufacturer's directions

F. Slump Limits:
1. Proportion, design mixes for concrete slump at point of replacement:
a. Ramps, slabs, sloping surfaces: Max. 3.5”
b. Reinforced foundation systems: Min. 1.5", max. 4"
c. Other Concrete: Max. 5"

2.04 CONCRETE MIXES

A. Job-Site Mixing: Not permitted

B. Ready-Mix Concrete: ASTM C 94 and herein specified.
1. During hot weather, or under conditions of rapid setting, shorter mixing time than required by ASTM C 94
a. Air temperature from 85ºF (30ºC) to 90ºF (32ºC:, Reduce mixing, delivery time from 1½ hours to 75 minutes
b. Air temperature above 90ºF (32ºC): Reduce mixing, delivery time to 60 minutes
2. Provide batch ticket for each batch discharged, used in work, indicating:
a. Project identification name and number
b. Date
c. Mix type
d. Mix time
e. Quantity
f. Amount of water introduced

PART 3 - EXECUTION

3.01 EXAMINATION

A. Coordinate joint materials, polyethylene installation with form and reinforcing placement

3.02 INSTALLATION

A. Forms:
1. Design, erect, support, brace, maintain formwork to support vertical, lateral loads until supported by concrete structure
a. Construct formwork to correct size, shape, alignment, elevation, position of concrete structure
b. Earth side forming of footings prohibited; constructed forms required.
c. Readily removable without impact, shock, damage to surfaces, adjacent materials.
2. Construct to sizes shapes, lines, dimensions shown; obtain accurate alignment, location, grades, level, plumb work in finished structure

a. Provide openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required
b. Select materials to obtain finishes required
c. Solidly butt joints, provide joint backup to prevent cement paste leakage

3. Fabricate for easy removal without hammering, prying against concrete surfaces
   a. Crush plates, wrecking plates required where stripping may damage surfaces
   b. Top forms required at inclined surfaces if slope too steep to place concrete
   c. Kerf wood inserts forming keyways, reglets, recesses, etc.; prevent swelling, make removal easy
4. Temporary openings: If interior area inaccessible for cleanout, inspection before concrete placement; for placement of concrete
   a. Securely brace, set tightly to forms; prevent cement paste loss
   b. Place at inconspicuous locations
5. Chamfer exposed corners, edges indicated; wood, metal, PVC, rubber chamfer strips fabricated for uniform smooth lines, tight edge joints
6. Other Trades Provisions:
   a. Accommodate other trades requirements with openings in formwork
   b. Determine opening, recess, chase size location from trades requiring such items
   c. Accurately place, securely support built-in items
7. Cleaning, Tightening:
   a. Thoroughly clean forms, adjacent surfaces receiving concrete
   b. Remove chips, wood, sawdust, dirt, other debris before concrete placed
   c. Retighten forms, bracing after concrete placement to eliminate mortar leaks, maintain proper alignment

B. Polyethylene Sheet:
1. After leveling, compaction of subbase for slabs on grade, lay polyethylene sheeting, longest dimension parallel to direction of pour
   a. Lap joints 6", seal with appropriate tape

C. Reinforcement :
1. C.R.S.I. recommended practice "Placing Reinforcing Bars", reinforcing placement details, methods, supports, and herein specified
   a. Avoid cutting, puncturing polyethylene sheet when placing reinforcement, concrete
2. Remove (clean) of loose rust, mill scale, earth, ice, other materials which reduce, destroy bond
3. Accurately position, support, secure reinforcement against displacement by formwork, construction, concrete placement operations
   a. Locate, support reinforcing with metal chairs, runners, bolsters, spacers, hangers, as required
   b. "Wet sticking" of reinforcing prohibited
4. Place reinforcement for minimum coverages for concrete protection
   a. Arrange, space, securely tie bars, bar supports to hold reinforcement position during concrete placement
   b. Set wire ties so ends point inward, not toward exposed surfaces
5. Install wire fabric in long lengths as practicable
   a. Lap adjoining pieces min. one full mesh, lace splices with wire
   b. Offset end laps in adjacent widths to prevent continuous laps in either direction.

D. Joints:
1. Construction Joints:
   a. Locate, install construction joints, if not indicated, so not to impair strength, structure appearance, as acceptable to Architect
   b. Submit proposed layout for review by Architect

E. Embedded Items:
1. General:

a. Set, build into work, anchorage devices, other embedded items required for attachment, support of other work
b. Setting drawings, diagrams, instructions, directions provided by suppliers of attached items
c. Securely attach to formwork prior to concrete placement
d. "Wet sticking" embedded items prohibited.

2. Slab Edge Forms, Screed Strips:
   a. Set edge forms, bulkheads, intermediate screed strips to obtain required elevations, slopes, contours in finished surface
   b. Secure units sufficiently strong to support screed strips types using strike-off templates or accepted compacting type screeds.

F. Concrete:
1. Preparation of Form Surfaces
   a. Clean concrete matrix residue from reused forms; repair, patch forms to acceptable surface condition.
      (1) Coat contact surfaces of with form-coating compound before placing reinforcement
      (2) Thin form-coating compounds only with type thinning agent in amount directed by form-coating compound manufacturer
         (a) Do not allow accumulation form-coating material in forms, come in contact with concrete surfaces against which placing fresh concrete
         (b) Apply per manufacturer's instructions
      (3) Coat steel forms with non-staining, rust-preventative form oil, otherwise protect against rusting; rust-stained steel formwork not acceptable
2. Preplacement Inspection:
   a. Do not place concrete until installation, inspection of formwork, reinforcing steel, blockouts, sleeves, embedded items, etc., complete for entire pouring area
   b. Notify Architect 48 hours in advance for pre-placement inspection
   c. Notify other crafts to permit installation of their work; cooperate with other trades.
   d. Moisten wood forms immediately before placing concrete where form coatings not used
   e. Apply temporary protective covering to lower 2' of walls adjacent to floor slab pours, similar conditions; guard against spattering during placement.
3. Coordinate joint materials and polyethylene sheet installation with form and reinforcing placement
4. Governing Requirements: ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"; specified hereinafter
   a. Job site addition of water to concrete prohibited
   b. Deposit concrete continuously; layers thin enough that no formation of seams, planes of weakness occur
      (1) If section not placed continuously, provide specified construction joints
      (2) Deposit concrete near to final location to avoid segregation
5. Placing Concrete (Forms):
   a. Deposit concrete max. 24" deep horizontal layers; avoid inclined construction joints
   b. Where in several layers, place each while preceding still plastic; avoid cold joints
6. Placing not permitted if, in opinion of Architect, sun, heat, wind, limitations of Contractor’s facilities prevent proper finishing, curing
7. Mechanically vibrate to consolidate concrete, supplement by hand-spading, rodding, tamping; ACI recommended practices govern or equipment, procedures
8. Do not use vibrators to transport concrete inside forms
   a. Insert/withdraw vibrators vertically at uniformly spaced locations no farther than vibrator’s visible effectiveness
   b. Place vibrators to rapidly penetrate placed layer, min. 6" into preceding layer

c. Do not insert vibrators into lower layers of concrete if set begun
d. Limit vibration insertion duration to concrete consolidation, complete reinforcing embedment, other embedded items without causing mix segregation

9. Placing Concrete (Slabs):
   a. Deposit, consolidate in continuous operation, within construction joint limits, until placing of section complete
   b. Consolidate during placing operations so concrete thoroughly worked around reinforcement, other embedded items, into corners
   c. Bring slab surfaces to correct level with straightedge, strikeoff
      (1) Use bull floats, darbies to smooth surface, free of humps, hollows
      (2) Do not disturb slab surfaces prior to beginning finishing
   d. Maintain reinforcing in proper position during concrete placement
10. Cold Weather Placing:
   a. Protect work from damage by frost, freezing actions, low temperatures, per ACI 306 and herein specified
   b. When air temperature fallen, expected to fall below 40ºF (4ºC), uniformly heat water, aggregates before mixing, for mixture temperature min. 50ºF (10ºC), max. 80ºF (27ºC) at placement point
   c. Do not use frozen materials, materials with ice, snow; do not place on frozen subgrade, on subgrade having frozen materials
   d. Use only non-corrosive accelerator; use no calcium chloride or admixtures with over 0.05% chloride ions
11. Hot Weather Placing:
   a. If weather conditions exist seriously impairing quality, strength of concrete, place per ACI 305; herein specified
   b. Cool ingredients before mixing; maintain concrete temperature below 90ºF (32ºC) at placement
   c. Contractor's option to control temperature:
      (1) Chilled mixing water
      (2) Chopped ice if water equivalent of ice calculated to total amount of water
      (3) Liquid nitrogen
   d. Cover reinforcing with water-soaked burlap if too hot; steel temperature not to exceed ambient air temperature immediately before pour
   e. Fog spray forms, reinforcing steel, subgrade just before pour
   f. Water-reducing retarding admixture (Type D) if required by high temperatures, low humidity, other adverse placing conditions

G. Miscellaneous concrete items:
1. Filling-In:
   a. Fill-in holes, openings left in structure for work by other trades, unless otherwise shown, directed, after work of other trades in place
   b. Mix, place, cure as specified, to blend with in-place work
   c. Provide other miscellaneous filling shown, required to complete work
2. Equipment Bases and Foundations:
   a. Set anchor bolts for machines, equipment to template, correct elevations, per machine, equipment manufacturer's certified diagrams, templates
3. Base plates, foundations: Grout as indicated with specified non-shrink grout
   a. Exposed conditions: Non-metallic grout, unless otherwise indicated
4. Reinforced Masonry:
   a. Lintels, bond beams: Concrete grout where indicated, scheduled
   b. Maintain accurate reinforcing location during placement

H. Finishing:
1. Formed Surfaces:
   a. Rough Form Finish: Formed surfaces not exposed-to-view in finish work, covered by other construction, unless otherwise indicated
      (1) Surface texture imparted by form facing material used; tie holes, defective areas repaired, patched; fins, other projections over ¼" high, rubbed down, chipped off

b. Smooth Form Finish: Formed surfaces exposed-to-view, covered with directly applied coating material, directly applied covering material, i.e. - waterproofing, dampproofing, painting, other similar system
   (1) As-cast surface obtained with selected form facing material, arranged orderly, symmetrically; min. seams
   (2) Repair, patch defective areas; remove fins, other projections completely; smooth
      (a)
c. Related Unformed Surfaces: Wall tops, horizontal offsets, similar unformed surfaces adjacent to formed surfaces
   (1) Strike-off smooth, finish with texture matching adjacent formed surfaces
   (2) Continue final formed surface treatment uniformly across adjacent unformed surfaces, unless otherwise indicated

2. Monolithic Slabs:
   a. Scratch Finish: Slab surfaces to receive floor topping, mortar setting beds for tile, portland cement terrazzo, other bonded applied cementitious finish flooring material, and others indicated
      (1) After placing, plane surface so depressions between high spots max. ½" under 10' straightedge
         (a) Slope surfaces uniformly to drains
         (b) After leveling, roughen surface before final set, with stiff brushes, brooms, rakes
   b. Float Finish: Slab surfaces to receive trowel finish, other finishes hereinafter specified, surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, sand-bed terrazzo, and others indicated
      (1) After screeding, consolidating, leveling slabs, do not work surface until ready to float
      (2) Begin floating when surface water disappears, when concrete stiffened sufficiently for operation of power-driven floats, or both
         (a) Consolidate surface with power-driven floats; hand-float if area small,
         (b) Check, level surface plane so depressions between high spots max. 5/16" under 10' straight edge.
         (c) Cut down high spots, fill low spots
         (d) Slope surfaces uniformly to drains
         (e) Immediately after leveling, refloat surface to uniform, smooth, granular texture
   c. Trowel Finish: Slab surfaces exposed- to-view, surfaces covered with resilient flooring, carpet, ceramic or quarry tile, paint, other thin film finish coating system
      (1) After floating, begin first operation using power driven trowel
      (2) Begin final troweling when surface produces ringing sound as trowel moves over surface
         (a) Consolidate concrete surface by final hand-troweling
            1) Free of trowel marks
            2) Uniform in texture, appearance
            3) Level surface plane so depressions max. ⅛" under 10' straightedge
         (b) Grind smooth surface defects telegraphing through applied floor covering
   d. Non-Slip Broom Finish: Exterior concrete platforms, steps, ramps, elsewhere indicated:
      (1) Immediately after trowel finishing, broom slightly perpendicular to main traffic route
      (2) Coordinate required final finish with Architect before application

3.03 CURING, PROTECTION

A. General: Protect freshly placed concrete from premature drying, excessive cold or hot temperatures

1. Start initial curing when free water disappears from surface after placing, finishing
2. Keep continuously moist min. 7 days
3. Begin final curing immediately following initial curing, before concrete dries
4. Continue final curing min. 7 days per ACI 301
5. Avoid rapid drying at end of final curing

B. Curing:
   1. Perform curing by:
      a. Membrane-forming curing compound
      b. Moist curing
      c. Moisture-retaining cover
      d. Combinations of above as specified
   2. Curing, sealing compound: Interior slabs, exterior slabs, walks, curbs, exposed surfaces
      a. Apply compound to slabs soon as final finishing complete (within 2 hours)
      b. Apply uniformly, continuously with power-spray or roller per manufacturer's directions
      c. Recoat areas if heavy rain occurs within 3 hours after initial application
      d. Maintain coating continuity, repair damage during curing
      e. Verify, use only compounds compatible with each product adhered to, applied over surface; not adversely affect adhesion, performance of products
   3. Moisture curing:
      a. Keep surface continuously wet, covering with water
      b. Continuous water-fog spray
      c. Cover surface with specified absorptive cover
         (1) Thoroughly saturate with water
         (2) Keep continuously wet
         (3) Place cover to provide coverage of surfaces, edges; 4" lap over adjacent covers
   4. Moisture-cover curing:
      a. Cover surfaces with moisture-retaining cover
         (1) Place in widest practicable width
         (2) Lap sides, ends min. 3", seal with waterproof tape or adhesive
      b. Immediately repair holes, tears during curing with cover material, waterproof tape
   5. Curing Formed Surfaces: Undersides of beams, supported slabs, other similar surfaces
      a. Moist cure, forms in place full curing period or until removed
      b. If forms removed, continue curing as specified, as applicable

C. Surface repairs:
   1. Patching Defective Areas:
      a. Repair, patch with cement mortar immediately after form removal, when acceptable to Architect
      b. Honeycomb, rock pockets, voids over ¼" in any dimension, holes left by tie rods and bolts: Cut out down to solid concrete; min. 1" depth
      c. Make edges of cuts perpendicular to surface
      d. Thoroughly clean, dampen with water, brush-coat patch area with bonding agent
      e. Place patching mortar after bonding compound dried
   2. Exposed-to-view surfaces: Blend white portland cement, standard portland cement so, when dry, patch matches surrounding color
      a. Test in inconspicuous location to verify mixture, color match before proceeding
      b. Compact mortar in place, strike-off slightly higher than surrounding surface
   3. Repair, Unformed Surfaces:
      a. Test surfaces (monolithic slabs, etc.) for smoothness; verify surface plane to tolerances specified
         (1) Correct low/high areas as specified

(2) Test unformed surfaces sloped to drain for trueness of slope, smoothness, using template of required slope

b. Repair surfaces containing defects affecting concrete durability; surface defects, as such, include:
(1) Crazing
(2) Cracks exceeding 0.01" wide
(3) Cracks penetrating to reinforcement
(4) Cracks completely through non-reinforced sections regardless of width
(5) Spalling, pop-outs, honeycomb, rock pockets, other objectionable conditions

c. Correct high areas by grinding after concrete cured min. 14 days

d. Correct low areas during, or immediately after completion of finishing; cut out low areas, replace with fresh concrete
(1) Finish repaired areas to blend into adjacent concrete
(2) Use proprietary patching compounds when acceptable to Architect

e. Defective areas (except random cracks, single holes max. 1" dia.); cut out, replace with fresh concrete
(1) Remove defective areas to sound concrete; clean, square cuts, expose reinforcing steel, min. ¾" clearance all around
(2) Dampen concrete surfaces in patch area, apply bonding compound
(3) Mix patching concrete of same materials for concrete of same type, class as original
(4) Place, compact, finish to blend with adjacent finished concrete
(5) Cure in same manner as adjacent concrete

f. Isolated random cracks, single holes max. 1" dia.; dry-pack method
(1) Groove top of cracks, cut-out holes to sound concrete, clean of dust, dirt, loose particles
(2) Dampen cleaned surfaces, apply bonding compound
(3) Mix dry-pack:
(a) One part portland cement
(b) 2½ parts fine aggregate passing No. 16 mesh sieve
(c) Water: Only enough to handle, place
(4) Place dry-pack after bonding compound dried.
(5) Compact mixture in place; finish to match adjacent concrete
(6) Keep patched area continuously moist min. 72 hours

g. Perform structural repairs with prior approval of Architect for method, procedure; use specified epoxy adhesive mortar

4. Use repair methods not specified only if accepted by Architect

5. Underlayment Application: Level floors for subsequent finishes using specified underlayment material

3.04 FORM REMOVAL, RE-USE

A. Removal:
1. If not supporting concrete weight, i.e. - sides of beams, walls, columns, similar parts of work: Remove after cumulatively curing at min. 50ºF (10ºC) 24 hours after pour, provided:
a. Concrete sufficiently hard to not be damaged by removal
b. Curing, protection maintained
2. Formwork supporting concrete weight, i.e. - sides of beam soffits, joists, slabs, other structural elements: Remove min. 7 days after pour, not until min. 28 day design compressive strength attained
a. Determine potential in-place concrete compressive strength, test field-cured specimens representative of location, members
3. Remove form facing 4 days after placement, only if shores, other vertical supports permit removal of facing without loosening, disturbing shores, supports

B. Re-use:
1. Clean, repair surfaces if re-used
a. Split, frayed, delaminated, otherwise damaged facing not acceptable for exposed surfaces
b. Coat forms as specified for new formwork

2. If forms extended for successive placement, thoroughly clean surfaces, remove fins, laitance, tighten to close joints
   a. Align, secure joint; avoid offsets
   b. Do not use "patched" forms for exposed surfaces

3.05 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Employ, at Contractor's expense, testing laboratory to perform field test, submit test reports

B. Sampling, testing, quality control during placement, directed by Architect
   1. Sampling Fresh Concrete: ASTM C 172, except slump per ASTM C 94.
   2. Slump: ASTM C 143; one test at discharge, each day's pour exceeding 5 c.y.; additional tests each 50 c.y. over, above first 25 c.y. each class placed any one day
   3. Concrete Temperature: Test hourly; each time make set of compression test specimens
      a. When air temperature 40ºF (4ºC), below
      b. When air temperature 80ºF (27ºC), above
   4. Compression Test Specimen: ASTM C 31; one set 5 standard cylinders each compressive strength test, unless otherwise directed
      a. Mold, store cylinders for laboratory cured test specimens except when field-cure test specimens required
   5. Compressive Strength Tests: ASTM C 39; one set each day's pour exceeding 5 c.y. plus additional sets each 50 cu. yds. over, above first 25 c.y. each class placed any one day
      a. When testing frequency provides less than 5 strength tests for given class, conduct testing from min. 5 randomly selected batches or each batch if fewer than 5.
      b. Test two specimens at 7 days
      c. Test two specimens at 28 days
      d. Reserve one specimen for later testing if required
      e. When field-cured cylinders strength under 85% of companion laboratory-cured cylinders, evaluate current operations, provide corrective procedures for protecting, curing in-place concrete
      f. When total quantity of given class under 50 cu. yds., strength test may be waived if, in Architect’s judgment, adequate evidence of satisfactory strength provided

C. Report test results in writing to Architect, Contractor within 24 hours after test
   1. Compressive strength tests report:
      a. Project identification name, number
      b. Concrete placement date
      c. Testing service name
      d. Concrete type, class
      e. Concrete batch location in structure
      f. 28 day design compressive strength
      g. Concrete mix proportions, materials
      h. Compressive breaking strength, type of break for 7-day tests, 28-day tests

D. Testing service make additional tests, if directed by Architect, of in-place concrete when lab test results indicate specified concrete strengths, other characteristics not attained
   1. Testing service may conduct tests by cored cylinders per ASTM C 42, by other methods directed
   2. Contractor pay tests conducted, other additional testing required, if unacceptable concrete verified

END OF SECTION 03300

SECTION 08110

STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

A. Extent of standard steel doors and frames indicated and scheduled on drawings.

B. Related Documents Specified Elsewhere
1. Drawings, General and Supplementary Conditions, Division-1 Specification sections
2. Hardware: Division 8 Section - DOOR HARDWARE

1.02 QUALITY ASSURANCE

A. Compliance:
1. Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100)
2. Requirements herein specified

1.03 SUBMITTALS

A. Product Data: Manufacturer's technical product data showing products comply with requirements

B. Shop Drawings:
1. For fabrication, installation
2. Detail each frame type
   a. Detail construction, location, installation of hardware, reinforcements
   b. Detail joints, connections
3. Show anchorage, accessory items
4. Schedule frames with same reference numbers for details, openings as on Contract Drawings

1.04 DELIVERY, STORAGE AND HANDLING

A. Inspect for damage when delivered
1. Repair minor damage if refinished items equals new work, acceptable to Architect; otherwise, remove, replace as directed

B. Store doors and frames under cover
1. Place on min. 4" high wood blocking
2. Do not use non-vented plastic, canvas shelters creating humidity chamber

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements:
1. Steel Frames, (General):
   a. Ceco Corp.
   b. Curries Mfg., Inc.
   c. D & D Specialties, Inc.
   d. S.W. Fleming, Limited
   e. Habersham Metal Products Co.
   f. Mesker Industries, Inc.
   g. Palmetto Metal Products, Inc.
   h. Steelcraft/Div. American Standard Co.
   i. Republic Builders Products Corp./Subs. Republic Steel.

2. Thermal Rated Steel Door and Frame Assemblies:
   a. Ceco Corp.
   b. Copco Door Co.
   c. Curries Mfg., Inc.
   d. Fenestra Corp.
   e. S.W. Fleming, Limited
   f. Mesker Industries, Inc.
   g. Pioneer Bldrs. Products Corp./Div. CORE Industries, Inc.

2.02 MATERIALS

A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, ASTM A 569, ASTM A 568

B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, ASTM A 366, ASTM A 568

C. Supports and Anchors: Min. 18-ga. galvanized sheet steel

D. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, with ASTM A 526; ASTM A 525, G60 zinc coating, mill phosphatized Inserts, Bolts and Fasteners: Manufacturer's standard units, ASTM A 153, Class C or D as applicable.

E. Shop Applied Paint:
   1. Primer: Rust-inhibitive enamel or paint, air-drying or baking, base for specified finish

2.03 FABRICATION, GENERAL

A. Fabricate units rigid; neat appearance; free of defects, warp, buckle
   1. Fit, assemble units in plant if practicable
   2. Clearly identify work not permanently factory-assembled; assure proper assembly at site
   3. At intersecting horizontal and vertical mullions and where mullions intersect each other, completely open frames to permit full air flow within frame, but fully weld intersections.

B. Frames, concealed stiffeners, reinforcement, edge channels, louvers, moldings: Either cold-rolled, hot-rolled steel (fabricator's option)

C. SDI-100 compliance required:
   1. Exterior Doors: Grade III, extra heavy duty, Model 2, min. 16-ga. faces

D. Exposed Fasteners: Countersunk flat Phillips headed exposed screws, bolts

E. Exterior doors, panels, frames:
   1. Specified in Metal Building Systems, Section 133419

F. Hardware Preparation:
   1. Prepare for mortised, concealed hardware per final Hardware Schedule, hardware supplier’s templates
   2. Door/frame preparation: ANSI A115 series specifications
   3. Reinforce doors, frames for surface-applied hardware; drill, tap for surface-applied hardware at site
   4. Locate hardware indicated on final shop drawings; if not shown, per Door and Hardware Institute "Recommended Locations for Builder's Hardware"

G. Shop Painting:
   1. Clean, treat, and paint exposed unit surfaces, galvanized surfaces
   2. Clean mill scale, rust, oil, grease, dirt, other foreign materials from surfaces before paint application
   3. Prime with shop coat paint, even consistency, uniformly finish to receive finish paint

2.04 STANDARD STEEL DOORS

A. Provide types, styles indicated, scheduled
   1. Fire Rated Assemblies: Factory applied label as indicated. Comply with NFPA no. 80, NFPA 257 for positive pressure.

B. Construction: Mineral filled vertical seam at door corner, no visible seams, joints on faces or vertical edges.

C. Undercut: Coordinate undercut for all exterior doors with specified threshold.
   1. For ADA type threshold with stop bumper, top of bumper no higher than ½" above floor must securely contact the face of door.

2.05 STANDARD STEEL FRAMES

A. For doors, transoms, sidelights, borrowed lights, other openings: Types, styles shown, scheduled
   1. Conceal fastenings, unless otherwise indicated.
   2. Min. 16-gage cold-rolled furniture steel
   3. Construction:
      a. Knock-down type drywall frame with mitered corners for interior door frames in steel stud-framed drywall installations.
   4. Fire Rated Assemblies: Factory applied label as indicated. Comply with NFPA no. 80, NFPA 257 for positive pressure.

B. Door Silencers: Drill stops for 3 silencers on single-swing frame strike jambs, 2 silencers on double-swing frame heads.

C. Plaster Guards: 26-ga. steel plaster guards, mortar boxes; weld to frame, back of hardware cutouts (where mortar, other materials obstruct operation), close off openings.
   1. For exterior frames, plaster guards to be welded to resist water infiltration through cutouts.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install frames and accessories per final shop drawings, manufacturer's data, specifications herein

B. Placing Frames: SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated
   1. Place frames prior to wall, ceiling construction except where at in-place construction
   2. Accurately position frames, plumb, align; brace securely until permanent anchors set
      a. In addition to plumbing with a level, test for wracking with two diagonal strings attached at corners, to remain in place for inspection by the architect.
   3. After wall construction complete, remove temporary braces, spreaders; leave surfaces smooth, undamaged
   4. Anchorage:
      a. Fire-rated Frames: NFPA Std. No. 80.
      b. Wood Steel Partitions: Min. 3 wall anchors per jamb; hinge, strike levels

C. Door Installation:
   1. Fit accurately in frames; clearances per SDI-100
   2. Fire-rated Doors: Clearances per NFPA Standard No. 80, NFPA 257 for positive pressure.

3.02 ADJUST AND CLEAN

A. Prime Coat Touch-up: Immediately after erection, sand rusted, damaged prime coat smooth; touch-up with compatible air-drying primer

B. Final Adjustments: Check, readjust operating items; leave doors, frames undamaged, in complete, proper operating condition.

END OF SECTION 08110

SECTION 083416
HANGAR DOORS

PART 1 GENERAL

1.01 SUBMITTALS

A. Door Product Data: Include component construction, anchorage method, drive unit, actuating device, and hardware.

B. Door Shop Drawings: Indicate clear opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, installation details, and clearances. Include summary of forces and loads applied to door opening framing members and building structure.

C. Door Opening Frame Structure Shop Drawings: Indicate dimensions, locations of load-bearing members, bracing, connections, attachments, cambers, and loads; general construction details, anchors and methods of anchorage; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths.

D. Wiring Diagrams: For power, signal, and control wiring.

E. Design Documents: Drawings and calculations signed and sealed by Design Professional. Design door and door opening frame structure to same loading criteria for live, dead, seismic, and wind loads as surrounding construction.

F. Manufacturer's Installation Instructions: Include special procedures required by project conditions.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Operation Data: Normal operation, troubleshooting, and adjusting.

J. Specimen warranty.

1.02 QUALITY ASSURANCE

A. Designer Qualifications: Perform design of door panel framing structure and door opening framing structure under direct supervision of Professional Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

C. Installer Qualifications: Company specializing in performing work of type specified and with at least three years documented experience and approved by manufacturer.

1.03 WARRANTY

A. Manufacturer's Warranty: Provide 5-year manufacturer warranty for vinyl-coated polyester fabric curtain against material defects. Complete forms in Owner's name and register with manufacturer.

B. Manufacturer's Warranty: Provide 2-year manufacturer warranty for electric operating equipment. Complete forms in Owner's name and register with manufacturer.

C. Manufacturer's Warranty: Provide 3-year manufacturer warranty for hydraulic operating equipment. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 DESIGN CRITERIA

A. Regulatory Requirements: As a minimum, comply with applicable code criteria for loads, including seismic loads.

B. Design Loads: As indicated on drawings.

C. Aircraft Hangar Doors: Comply with requirements of NFPA 409.

2.02 PERFORMANCE REQUIREMENTS

A. Provide doors meeting or exceeding specified performance requirements.
   1. Deflection Limits: Do not exceed specified limits.
      a. Measure performance by testing in accordance with ASTM E330/E330M, using test loads equal to 1.5 times design wind loads and 10-second duration of maximum pressure.
   2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
      a. Test Pressure Differential: 10 psf (480 Pa).
      b. Test Method: ASTM E331.

2.03 GENERAL REQUIREMENTS

A. Provide space clear of obstructions along top and sides of door openings required to accommodate operator mechanisms and door panels or curtains in open position.

2.04 TILT-UP SINGLE RIGID PANEL DOORS

A. Approved Manufacturers:
   1. Scheweiss Hydraulic Style A I, External Truss, Single Hinge - Basis of Design.
   2. Equal products to be submitted for approval 10 days prior to bids.
   3. Exhibit A at the end of this section depicts coordination required between specified door and the pre-engineered metal building.

B. Description: Assemblies consisting of primary door panel framing members, secondary framing members, truss, exterior face cladding, lift mechanism, electrical components, and interior face cladding.
   1. Configuration: As indicated on drawings.
   2. Design structural assembly parts to withstand design loads without failure or permanent deformation.

C. Assembly Components: Manufacturer's standard for each of project's door opening sizes.
   1. Door Panel: Manufacturer's custom design for intended application.
      a. Nominal Size: As indicated on drawings.
      b. Nominal Thickness: As required by design, including thickness of cladding.
      c. Primary Door Panel Framing Structure: Structural steel tubing.
      d. Secondary Door Panel Framing: Welded structural steel tubing.
      e. Exterior Face Longitudinal Truss: Welded structural steel tubing, integral with bottom framing member of door panel.
      f. Exterior Face Cladding: Vertical metal wall panels furnished by metal building manufacturer under section 133419.
      g. Insulation: Type recommended by manufacturer to meet thermal performance requirements. R-10.
      h. Interior Face Cladding: None required.
   2. Panel Hardware: Manufacturer's standard.
      a. Hinges: Fabricated from standard structural steel shapes joined by machined steel rod pin.
      b. Cane Bolts: At inside of bottom door truss near door center.
   3. Weatherstripping: Manufacturer's standard for specified assembly.
      a. Factory-Supplied Weatherstripping: Shipped with assembly for field installation.

D. Operation: Manufacturer's standard.
   1. Operating Speed: Manufacturer's standard at zero wind load conditions.
   2. Operators and Control Stations: Provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
   3. Drive Unit: Comprised of lifting system and power unit.
      a. Lifting System: Manufacturer's standard design for intended application.

1) Hydraulic Drive: Hydraulic actuator connected to cylinder shaft, operated by pressurized hydraulic fluid.
2) Lift Cables: Selected in size and strength based on door panel weight.

b. Hydraulic Power Unit: Comprised primarily of oil reservoir and motor-driven positive displacement pump with control valves.

2.05 FOLD-UP BIFOLDING RIGID PANEL DOORS

A. Description: Assemblies consisting of two panels, each with primary and secondary framing members, truss, exterior face cladding, lift mechanism with lift straps, electrical components.
1. Configuration: As indicated on drawings.
2. Design structural assembly parts to withstand design loads without failure or permanent deformation.

B. Engineered and Furnished by the T-Hangar Building Manufacturer. Refer to Section 133419, Exhibit A.

C. Assembly Components: Manufacturer's standard for each of project's door opening sizes.
1. Door Panel: Manufacturer's custom design for intended application.
a. Nominal Size: As indicated on drawings.
b. Nominal Thickness: As required by design, including thickness of cladding.
c. Primary Door Panel Framing Structure: Structural steel tubing.
d. Secondary Door Panel Framing: Welded structural steel tubing.
e. Exterior Face Cladding: _____.
f. Insulation: Type recommended by manufacturer to meet thermal performance requirements. R-10.
2. Panel Hardware:
a. Hinges: Fabricated from standard structural steel shapes joined by machined steel rod pin.
b. Manual Side Latches: Manufacturer's standard.

D. Operation: Manufacturer's standard.
1. Operating Speed: Manufacturer's standard at zero wind load conditions.
2. Operators and Control Stations: Provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
3. Drive Unit:
a. Electric Power Unit: Top drive.
1) Top Drive Unit: Mounted on supporting structure above door opening.
(a) Design and provide supporting structure and anchorages.

2.06 BOTTOM-ROLLING MULTIPLE RIGID PANEL DOORS

A. Approved Manufacturers:
1. Norco Unidirectional, Four Panel Rolling Door - Basis of Design.
2. Equal products to be submitted for approval 10 days prior to bids.

B. Description: Assemblies consisting of multiple door panels, top guides rollers, bottom tracks, bottom wheels, interleaf bumpers, tractor pulls, track cleaners, top bumpers, drive units, and electrical components.
1. Configuration: Unidirectional.
2. Design structural assembly parts to withstand design loads without failure or permanent deformation.

2.07 CONTROL STATIONS

A. General Requirements: Stations compatible with specified operators, actuators, and safeties.
1. Type: Manufacturer's standard key-operated, "Open-Close" continuous-constant control device for each group of doors, as indicated on drawings.
2. Units: Self-contained, with full required functionality.
a. Surface-mounted, at location indicated on drawings.

1) Mounting Height: 60 inches (1524 mm) or higher above finished floor.

B. Key Controls: Manufacturer's standard.

2.08 EXTERIOR CLADDING FOR RIGID DOOR PANELS

A. Metal Panel Cladding:
   1. Vertical metal wall panels furnished by metal building manufacturer under section 133419.

2.09 INTERIOR CLADDING FOR RIGID DOOR PANELS

A. None required.

2.10 DOOR OPENING FRAMING STRUCTURE

A. Design to accommodate horizontal and vertical loads while supporting door and lift mechanism in open and closed positions, and through operational path.

B. Framing Components: As required for structural design.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install door assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without causing distortion or stress.

C. Install weatherstripping in accordance with approved shop drawings.

D. Brace door tracks suspended from structure; attach to structural members only.

E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.02 FIELD QUALITY CONTROL

A. Manufacturer Services: Provide services of manufacturer's field representative to test completed installation.
   1. Lubricate mechanisms.
   2. Testing consists of successful operation of two cycles each consisting of door opening and closing.

3.03 MAINTENANCE

A. Provide separate maintenance contract for service and maintenance of hangar door system for two years from Date of Substantial Completion.

END OF SECTION 083416

SCHWEISS DOORS — HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-1 SPEC SHEET

Order Number: | **Bid Number:** 71824-DW

BILL TO:	SHIP TO:	BUILDING MANUFACTURER
David Woodburn		
David Woodburn	Dalton GA 30719	

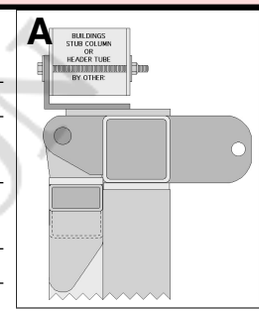
Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

NOT FOR CONSTRUCTION

PRELIMINARY SPECS

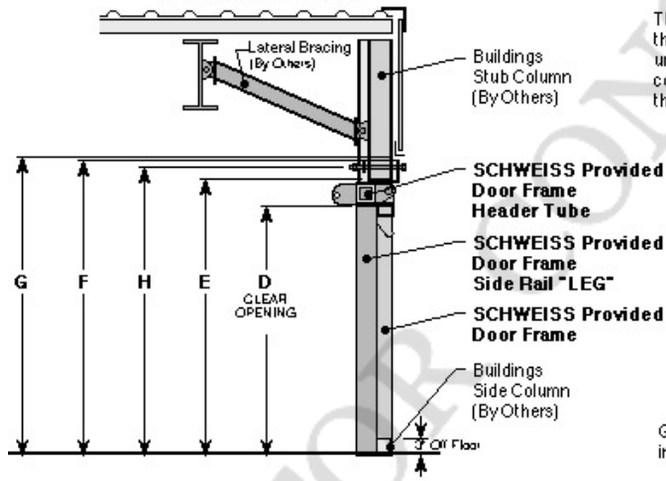
1. We are providing PRELIMINARY SPECS primarily for you to pass on to your Building Manufacturer / Engineer / Architect / Contractor for the overall size and hinge locations for this door.
2. These are PRELIMINARY SPECS and the WEIGHTS and REACTIONS will change, therefore DO NOT design or manufacture the Doors Building Header and the Doors Building Side Columns using these Preliminary Spec Weights and Reactions.
3. FINAL SPECS will be provided with the FINAL WEIGHTS AND REACTIONS after contract and engineering are finalized. ONLY use FINAL WEIGHTS AND REACTIONS to design and manufacture the Doors Building Header and the Doors Building Side Columns.

PRELIMINARY - Hydraulic Door Specifications



	Inches	Feet & Inches	
A-	600.00"	50'- 0.00"	**Customer's Finished Clear Opening Width.**
A1-	4.00"		Depth Placement Hydraulic Side Rail Tubes "Legs". Distance from the front plane of building structure to front of Hydraulic Legs "Set Back"
B-	609.00"	50'- 9.00"	Width Placement of the building side columns to accept a Hydraulic Door. Clear Opening between the building side columns.
C-	609.00"	50'- 9.00"	Total distance to stay back with the building sheeting on the side columns.
D-	216.00"	18'- 0.00"	**Customer's Finished Clear Opening Height** - Door in the Open Position.
E-	224.00"	18'- 8.00"	Distance from the finished floor to the bottom of the Building Header / Stub Column. Do not have stub columns / continuous header located any lower than this measurement.
F-	227.00"	18'- 11.00"	Distance from finished floor to the very top of header angles.
G-	228.00"	19'- 0.00"	Distance from finished floor to the building sheeting line above the door. Hold the sheeting to this elevation from the finished floor.
H-	226.00"	18'- 10.00"	Distance from the finished floor to the center of header angle bolt holes. ***YOU WILL BOLT THROUGH YOUR HEADER AT THIS HEIGHT***
H2-	3/4 x 6 HB		**Header Bolts Schweiss providing, unless otherwise specified by customer / contractor.**

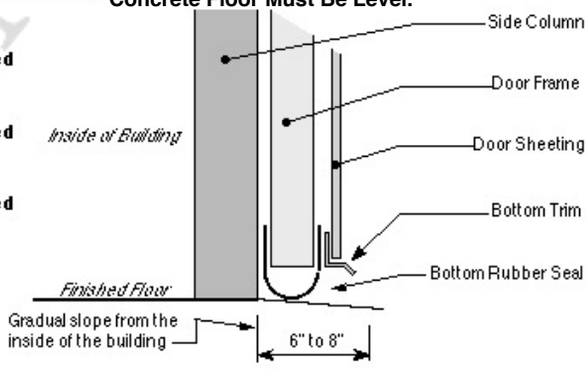
Side View



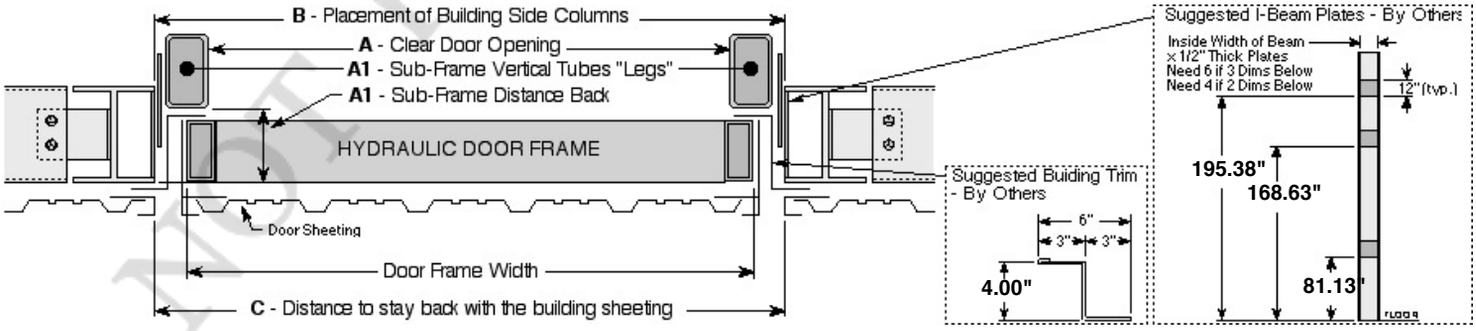
Your Concrete Floor

There must be a solid base or floor under the door frame. The door rests on the face of the building column or building line. To provide a weather tight seal under the hydraulic door and to keep moisture out of the building, have the concrete floor extend beyond the opening 6 to 8 inches sloping away from the building.

Concrete Floor Must Be Level.



Top View of Your Hydraulic Door



SCHWEISS DOORS — HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-2 SPEC SHEET

Order Number: **Bid Number:** 71824-DW

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

NOT FOR CONSTRUCTION

PRELIMINARY SPECS

1. We are providing PRELIMINARY SPECS primarily for you to pass on to your Building Manufacturer / Engineer / Architect / Contractor for the overall size and hinge locations for this door.
2. These are PRELIMINARY SPECS and the WEIGHTS and REACTIONS will change, therefore DO NOT design or manufacture the Doors Building Header and the Doors Building Side Columns using these Preliminary Spec Weights and Reactions.
3. FINAL SPECS will be provided with the FINAL WEIGHTS AND REACTIONS after contract and engineering are finalized. ONLY use FINAL WEIGHTS AND REACTIONS to design and manufacture the Doors Building Header and the Doors Building Side Columns.

PRELIMINARY - Design Criteria - Required Door Information

Building Code	**2018 IBC**	Building Code - *(Default is 2012 IBC)*
Wind Speed	**115 mph**	3 second gust - *(Default is 115 mph)*
Risk Category	**II**	II, III, or IV - *(Default is II)* - *(2009 IBC = Standard Occupancy)*
Wind Exposure	**C**	Exposure - *(Default is C)*
Wind Type	**Main Wind**	Component Wind or Main Wind (MWFRS) - (Component if less than 700sqft.)
Enclosure	**Enclosed**	Enclosed or Partially Enclosed - *(Default is Enclosed)*
Topographic Factor - Kzt	**1**	Must Be Provided by the Engineer of Record- *(Default is 1)*
Building Height	**22'**	Mean Roof Height or Eave Height for Building with Roof Slope of 10 Degrees or Less.
Roof Slope	**1 : 12**	Roof Slope - *(Default is 1 : 12)*
Door Operational Wind Speed	**30 mph**	**Maximum Wind Speed for Door Operation is: 30 mph** **Do not operate door if wind speed exceeds the maximum door operating speed. Door must be closed with floor pins and locks engaged when un-attended or when wind speed is expected to exceed the maximum door operating speed.**

PRELIMINARY - Technical Information For Your Hydraulic Door

A1-	**9**	Number of Hinges
A2-	**2**	Number of Lift Points - Location: (One on each end of the door frame)
A3-	**240-1PH**	Electrical System with Up/Stop/Down Switch and Power Unit on the **(LI) - Floor**

WARNING - **These are PRELIMINARY WEIGHTS that will change due to Final Engineering, if you pass these on to your Building Manufacturer / Engineer / Architect / Contractor, please inform them that these are not the FINAL WEIGHTS. DO NOT manufacture the Doors Building Header or the Doors Building Side Columns using these PRELIMINARY SPEC WEIGHTS.**

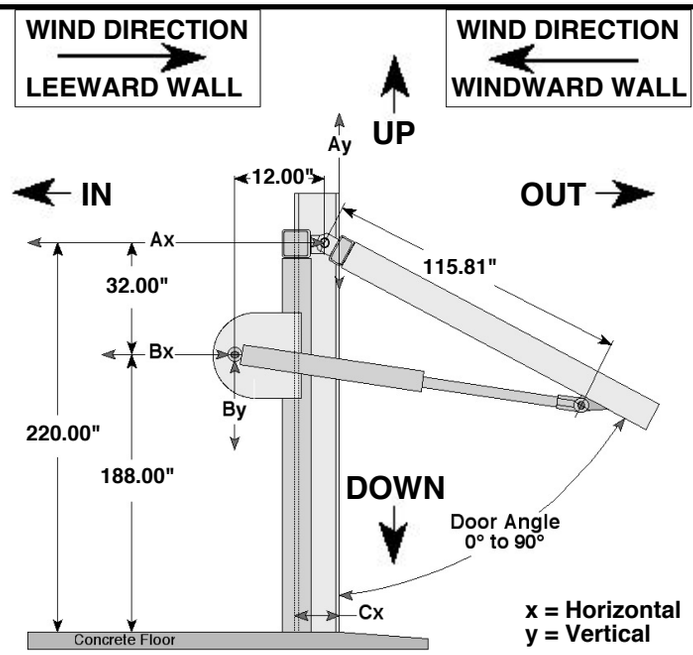
Door Weights

B1-	**5243 lbs**	Structural Framing Weight	
B2-	**943 lbs**	Exterior Sheeting & Trim Weight	(29ga. = 0.82 psf. -- 26ga. = 0.99 psf.
B3-		Liner Sheeting & Trim Weight	(29ga. = 0.82 psf. -- 26ga. = 0.99 psf.) / 2 If Only Bottom Half
B4-		Insulation Weight	(4" Blanket = 0.5 psf. -- 6" Blanket = 0.65 psf.)
B5-		Optional - added accessories	
B6-	**6186 lbs**	**Estimated Total Door Weight**	

PRELIMINARY - Door Reactions

DOOR CLOSED	Column Reactions at Base (lbs.)		END HINGES Side Column and 1st Hinge Loc. from Each End (lbs.)		CENTER HINGES Interior Hinges (lbs.)	
	(C_x)		(A_x)	(A_y)	(A_x)	(A_y)
Dead Load	0		0	425 ⌄	0	851 ⌄
WINDWARD WALL	115 MPH WIND LOAD					
Internal Pressure	1339	‹	184 ‹	0	368 ‹	0
Internal Suction	3530	‹	485 ‹	0	971 ‹	0
LEEWARD WALL						
Internal Pressure	2861	›	393 ›	0	787 ›	0
Internal Suction	670	›	92 ›	0	184 ›	0

DOOR OPEN	Column Reactions at Base (lbs.)		END HINGES Side Column and 1st Hinge Loc. from Each End (lbs.)		CENTER HINGES Interior Hinges (lbs.)	
	(B_x)	(B_y)	(A_x)	(A_y)	(A_x)	(A_y)
Dead Load	12107 ‹	3922 ⌄	7264 ›	425 ⌄	3632 ›	851 ⌄
WINDWARD WALL	30 MPH MAXIMUM WIND FOR DOOR OPERATION					
Internal Pressure	5930 ‹	1485 ⌃	32 ‹	208 ⌃	64 ‹	417 ⌃
Internal Suction	3476 ‹	870 ⌃	117 ‹	429 ⌃	235 ‹	858 ⌃
LEEWARD WALL						
Internal Pressure	3749 ›	939 ⌃	29 ›	1 ⌃	58 ›	2 ⌃
Internal Suction	1295 ›	324 ⌃	10 ›	0 ⌃	21 ›	1 ⌃



Important Note:

When your hydraulic door is opening or in the fully open position, the door tends to pull away from the building at the hinge line also putting stress on each building column where the cylinders attach. The building manufacturer / contractor / owner is responsible to insure that the building structure is capable of handling all the imposed loads. All materials not supplied by Schweiss are the full responsibility of others!

71824 12:14

SCHWEISS DOORS — HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-3 SPEC SHEET

Order Number: **Bid Number:** 71824-DW

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

NOT FOR CONSTRUCTION

PRELIMINARY SPECS

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2. These are PRELIMINARY SPECS and the WEIGHTS and REACTIONS will change, therefore DO NOT design or manufacture the Doors Building Header and the Doors Building Side Columns using these Preliminary Spec Weights and Reactions.
3. FINAL SPECS will be provided with the FINAL WEIGHTS AND REACTIONS after contract and engineering are finalized. ONLY use FINAL WEIGHTS AND REACTIONS to design and manufacture the Doors Building Header and the Doors Building Side Columns.

Minimum Hydraulic Door Header Requirements

1. **Maximum Allowable Vertical Deflection L / 180 Maximum under Dead + Live Load or Dead + Snow Load Combinations. Vertical Frame Deflection must be held so that the door will open when the full snow load is applied to the building.**
2. **Deflection Increases from 0 at Door Side Columns to the maximum allowable deflection at the center of the door.**
3. **Maximum Allowable Horizontal Frame Drift is H / 60 in the plane of the wall containing the door.**

Minimum Hydraulic Door Side Column Requirements

4. **L / 90 (Wind Load) Maximum Allowable Inward or Outward Deflection of Your Buildings Hydraulic Door Side Columns:**
5. **L / 180 (Dead Load of Door)**
6. **1/2" Recommended Minimum Flange Thickness of Your Buildings *Hydraulic* Door Side Columns:**
7. **8.50" Side Column Eccentricity "e"**

Information for Building Designers

Designing the Door Side Column for Hydraulic Doors.

8. The door side column must be designed to withstand the forces from the hydraulic door cylinder as the door opens and in all positions. Due to the diameter of the cylinder and clearance required to allow the cylinder to rotate as the door opens, the bracket that attaches the cylinder to the door side column causes eccentric loading and torsion on the door side column. The bracket is offset from the centerline of the door side column on both the major and minor axis of the door column.
9. The door side columns and door header must be on the same plane - flush with each other.

Design the door side columns for:

10. Door Column Must Be Designed for inward deflection due to wind load distributed uniformly along the length of the door column and for an outward deflection due to the hydraulic cylinder reaction (door Closed) at the cylinder location.
11. Major axis and minor axis bending are due to the cylinder reactions Bx and By as shown in the adjacent eccentricity diagram.
12. Torsion on the door column due to the eccentricity ("e") of the door cylinder and bracket are shown in the adjacent eccentricity diagram.
13. Axial load by the building framing on the door side column (including the dead load of the door).
14. Torsional properties of the door column must be designed for combined axial compression and torsion according to Chapter H of AISC 13th Edition.

Deflection Requirements for door side column:

15. Design the door side column for the same deflection requirements as required by the building code for your cladding type.

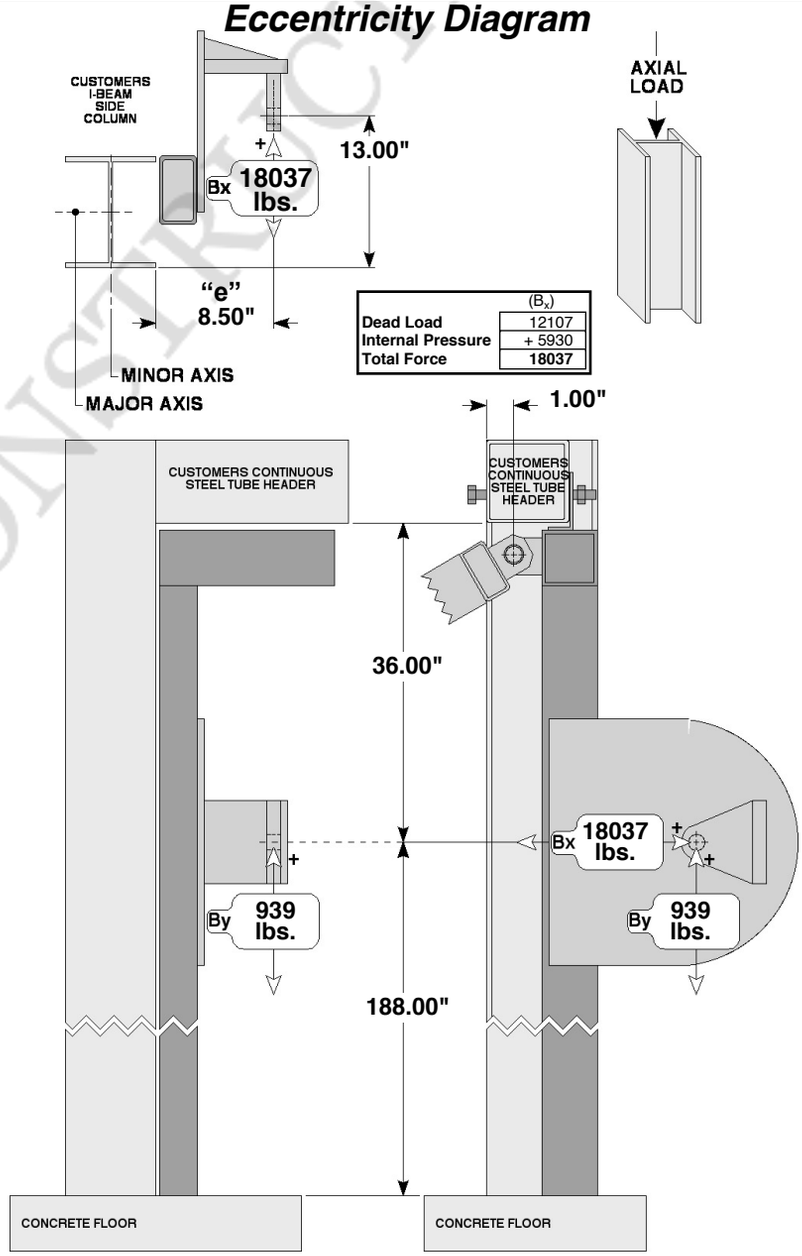
Torsional Deflection:

16. The torsional deflection of the door side column should be limited to 3° to allow the door hydraulic cylinder to operate properly.

General Design Notes:

17. The door side columns, header and bracing should be designed by a registered Professional Engineer.
18. Specific building conditions other than those indicated in the Spec Sheets may exist which require further engineering consideration.
18. Schweiss is not responsible for the size or design of the door header and side columns for your building. All materials not supplied by Schweiss are the full responsibility of others.
20. Door Dead Load is applied to the building when the door is open or closed.
21. It is the building designers responsibility to combine the door reactions with the appropriate load combinations.

Eccentricity Diagram



SCHWEISS DOORS — HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-4 SPEC SHEET

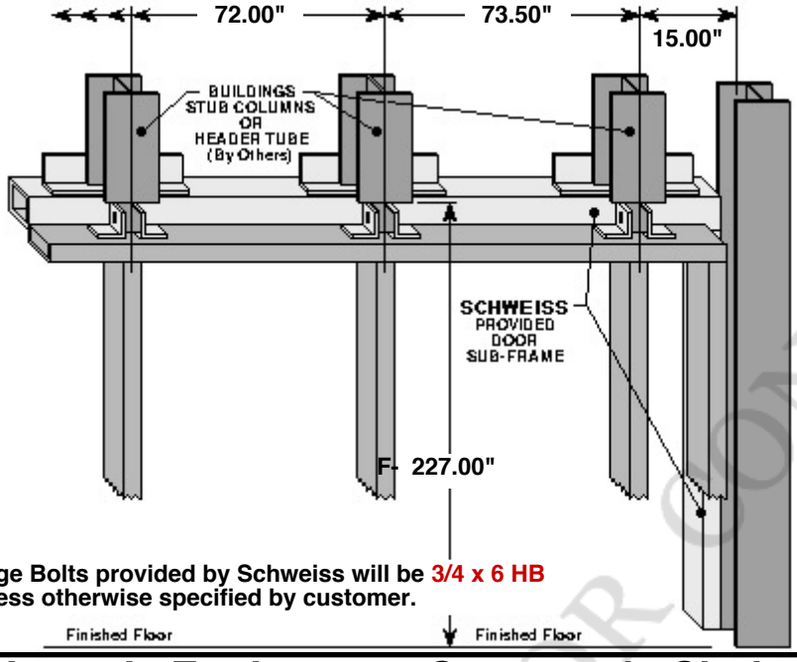
Order Number: **Bid Number:** 71824-DW

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

Attaching Hydraulic Door To Your Building

Typical I-Beam Building Side Column With Stub Columns

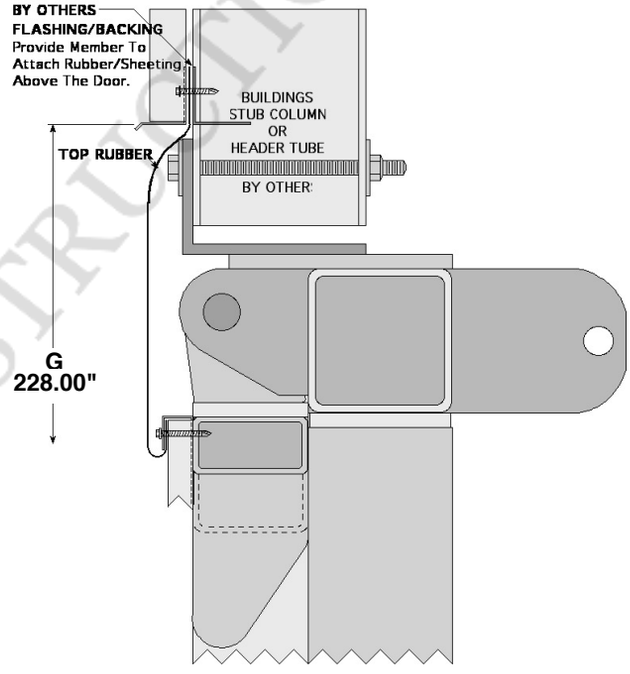
- Bolt Through I-Beam Side Columns and Stub Columns or Steel Tube Header.
- Face of Header and Stub Columns must be Flush with each other.



Hinge Bolts provided by Schweiss will be 3/4 x 6 HB
Unless otherwise specified by customer.

Sheeting Above Your Hydraulic Door

- Sheet above door at the height shown below.
- Provide proper backing to attach sheeting and door top rubber to at this height.



Upgrade Equipment - Customer's Choice

You may add any accessory to your Hydraulic Bi-Fold Door.
Schweiss strongly recommends these accessories be used on every door.
Only included with your order if the box is checked

1. ☐ Top Override Jiggle Switches
2. ☐ Electric Photo Eye Sensors
3. ☐ 3 Button Automatic Switch
4. ☐ Door Base Safety Edge
5. ☐ Warning Lights and Horn
6. ☐ Emergency Back-Alternate Power Couplers
7. ☐ 12 Volt D.C. Emergency Back-Up Power Unit

Read the Schweiss "Safety Information and Operation Manual"

The Schweiss Hydraulic Doors Safety Information and Operation Manual should be read by anyone involved in the design, specifications, selection or purchase of an industrial hydraulic door operator / system.

Call Us If You Have Any Questions

If you have any questions or comments about your hydraulic door's safe operation or its design, call us at the numbers listed at the top of the page and talk to our knowledgeable staff at the factory.

NOT FOR CONSTRUCTION

PRELIMINARY SPECS

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3. FINAL SPECS will be provided with the FINAL WEIGHTS AND REACTIONS after contract and engineering are finalized. ONLY use FINAL WEIGHTS AND REACTIONS to design and manufacture the Doors Building Header and the Doors Building Side Columns.

Owners / Building Manufacturers / Engineers / Architects / Contractors:

When working with contractors or construction companies **it is your responsibility to pass** this information on to them. The Building Manufacturer ***/ Engineer / Architect*** / Contractor / Owner is responsible to ensure that the building structure is capable of handling all the imposed loads. All materials not supplied by Schweiss are the full responsibility of others!

Building Manufacturer / Engineer / Architect / Contractor / Owner is responsible for ensuring that the correct version of A-1 thru A-7 Spec Sheets are being used for their door. Schweiss Distributing is **Not** liable for the ***Building Manufacturer / Engineer / Architect / Contractor / Owner*** using an obsolete or PRELIMINARY version of the A-1 thru A-7 Spec Sheets.

I have read through the FINALIZED Spec Sheets A-1, A-2, A-3, A-4, A-5, A-6, A-7, A-8 and agree to them.

Customer: _____
SIGNATURE REQUIRED

Thank You :
Sales Person Brent Krzmarzick

71824 12:14

SCHWEISS DOORS — HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-5 SPEC SHEET

Order Number: **Bid Number:** 71824-DW

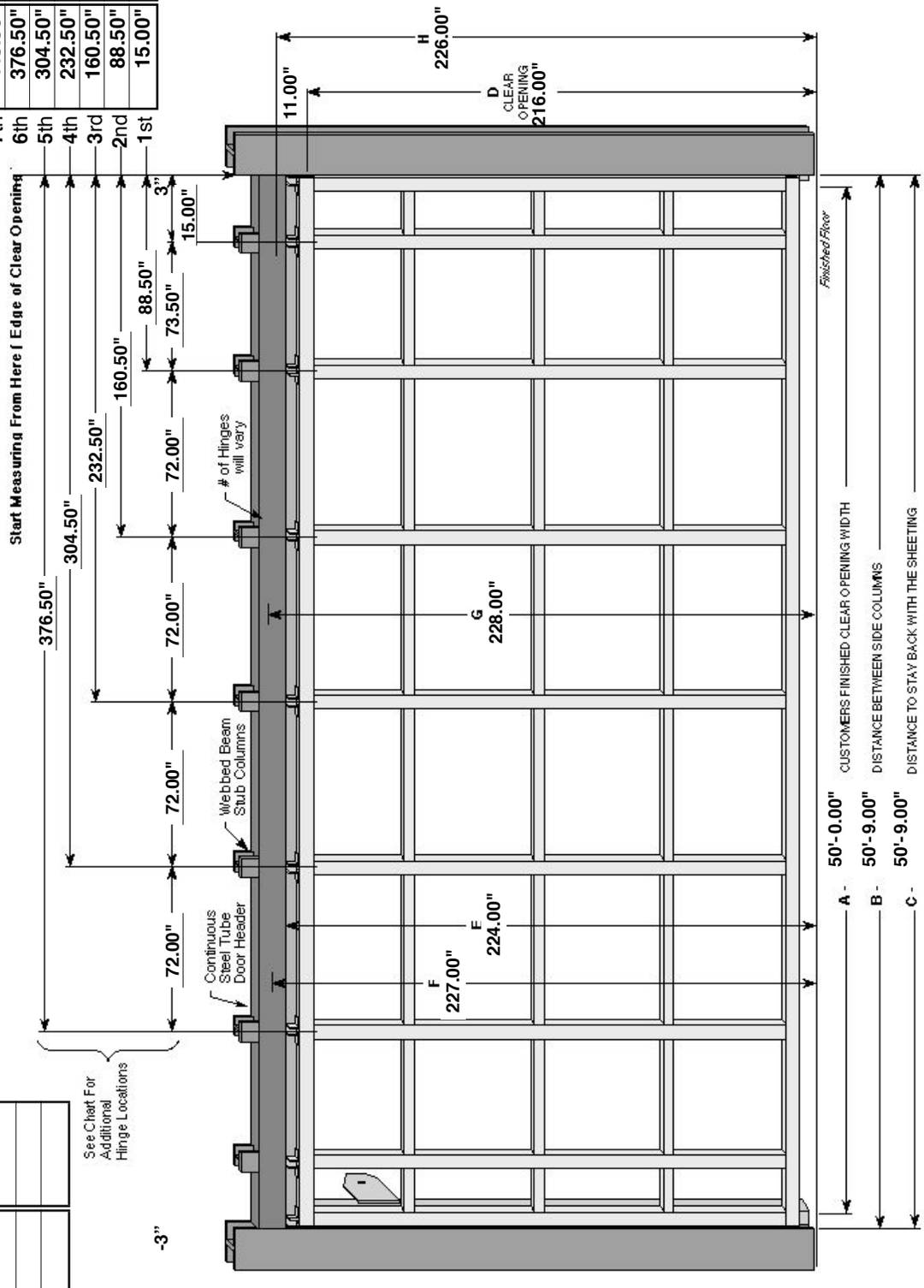
Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

Schweiss furnishes the hydraulic door frame.

Hinge Locations for your Hydraulic Door

Field drill the hinge header holes when you are installing the hydraulic door.
Distance from the right side of the clear opening to the center of the holes on each of the single hinges.
Left and Right End Hinges:
Important: Each end hinge of the hydraulic door will overlap the building side column and must be attached securely to each building side column.

	Hinge Locations	Distance Between Hinges
13th		
12th		
11th		
10th		15.00"
9th	594.00"	73.50"
8th	520.50"	72.00"
7th	448.50"	72.00"
6th	376.50"	72.00"
5th	304.50"	72.00"
4th	232.50"	72.00"
3rd	160.50"	72.00"
2nd	88.50"	73.50"
1st	15.00"	15.00"



	Hinge Locations	Distance Between Hinges
14th		
15th		
16th		
17th		
18th		
19th		
20th		
21st		
22nd		
23rd		
24th		
25th		
26th		

SCHWEISS DOORS — HYDRAULIC DOOR SPECS

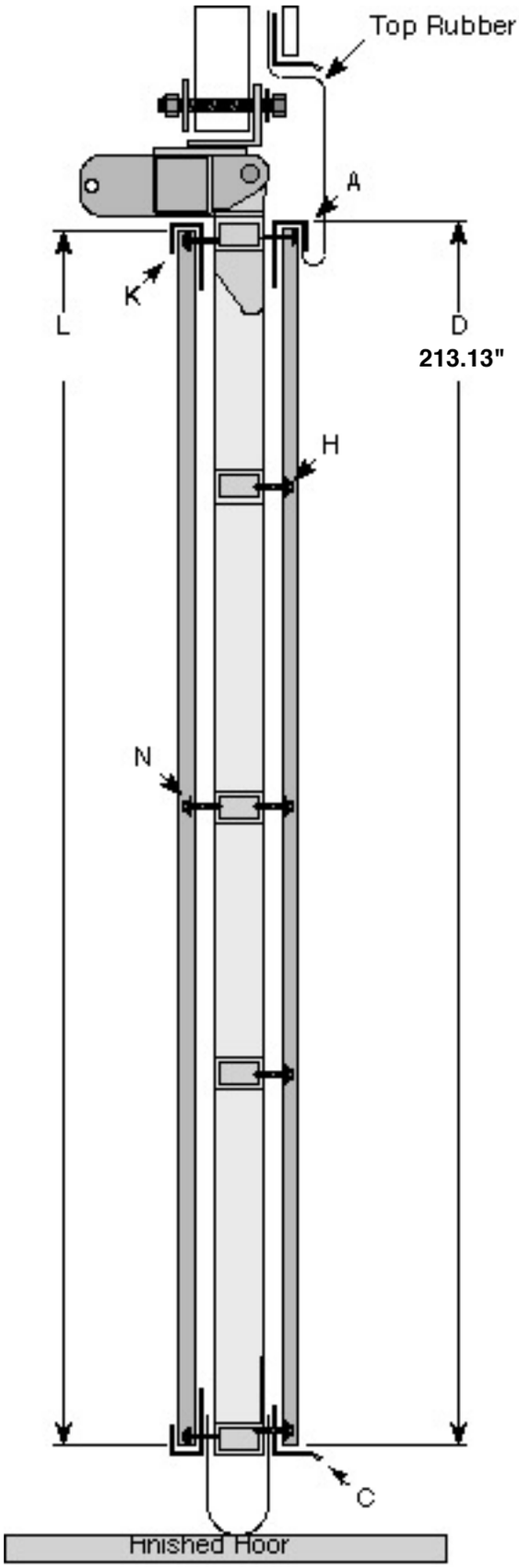
PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-6 SPEC SHEET

Order Number: **Bid Number:** 71824-DW

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

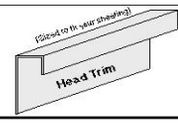
External Sheeting and Trim Provided By: Customer Responsibility



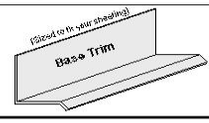
Leave your end wall open or un-sheeted until the door is installed! If the end wall is to be fully sheeted before the door is completed, do not nail or fasten the bottom of the sheets above the door frame.

NOTE: SD = Sheeting Depth

A 52' H-Trim 26g. - 3xSDx1



C 52' B-Trim 26g. - 2.75xSDx.75

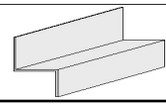


	Qty	Length	
D	17	213.13"	Sheeting

F

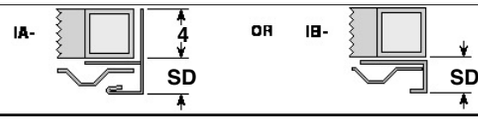
H2

G

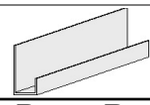


H 548 1" Fine Thread Tek Screws w/ Seal Washer

I 40' F-Trim 26g. - 4x2.75xSDx1



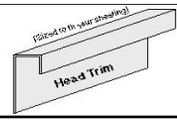
J



Liner Sheeting and Trim Prov. By: Customer Responsibe

Flash For Liner Sheeting = Not Set-Up for Liner Sheeting

K



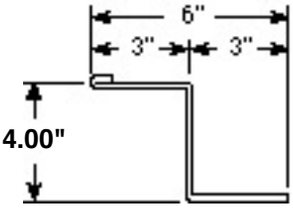
	Qty	Length	
L			

N

Building Trim Prov. By: Customer Responsibe

BT 40' Suggested Building Trim Below

Suggested Building Trim
See Bottom Detail - Page 1



Hinge Bolts provided by Schweiss will be 3/4 x 6 HB
Unless otherwise specified by customer.

Front Side Column Bolts provided by Schweiss will be 1/2 x 6 HB
Unless otherwise specified by customer.

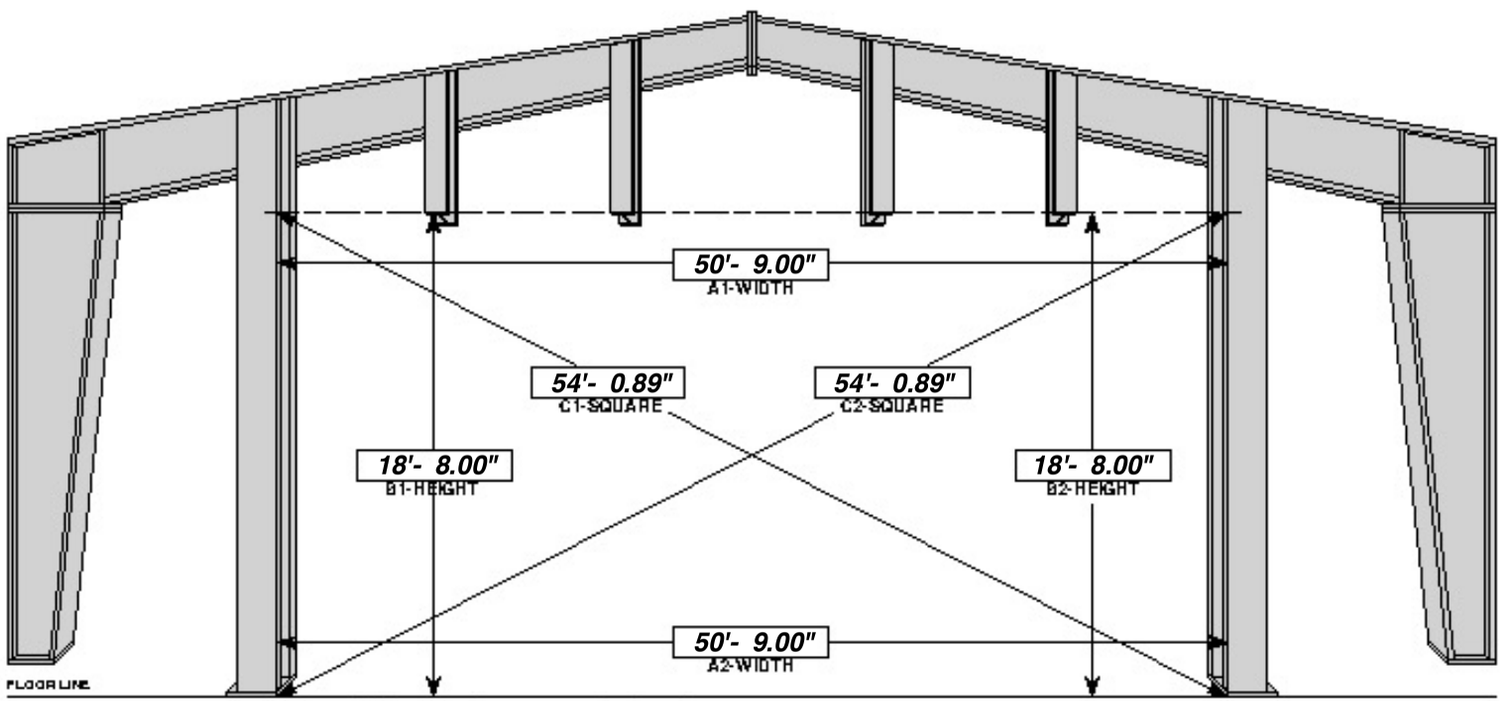
71824 12:14

Verifying your building's opening to accept a Schweiss Hydraulic Door.

Before you attempt to install you hydraulic door, the building opening must have been prepared to accept a hydraulic door. The measurments below are what Schweiss is expecting your opening to be based on the information that you provided (width and height on the door contract).

It is very important that you double check these measurments along with the square opening to ensure that the door will fit in your clear opening when it arrives.

Distance Between Your Buildings Side Columns.				
A1 - Width	***50'- 9.00"***	= Width	**IMPORTANT**	Both A1 and A2 measurements must be exactly
A2 - Width	***50'- 9.00"***	= Width		the same and match your spec sheet.
Distance from the Finished Floor to the Bottom of the Building Header.				
B1 - Height	***18'- 8.00"***	= Height	**IMPORTANT**	Both B1 and B2 measurements must be exactly
B2 - Height	***18'- 8.00"***	= Height		the same and match your spec sheet.
Verify that the Building Opening is Square.				
C1 - Square-Up	***54'- 0.89"***	= Diagonal	**IMPORTANT**	Both C1 and C2 measurements must be
C2 - Square-Up	***54'- 0.89"***	= Diagonal		exactly the same and match your spec sheet



* Cement floor must be level
* The measurements above represent the rough opening of your building
* All measurements must be inside measurements

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

Order Number: Bid Number: 71824-DW

SCHWEISS DOORS

HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

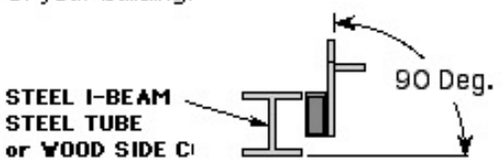
A-7 SPEC SHEET

71824 12:14

Measuring your building's opening after cylinder legs are mounted.

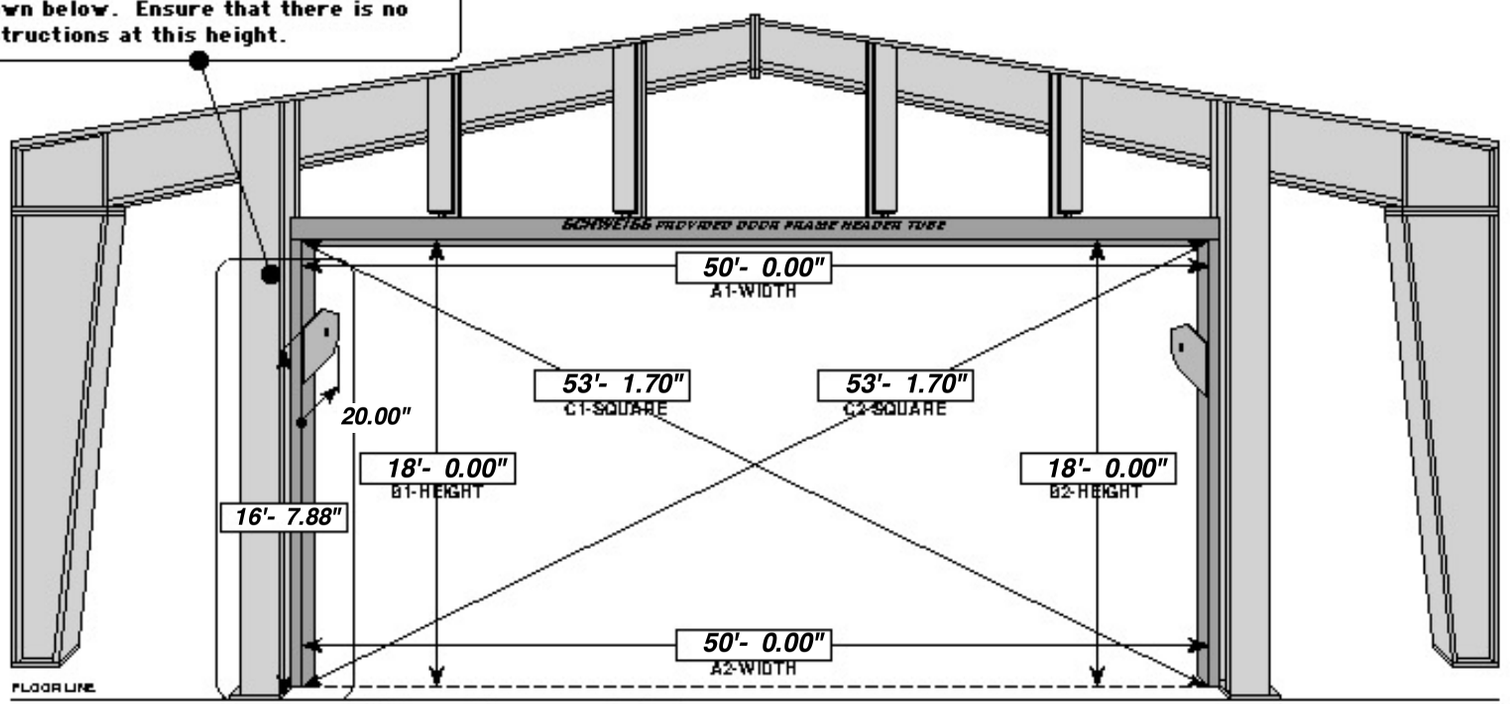
With the cylinder legs mounted to the building you need to remeasure the clear opening, you should come up with the measurments below. If the clear opening is not square, you need to make adjustments to square the cylinder legs vertically and front to back when completely mounted.

Ensure that your building Side Column is square with the face of the building. But most importantly see to it that the cylinder legs are 90 Deg. from the face of your building.



Distance Between Your Buildings Side Columns.				
A1 - Width	50'- 0.00"	= Width	**IMPORTANT**	Both A1 and A2 must
A2 - Width	50'- 0.00"	= Width		be exactly the same.
Distance from the Finished Floor to the Bottom of the Building Header.				
B1 - Height	18'- 0.00"	= Height	**IMPORTANT**	Both B1 and B2 must
B2 - Height	18'- 0.00"	= Height		be exactly the same.
Verify that the Building Opening is Square.				
C1 - Square-Up	53'- 1.70"	= Diagonal	**IMPORTANT**	Both C1 and C2 must
C2 - Square-Up	53'- 1.70"	= Diagonal		be exactly the same.

VERY IMPORTANT
The Hydraulic Cylinder Plate will project into your 20.00" building at the height shown below. Ensure that there is no obstructions at this height.



* Cement floor must be level
* The measurements above represent the rough opening of your building
* All measurements must be inside measurements

Door Width	Door Height	Wedge	Overall Height	Door Style	Truss	Hinge Style	Tot W - Inches	Tot H - Inches
50'-0.00"	18'-0.00"	11"	18'-11.00"	HYDRAULIC A I	External	Single Hinges	604"	227"

Order Number: Bid Number: 71824-DW

SCHWEISS DOORS

HYDRAULIC DOOR SPECS

PHONE: 507-426-8273 / FAX: 507-426-7408 / SchweissDoors.com

A-8 SPEC SHEET

SECTION 08710

DOOR HARDWARE

PART 1 - GENERAL

2.09 SUMMARY

A. Finish Hardware: Commercially known as hardware for swing, sliding, folding doors
   1. Exception: Special types of unique, non-matching hardware specified in door, door frame sections.

B. Extent required indicated on drawings, schedules.

C. Types:
   1. Hinges
   2. Pivots
   3. Lock cylinders, keys
   4. Lock, latch sets
   5. Bolts
   6. Closers
   7. Door trim units
   8. Protection plates

A. Related Documents Specified Elsewhere
   1. Drawings, General and Supplementary Conditions, Division-1 Specification sections, apply to this Section
   2. Section 08110 - Steel Doors and Frames:
      a. Silencers integral with hollow metal frames
   3. Section 133419 – Metal Building Systems:
      a. Doors in Exterior walls of pre-engineered metal buildings. Hardware specified herein.
      b. Hardware for swinging doors in bi-fold hangar doors specified and furnished with doors.

1.02 QUALITY ASSURANCE

A. Manufacturer: Each type (latch sets, lock sets, hinges, closers, etc.) from one manufacturer, although several indicated offering complying products
B. Supplier: Recognized architectural finish hardware supplier
   1. Warehousing facilities in project's vicinity min. 2 years
   2. Employ experienced architectural consultant available during course of work, for consultation with Owner, Architect, Contractor

C. Fire-Rated Openings:
   1. Hardware meet NFPA Standard No. 80, local building code requirements
   2. UL or FM tested, listed for types, sizes of doors required; meet door, frame label requirements

1.03 SUBMITTALS

A. Product Data:
   1. Manufacturers Technical Data: Each item per Section 01330 - Submittal Procedures
   2. Show compliance with requirements, instructions for installation, maintenance of operating parts, finish

B. Hardware Schedule:
   1. Submit final schedule as indicated below
   2. Coordinate hardware with doors, frames, related work for proper hardware size, thickness, hand, function, finish
   3. Final Content:
      a. Organize schedule into "hardware sets"; complete designations each item, door, opening
         (1) Type, style, function, size, finish
         (2) Name, manufacturer
         (3) Fastenings, other pertinent information
         (4) Cross-reference locations to designations on floor plans, door and frame schedule
         (5) Explain abbreviations, symbols, codes, etc. contained in schedule
         (6) Mounting locations
         (7) Door, frame sizes, materials

(8) Keying information

4. Sequence:
   a. Submit early where acceptable hardware schedule precedes other fabrication (hollow metal frames, etc.) critical to construction schedule
   b. Product data, samples, shop drawings of other affected work, other essential information

C. Keying Schedule: Separate detailed schedule indicating Owner's final keying instructions

D. Templates:
1. Furnish to each fabricator (doors, frames, other factory-prepared work)
2. On request, check other shop drawings, confirm adequate provisions for hardware location, installation.

2.10 WARRANTY

A. Guarantee all items (except otherwise specified) against failure from defective materials, workmanship two (2) years after Final Acceptance; if failure occurs, promptly repair, replace at no cost to Owner

B. Guarantee overhead closers against failure from defective materials, workmanship five (5) years after Final Acceptance; if failure occurs, promptly repair, replace at no cost to Owner

1.04 PRODUCT HANDLING

A. Tag or package items separately, identify with final hardware schedule designation, include basic installation instructions with each

B. Packaging: Responsibility of supplier.
1. Sort, repackage items in containers marked with set number to match hardware schedule set numbers
2. Package two or more identical sets in same container

C. Inventory hardware with supplier and installer until satisfied that count correct

D. Deliver at proper times, locations (shop or project site) for installation

E. Security:
1. Securely lock up items delivered, not yet installed
2. Control handling, installation of items not immediately replaceable, to not delay completion by losses, before and after installation

PART 2 - PRODUCTS

2.01 SCHEDULED HARDWARE

A. Requirements for design, grade, function, finish, size, other distinctive qualities of each type indicated in Finish Hardware Data Sheet, Hardware Schedule at end of section
1. Products identified by using hardware designation numbers:
   a. Manufacturer's product designations:
      (1) Manufacturers listed for each type required
      (2) Hardware Schedule: First named manufacturer indicates product designation to establish min. requirements
      (3) Provide product designated or comparable product of one of other listed manufacturers meeting requirements specified elsewhere in section
   b. ANSI/BHMA Designations: Comply with these standards, requirements specified elsewhere in this section
      (1) Butts and Hinges: ANSI A156.1 (BHMA 101)
      (2) Locks and Lock Trim: ANSI A156.2 (BHMA 601)
      (3) Door Controls, Closers: ANSI A156.4 (BHMA 301)
      (4) Auxiliary Locks: ANSI A156.5 (BHMA 501)
      (5) Architectural Door Trim: ANSI A156.6 (BHMA 1001)
      (6) Template Hinge Dimensions: ANSI A156.7
      (7) Door Controls - Overhead Holders: ANSI A156.8 (BHMA 311)

(8) Interconnected Locks and Latches: ANSI A156.12 (BHMA 611)
(9) Closer Holder Release Devices: ANSI A156.15 (BHMA 321)
(10) Auxiliary Hardware: ANSI A156.16 (BHMA 1201)
(11) Materials & Finishes: ANSI A156.18 (BHMA 1301)

2.02 MATERIALS AND FABRICATION

A. General:
1. Hand of door:
a. Drawings show direction (slide, swing, hand) of each door leaf
b. Furnish each item for proper installation, operation of door movement shown

B. Base Metals:
1. Basic metal, forming method indicated; manufacturer's standard metal alloy, composition, temper, hardness
a. In no case lesser (commercially recognized) quality than by applicable ANSI A156 series standard for each type, ANSI A156.18 for finish designations
2. Do not furnish "optional" materials, forming methods for those indicated, unless otherwise specified

2.11 Fasteners:
A. Conform to published templates, generally prepared for machine screws
B. Do not provide hardware for self-tapping sheet metal screws, unless specifically indicated
C. Furnish installation screws with each item
D. Screws: Phillips flat-head, unless otherwise indicated
E. Exposed (under any condition) Screw Finish: Match hardware finish; if exposed in other work, match finish of such closely as possible, including "prepared for paint" in painted surfaces
F. Concealed fasteners for units exposed when door closed, unless concealed fasteners not available on standard units
1. Do not use thru-bolts where bolt head, nut on opposite face exposed, except where reinforcement not feasible
2. If thru-bolted, use sleeves or sex screw fasteners

C. Tools and Maintenance Instructions for Maintenance: Complete set for Owner's continued adjustment, maintenance, removal, replacement.

2.03 HINGES, BUTTS

A. Template-Produced Units: All except hinges entirely (both leaves) on wood doors, frames

B. Bearing:
1. Generally plain bearing.
2. Ball-bearing on fire-rated doors (more than twenty minutes), all having closers, others where specified
C. Screws:
1. Phillips flat-head or wood screws for wood, Philips flat-head or machine screws all others
2. Match screw head finish to surface of hinges
D. Hinge Pins: Unless otherwise indicated:
1. Steel Hinges: Steel pins.
2. Non-ferrous Hinges: Stainless steel pins.
3. Out-swing Corridor Doors: Non-removable pins.
4. Interior Doors: Non-rising pins.
5. Tips: Flat button and matching plug, finished to match leaves
E. Number of hinges:
1. Doors up to 90" high and 36” wide: Min. 3 hinges/leaf
2. One additional hinge each 30" (or fraction thereof) additional height and 12” of width.

F. Products: Specifications based on first named manufacturer; other acceptable manufacturers if product meets criteria of first named:
1. Butt Hinges:
a. Hager Hinge Co.
b. McKinney Manufacturing Co.
c. Stanley Hardware Div., The Stanley Works

2.04 LOCK CYLINDERS AND KEYING

A. Supplier's AHC meet with Contractor, Architect, Owner; finalize keying requirements, obtain final instructions in writing

B. Keying System:
1. Masterkey locks to new system.

C. Cylinders for Locks:
1. Manufacturer's cylinder; compatible with Kwikset ‘KW-1’ or Schlage ‘C’ keyway.

D. Lock Cylinder Parts Metals:
1. Brass/bronze
2. Stainless steel
3. Nickel silver.

E. Keys:
1. Masterkey per Owner's instructions; unless otherwise indicated, provide individual change key each lockset
2. Permanently inscribe each:
a. Number identifying cylinder, key symbol
b. Notation "DO NOT DUPLICATE"
3. Material: Nickel silver only
4. Bow Type:
a. Manufacturer's standard bow:
(1) All keys.
b. Manufacturer's access/large bow:
(1) One each change keys in addition to quantities specified below.
5. Quantity:
a. Two (2) change keys each lock
b. Six (6) master keys each system
c. Six (6) construction master keys
d. Extra Blanks:
(1) One extra standard bow blank each lockset
(2) One extra access/large bow blank each lockset

6. Supplier deliver keys to key control system manufacturer
7. Key Control System: Recommended by system manufacturer:
a. Envelopes, labels, tags with self- locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers
b. Standard metal cabinet
(1) Furnish one cabinet for each building.
(2) Hinged-panel type cabinet, wall mounted.
c. Capacity: 150% of required Project locks
d. Set up complete cross index system, place keys on markers, hooks in cabinet per final key schedule
e. Acceptable manufacturers:
(1) P. O. Moore
(2) American Device
(3) Lund Equipment Co., Inc.
(4) MMF Industries, Inc.
(5) Telkee, Inc.

2.05 LOCKS, LATCHES, BOLTS

A. Strikes:
1. Manufacturer's standard wrought box strike for each latch, lock bolt
2. Curved lip extended to protect frame
3. Finish to match hardware set
4. Dust-proof strikes for foot bolts, unless threshold construction provides non-recessed strike
5. Roller type strikes where recommended by latch/lock manufacturer

B. Latch, Latchbolt, Deadlock Bolt Throw:
1. ¾" min. latch and deadbolt throw on pairs of doors
2. Meet UL requirements for throw on rated fire openings

3. ¾" min. throw on other latch and deadlock bolts

C. Flush Bolts:
1. Heads: Min. ½" dia. brass, bronze or stainless steel rods, min. 12" long for doors max. 84" high, longer for doors over 84"

D. Products: Specifications based on first named manufacturer; other acceptable manufacturers if product meets criteria of scheduled model:
1. Locksets, Latchsets: Certified ANSI/BHMA A156.2, Series 4000, Grade 2 (heavy) for key-in- lever locksets.
   a. Falcon Locks, B Series, Quantum
   b. Corbin-Russwin; CL 3900, PZD
   c. Sargent Manufacturing Co., 6500 Series, LP
   d. Schlage Lock Company, AL Series, Sparta
   e. Yale Div., Yale Security, Inc., 5300LN, PB
2. Mortise Locksets, Latchsets and Deadlocks, Grade 1, Heavy Duty:
   a. Falcon Locks; MA Series, Quantum-Maxim unless noted otherwise
   b. Corbin-Russwin; ML22
   c. Best Lock Corp.; Design 3H.
   d. Sargent Manufacturing Co., Div. of Essex Industries, Inc.; Design LNJ
   e. Schlage Lock Co.; Design 03.
   f. Yale Div., Yale Security, Inc.; Design CRR (solid cast).
3. Mortise Keypad Locksets, Latchsets and Deadlocks, Grade 1, Heavy Duty:
   a. Kaba Locks; E-Plex 2000 Series, Battery powered
4. Cylindrical Deadlocks: Certified ANSI/BHMA: A156.5,2001,Grade 1.
   a. Falcon Locks, D-100 Series.
   b. Equal certified deadlock by the approved manufacturer furnishing locksets.

2.09 CLOSERS AND DOOR CONTROL DEVICES

A. Size: Unless otherwise indicated, manufacturer's recommendations for unit size, depending upon door size, exposure to weather, anticipated frequency of use.

B. Where parallel arms indicated, use closer one size larger than recommended for standard arms.

C. Parallel arms: All overhead closers, unless otherwise indicated.

D. Products: Specifications based on first named manufacturer; other acceptable manufacturers if product meets criteria of first named:
1. Overhead Closers:
   a. LCN Closers
   b. Rixon-Firemark, Inc.
   c. Norton Door Controls
   d. Yale Div., Yale Security, Inc.

2.10 DOOR TRIM UNITS

A. Fasteners: Manufacturer's standard exposed fasteners; either machine screws or self-tapping screws

B. Edge Trim: Stainless steel, max. ½", min. 1/16" less length than door dimension.

C. Protection plates (armor, kick or mop) max. 2" LWD stop side, max. 1" LWD pull side, x height indicated
1. Metal Plates: Stainless steel, .050" (U.S. 18 ga.).

D. Stops:
1. Generally wall bumpers, type scheduled
2. If wall bumpers not applicable, floor stops unless otherwise indicated
3. Roller bumpers where doors back-to-back
4. Stops required for all doors whether scheduled or not

E. Products: Specifications based on first named manufacturer; other acceptable manufacturers if product meets criteria of first named:

1. Door Trim, Protection Plates:
   a. Hager Hinge Co.
   b. Quality Hardware Manufacturing Co.
   c. Rockwood Manufacturing Co.
   d. Triangle Brass Manufacturing Co., Trimco
2. Stops:
   a. Hager Hinge Co.
   b. Glynn Johnson
   c. H. B. Ives
   d. Quality Hardware Manufacturing Co.
   e. Rockwood Manufacturing Co.
   f. Triangle Brass Manufacturing Co., Trimco

PART 3 - EXECUTION

3.01 INSTALLATION

A. Mounting heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by Door and Hardware Institute
   1. Unless specifically indicated
   2. Unless required by governing regulations
   3. Unless otherwise directed by Architect

B. Install to comply with manufacturer's instructions, recommendations
   1. Wherever cutting, fitting to install on or in surfaces later painted, otherwise finished, coordinate removal, storage, reinstallation, application of surface protections with finishing in Division-9 sections.
   2. Do not install surface-mounted items until finishes completed
   3. Existing Door, New Frame, New Hardware:
      a. Responsibility of Contractor, Hardware supplier to determine in field prior to bid if specified hardware fits door.
      b. Modify frame design or change new hardware, if required, at no cost to Owner
      c. Do not make modifications, changes without Architect’s approval
      d. Do not alter intent of type, function of door indicated, hardware specified

C. Set units level, plumb, true to line, location
   1. Adjust, reinforce attachment substrate necessary for proper installation, operation
   2. Drill, countersink units not factory-prepared for fasteners
   3. Space fasteners, anchors per industry standards

D. Set exterior thresholds in full bed butyl-rubber, polyisobutylene mastic sealant.

E. Provide wood blocking in hollow walls for mounting wall stops. Furnish wood screws.

3.02 ADJUST AND CLEAN

A. Adjust, check each operating item, each door, for proper operation, function of every unit
   1. Replace units not adjustable to operate freely, smoothly

B. Clean adjacent surfaces soiled by installation

C. Final Adjustment:
   1. Inspect work one week prior to acceptance, occupancy; make final check, adjust all items
      a. Installer, with representative of latch/lock manufacturer, inspect Project, re-adjust each item to restore proper function of doors, hardware
      b. Written report of visit to Architect, state:
         (1) Adjustments made
         (2) Corrections required
         (3) Corrections made in manner of original installation

2. Clean operating items, restore proper function, finish of hardware, doors
3. Adjust door control devices after beginning final operation of heating/ventilating equipment

D. Instruct Owner's Personnel in proper adjustment, maintenance of hardware, finishes, during final adjustment

E. Continued Maintenance Service:
1. Approximately six months after Final Acceptance, Installer, with representative of latch/lock manufacturer, re-adjust every item to restore proper function of doors, hardware
2. Consult with, instruct Owner's personnel in additions to maintenance procedures
3. Replace items deteriorated, failed due to faulty design, materials, installation
4. Write report of current and predictable problems (of substantial nature) in hardware performance

F. Finishes:
1. Generally, Satin Chrome (US26D) throughout.
2. Closers — Aluminum (AL).
3. Push/Pulls — Satin Stainless Steel (US32D).
4. Hinges — Primed for field painting (USP)

3.03 HARDWARE SCHEDULE

HW-1

Each Door:

1.5 Pair Hinges	Hager	BB1279 4½ x 4½ NRP
1 Cylindrical Lockset	Falcon	B501
1 Closer	LCN	4110H-CUSH x TBGN
1 Kickplate	Hager	8" x 2" LDW
1 Stop	Hager	254W
1 set Weatherstripping	National Guard	700N
1 Door Sweep	National Guard	198N
1 Threshold	National Guard	425

HW-2

Each Door:

1 1/2 Pair Hinges	Hager	BB 1279 4 ½ x 3½
1 Cylindrical Passage Set	Falcon	B101
1 Closer	LCN	4110 x TBGN
1 Kickplate	Hager	8" x 2" LDW
1 Stop	Hager	234W or 240F as applicable
3 Silencers	Hager	307D

END OF SECTION 08710

SECTION 092116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SUBMITTALS

A. Product Data:
   1. Provide data on metal framing, gypsum board, accessories, and joint finishing system.
   2. Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

B. Shop Drawings: Indicate special details associated with fireproofing.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

B. Fire-Resistance-Rated Assemblies: Provide completed assemblies with the following characteristics:
   1. Fire-Resistance-Rated Partitions: UL listed as indicated on drawings; 1 or 2 hour rating.
   2. Head of Fire-Resistance-Rated Partitions: UL listed as indicated on drawings; 1 or 2 hour rating.
   3. Fire-Resistance-Rated Ceilings and Soffits: One (1) hour fire rating.
   4. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL (FRD).

2.02 METAL FRAMING MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.

B. Nonstructural Framing System Components: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
   1. Studs: C-shaped with knurled or embossed faces.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: C-shaped.
   4. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).

C. Preformed Top of Wall Firestop Gasket:

D. Preformed Bottom of Wall Firestop Track Seal:

2.03 BOARD MATERIALS

A. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      a. Mold resistant board is required at all locations.
   3. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch (16 mm).
      b. Ceilings: 1/2 inch (13 mm).
      c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.

2.04 GYPSUM BOARD ACCESSORIES

A. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.

1. Corner Beads: Low profile, for 90 degree outside corners.

B. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Products:
   3. Joint Compound: Drying type, vinyl-based, ready-mixed.

C. Finishing Compound: Surface coat and primer, takes the place of skim coating.
   1. Products:

D. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.

F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

PART 3 EXECUTION

3.01 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C1007AISI S220 and manufacturer's instructions.

3.02 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

C. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

3.03 JOINT TREATMENT

A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.

B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

END OF SECTION 092116

SECTION 096723
RESINOUS FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resinous Systems of the Following Types:
1. Sherwin-Williams HPF, Resuflor Performance HTS

1.2 RELATED SECTIONS

A. Section 03300 – Cast-In-Place Concrete.

B. Section 01230 – Alternates.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM C 413 - Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
2. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
3. ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.
4. ASTM D1475 - Standard Test Method For Density of Liquid Coatings, Inks, and Related Products.
5. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
6. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness.
7. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
8. ASTM D2369 - Standard Test Method for Volatile Content of Coatings.
9. ASTM D 2370 - Standard Test Method for Tensile Properties of Organic Coatings.
10. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
11. ASTM D 4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
12. ASTM D 4366 - Standard Test Methods for Hardness of Organic Coatings by Pendulum Damping Tests
13. ASTM D5441 - Standard Test Method for Analysis of Methyl Tert-Butyl Ether (MTBE) by Gas Chromatography.
14. ASTM D 7234 - Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
15. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
16. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
17. ASTM G 154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.

B. Deutsches Institute fur Normung (DIN):
1. DIN 53460 – Testing of Plastics; Determination of the Vicat Softening Temperature of Thermoplastics.

C. International Concrete Repair Institute (ICRI):
   1. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

D. Military Specifications (MIL):
   1. MIL-D-3134J - Deck Covering Materials.

E. National Floor Safety Institute (NFSI):
   1. ANSI/NFSI B101.1 - Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data:
   1. Manufacturer's data sheets on each product to be used, including properties, VOC content, wet static coefficient of friction, compressive strength, tensile strength, elongation and similar properties.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Typical installation methods.

C. Verification Samples: Two representative units of each system, including color and texture.

D. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

E. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.

F. Manufacturer’s Project References: Submit manufacturer’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems furnished.

G. Applicator’s Project References: Submit applicator’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems applied.

H. Care and Maintenance Instructions: Submit manufacturer’s care and maintenance instructions, including cleaning instructions.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

B. Applicator’s Qualifications:
   1. Applicator regularly engaged, for a minimum of 5 years, in application of resinous flooring systems of similar type to that specified.
   2. Employ persons trained for application of resinous flooring systems.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
   1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
   2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
   3. Retain mock-up during construction as a standard for comparison with completed work.
   4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and batch number.

B. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer's instructions.
   2. Keep materials in manufacturer's original, unopened containers and packaging until application.
   3. Store materials in clean, dry area indoors between 65 and 80 degrees F (18 and 27 degrees C).
   4. Store materials out of direct sunlight.
   5. Keep materials from freezing.
   6. Protect materials during storage, handling, and application to prevent contamination or damage.

1.8 PROJECT CONDITIONS

A. Apply flooring system under the following ambient conditions:
   1. Ambient and Concrete Floor Temperatures: Between 65 and 85 degrees F (18 and 29 degrees C).
   2. Material Temperature: Between 65 and 85 degrees F (18 and 29 degrees C).
   3. Relative Humidity: Maximum 80 percent.
   4. Dew Point: Floor temperature more than 5 degrees over dew point.

B. Do not apply flooring system under ambient conditions outside manufacturer's limits.

1.9 WARRANTY

A. Submit manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: The Sherwin-Williams High Performance Flooring – Basis of Design.

B. Requests approval of equal products to be submitted for approval 10 days before bids.

2.2 PERFORMANCE HTS

A. Resuflor Performance HTS.
1. Primer Coat: Resuflor MPE, 3-5 mils.
2. Build Coat: Resuflor MPE, 17-13 mils.
3. Topcoat: Resutile HTS 100, 3 mils.
4. Color: As selected by Architect from manufacturer's full range.

2.3 SYSTEM PROPERTIES

A. Abrasion Resistance Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060, 18 mg/loss

B. Adhesion to Concrete, psi (MPa), ASTM D4541, 450 [3.10] (concrete failed)

C. Adhesion to concrete, psi [MPa], ASTM D7234, 732[4.48] (concrete failed)

D. Coefficient of Friction-COF, James Friction Tester, ASTM D2047, 0.63

E. Coefficient of Friction-Wet Static, BOT 3000, ANSI/NFSI B101.1, 0.94

F. Compressive Strength, psi [MPa], ASTM D695, 13,500 [93.08]

G. Flammability, mm/min, ASTM D635, 182

H. König Hardness 93 mil/0.08 mm film), ASTM D4366, 171.3

I. Resistance to Yellowing as measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV, ASTM G154, <10 increase of yellow units (CIE Lab Δ) if pigmented topcoat

J. Shore D Hardness, ASTM D2240, 80-85 @ 0 sec|75-80 @ 15 sec

K. Tensile Strength, psi [MPa], ASTM D2370, 6,250 [43.09]

L. Percent Elongation, ASTM D2370, 6%

M. Volatile Organic Compound, VOC lb./gal [g/l], ASTM D3960, Resuflor MPE A+B=0.41 [49] Resutile HTS 100 A+B=0.05 [6]

N. Water Absorption, 24- hour immersion, ASTM C413, 0.2% weight increase

O. Resistant to degradation from contact with skydrol and other aviation chemicals.

2.4 PRODUCT PROPERTIES

A. Primer & Build Coats: A neutral, two-component, high solids epoxy.
1. Percent Solids, by weight (by volume), ASTM D1475, A + B: 95.45 (94.56).
2. Volatile Organic Compound-VOC, ASTM D3960, Mixed A + B: 0.41 lb./gal (49 g/L).
3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 83.1.
4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047: 0.59-0.62.
5. Adhesion to Concrete, ASTM D5441: 732 psi (4.48 MPa) concrete failed.
6. Adhesion to Concrete, ASTM D7234: 450 psi (3.10 MPa) concrete failed.
7. Compressive Strength, ASTM D695: 13,500 psi (93.079 MPa).

8. Tensile Strength, ASTM D2370: 8,000 psi (55.158 MPa).
9. Percent Elongation, ASTM D2370: 5.
10. Shor D Hardness, ASTM D2240: 80-85 at 0 sec, 75-80 at 15 sec.

B. Topcoat: A clear high solids, three-component, satin finish, aliphatic, moisture-cure urethane.
1. Percent Solids, by weight (by volume), ASTM D2369, A + B + C: 94.02 (92.57).
2. Volatile Organic Compound-VOC, ASTM D3960, Mixed A + B + C: 0.05 lb/gal (6 g/L).
3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 18.
4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047: 0.63.
5. Wet Static Coefficient of Friction, BOT 3000, ANSI/NFSI B101.1: 0.94.
6. Flammability, ASTM G154: 182 mm/min.
7. Resistance to Yellowing as measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV, ASTM G154, Less than 10 increase of yellow units (CIE Lab Δb)
8. Tensile Strength, (resin only), ASTM D2370: 6,250 psi (43,092 MPa).
9. Percent Elongation, (resin only), ASTM D2370: 6.
10. König Hardness, (3 mil/76.2 micron film), ASTM D4366: 171.3.
11. Water Absorption, 24-hour immersion, ASTM C413: 0.2 percent weight increase.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine concrete surfaces to receive flooring system. Verify concrete is structurally sound.

B. Moisture Testing of Concrete: Perform at least one of the following two tests to determine moisture in concrete. Type of test and frequence as recommended by manufacturer and installer.
1. In-situ Probe Test:
a. Measure relative humidity in concrete in accordance with ASTM F 2170.
b. Application of flooring system shall start only if test results are below 75 percent relative concrete humidity.
c. If test results are above limits, notify Architect and flooring manufacturer in writing.

C. Do not begin preparation or installation until satisfactory moisture test results are achieved. Provide flooring manufacturer's recommended moisture vapor control coating if required.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Protection of In-Place Conditions: Protect adjacent surfaces and adjoining walls from contact with flooring system materials.

C. Surface Preparation:
1. Prepare concrete surface in accordance with manufacturer’s instructions.
2. Remove dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, sealers, silicones, and other surface contaminants which could adversely affect application of flooring system.
3. Steel shot blast concrete to a minimum surface profile of ICRI 310.2R, CSP 5.
4. Key-cut termination points with 1/4-inch (6-mm) by 1/4-inch (6-mm) cut.

5. Patch depressions, divots, and cracks in concrete in accordance with manufacturer's instructions.
6. Mechanically remove loose, delaminated, and damaged concrete and repair in accordance with manufacturer's instructions.
7. Joints: Fill joints in accordance with manufacturer's instructions.

3.3 INSTALLATION

A. Install flooring system in accordance with manufacturer's instructions and approved submittals at locations indicated on the Drawings.

B. Ensure concrete is dry, clean, and prepared in accordance with manufacturer's instructions.

C. Allow concrete to cure a minimum of 7 days before applying flooring system.

D. Mixing:
1. Mix material components together in accordance with manufacturer's instructions.
2. Mix only enough material that can be applied within working time.
3. Add and mix colorants with materials in accordance with manufacturer's instructions to achieve uniform color.

E. Apply flooring system materials to obtain consistent mil thickness and smooth, uniform appearance and texture.

F. Overlay: Apply overlay in accordance with manufacturer's instructions. Apply overlay to prepared concrete surface.

G. Traction Aggregate: Broadcast traction aggregate in accordance with manufacturer's instructions. Broadcast traction aggregate into wet overlay.

H. Cove:
1. Apply cove primer and cove in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Apply cove to height and shape as indicated on the Drawings.
3. Apply cove to create seamless, smooth transition between flooring and walls.

I. Seal Coat:
1. Apply seal coat in accordance with manufacturer's instructions.
2. Apply seal coat over traction aggregate.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

A. Allow flooring system to dry in accordance with manufacturer's instructions before opening to traffic.

B. Allow flooring system to dry a minimum of 1 week before cleaning by mechanical means.

C. Protect completed flooring system from damage during construction.

END OF SECTION 096723

SECTION 099123
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.

B. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.
   8. Factory primed metal building components exposed to view.
   9. Vinyl facing of insulation.

1.02 SUBMITTALS

A. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
   2. MPI product number (e.g., MPI #47).
   3. Cross-reference to specified paint system products to be used in project; include description of each system.

B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

C. Samples: Submit two paper chip samples, in size illustrating range of colors and textures available for each surface finishing product scheduled.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.

2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Architect after award of contract.
   2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, uncoated steel, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI #139, 141 or 142.
   3. Top Coat Sheen:
      a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
      b. Eggshell: MPI gloss level 3; use this sheen for typical walls.
      c. Semi-Gloss: MPI gloss level 5; use this sheen for wet area walls.
   4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI #141.
   3. Top Coat Sheen:
      a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
   4. Primer: As recommended by top coat manufacturer for specific substrate.

PART 3 EXECUTION

3.01 EXAMINATION

A. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

END OF SECTION 099123

SECTION 10520

FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this Section.

1.02 DESCRIPTION OF WORK

A. Extent of fire extinguishers, cabinets and accessories indicated on drawings.

B. Definition: "Fire extinguishers" used in this Section refers to hand carried units as opposed to those equipped with wheels or to fixed fire extinguishing systems.

C. Types of products required include:
1. Fire extinguishers.
2. Fire extinguisher cabinets.
3. Mounting brackets.

D. Fixed fire protection systems specified in Division-15 sections.

1.03 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain products in this Section from one manufacturer.

B. UL-Listed Products: Provide new portable fire extinguishers which are UL- listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher indicated.

C. FM Listed Products: Provide new portable fire extinguishers approved by Factory Mutual Research Corporation for type, rating and classification of extinguisher indicated and carry appropriate FM marking.

D. Licensed Installer: Extinguishers installed by individual licensed by State Fire Marshal in accordance with Georgia Statutes.

1.04 SUBMITTALS

A. Product Data:
1. Submit product data for each type of product included in this Section.
2. For fire extinguisher cabinets include roughing-in dimensions and details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style and door construction, and panel style and materials.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of following:
1. J. L. Industries.
2. Larsen's Mfg. Co.
3. Potter-Roemer, Inc.

2.02 FIRE EXTINGUISHERS

A. General:

1. Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard which comply with requirements of governing authorities.
2. Install extinguishers fully charged and operable to comply with requirements of governing authorities and manufacturer's requirement.
3. Abbreviations indicated below to identify extinguisher types relate to UL classification and rating system and not, necessarily, to type and amount of extinguishing material contained in extinguisher.

B. Multi-Purpose Dry Chemical Type:
1. UL-rated 4-A:60-B: C 10 lb. nominal capacity, in enameled steel container, for Class A, Class B and Class C fires.

2.03 FIRE EXTINGUISHER CABINETS

A. General: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.

B. Construction:
1. Manufacturer's standard enameled steel box, with trim, frame, door and hardware to suit cabinet type, trim style, and door style indicated.
2. Weld all joints and grind smooth.
3. Miter and weld perimeter door frames.

C. Cabinet Type:
1. Mounting: Suitable for mounting conditions indicated, of following types:
(a) Semi-Recessed: Cabinet box (tub) partially recessed in walls of shallow depth.

D. Trim Style: Fabricate trim in one piece with corners mitered, welded and ground smooth.
1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
(a) Rolled-Edge Trim: Rounded edges with backbend depth of 1-1/4" to 2-1/2” as required for wall thickness.

E. Trim Metal:
1. Of same metal as door.

F. Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
1. Aluminum: Manufacturer's standard flush, hollow aluminum door construction.

G. Door Glazing:
1. Tempered float glass, complying with FS DD-G-1403, grade B, style I, type I, quality q3, class as indicated below:
(a) Clear glass, class 1 (transparent).

H. Door Style: Manufacturer's standard design as indicated below and on drawing.
1. Vertical Duo-Panel: Tempered float glass, 1/8" thick, unless otherwise indicated.

I. Door Hardware:
1. Provide manufacturer's standard door operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
2. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch.
3. Provide concealed or continuous type hinge permitting door to open 180º.

2.04 FACTORY FINISHING OF FIRE EXTINGUISHER CABINETS

A. General:
1. Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations except as otherwise indicated.
2. Apply finishes in factory after products are assembled.

3. Protect cabinets with plastic or paper covering, prior to shipment.

B. Anodized Aluminum Finishes: Provide architectural anodic coatings complying with following requirements:
1. Class II Clear (Natural) Anodized Finish: AA-M12C22A31 (mechanical finish, non-specular as fabricated; chemical etch, medium matte; 0.4 mil min. thick clear anodic coating).

2.05 MOUNTING BRACKETS
A. Provide manufacturer's standard bracket designed to prevent accidental dislodgment of extinguisher, of sizes required for type and capacity of extinguisher indicated, in manufacturer's standard plated finish.
1. Provide brackets for extinguishers not located in cabinets.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install items included in this Section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
1. Mount cabinet with floor of cabinet approximately 32" above floor; max. 54" to top of extinguisher when set in cabinet.

B. Install Cabinet-Extinguisher where indicated.

C. Install bracket-mounted extinguishers in locations indicated.

D. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.

E. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

F. Where exact location of cabinets and bracket-mounted fire extinguishers not indicated, locate as directed by Architect.

G. Current inspection tag required on each extinguisher on date of Final Approval inspection.

3.02 IDENTIFICATION

A. Identify existence of fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied to door by process indicated below.
1. Provide lettering to comply with requirements indicated for letter style, color, size, spacing and location or, if not otherwise indicated, as selected by Architect from manufacturer's standard arrangements.
2. Application Process. Supply one of the following:
(a) Silk screen.
(1) Provide red vertical lettering.
(b) Reverse printed vinyl letters adhered to inside of glass.

B. Identify bracket-mounted extinguishers with red letter decals spelling "FIRE EXTINGUISHERS" applied to wall surface.
1. Letter size, style and location as selected by Architect.

END OF SECTION 10520

SECTION 10800
TOILET, BATH AND MISCELLANEOUS ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Related Work Specified Elsewhere:
1. Drawings, General and Supplementary Conditions, Division-1 Specification sections, apply this Section.

B. Work Included in this Section:
1. Toilet and Bath Accessories:
a. Framed Mirrors (MIR).
b. Grab bars (GB)
c. Paper Towel dispensers (PTD).
d. Toilet Tissue Dispensers (TTD)

1.02 QUALITY ASSURANCE

A. Inserts, Anchorages: Furnish devices to be set in concrete or masonry; coordinate delivery with other work.

B. Accessory Locations: Coordinate with other work to avoid interference, assure proper operation, servicing of accessories.

C. Products: Each type unit, units exposed in same areas, from same manufacturer, unless otherwise acceptable to Architect.

1.03 SUBMITTALS

A. Product Data: Manufacturer's technical data, installation instructions for each unit.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide toilet accessories by one of following:
1. General Accessories:
(a) A&J Washroom Accessories.
(b) American Specialties, Inc.
(c) Bobrick Washroom Equipment, Inc.
(d) Bradley Corp.
(e) McKinney/Parker Div., Essex Industries.

2.02 MATERIALS, GENERAL

A. Stainless Steel: AISI Type 302/304, No. 4 finish, 22 gage (.034") min. unless otherwise indicated.

B. Aluminum: Manufacturer's standard alloy, extruded shapes, clear anodized finish.

C. Brass: Leaded and unleaded, flat products, FS QQ-B-613; Rods, shapes, forgings, flat products with finished edges, FS QQ-B-626.

D. Sheet Steel: Cold rolled, commercial quality ASTM A 366, 20-gage (.040") min., unless otherwise indicated; surface preparation, metal pretreatment for applied finish.

E. Galvanized Steel Sheet: ASTM A 527, G60.

F. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

G. Chromium Plating: Nickel, chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

H. Baked Enamel Finish: Factory-applied, gloss white, baked acrylic enamel coating.

I. Fasteners: Screws, bolts, other devices, of same material as unit or galvanized steel where concealed.

2.03 FABRICATION

A. General:
1. Only unobtrusive stamped logo of manufacturer permitted on exposed face of toilet or bath accessory units if approved by Architect.
2. On interior surface not exposed to view or back surface, identify item by printed, waterproof label or stamped nameplate, with manufacturer's name, product model number.

B. Surface-Mounted Units, General:
1. Except where otherwise indicated, fabricate units with tight seams, joints, roll exposed edges.
2. Hang doors, access panels with full length stainless steel piano hinge.
3. Conceal anchorage where possible.

C. Recessed Toilet Accessories, General:
1. Except where otherwise indicated, fabricate all welded units, without mitered corners.
2. Hang doors, access panels with full-length stainless steel piano hinges.
3. Fully conceal anchorage when unit closed.

D. Accessories scheduled at end of section form basis of quality required..

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install units using manufacturers' instructions, with fasteners appropriate to substrate, recommended by unit manufacturer.

B. Install units plumb, level, firmly anchor in locations at heights indicated.

C. Toilet Accessories:
1. Framed Mirrors (MIR):
(a) Location: One at each lavatory.
(b) Mounting: Heights indicated, except bottom of handicap mirrors max. 40" above finish floor.
2. Grab Bars (GB):
(a) Location: Where indicated.
(b) Mounting:
(1) 33" above finish floor to centerline horizontal bars.
(2) 1½" clearance between grab bar and wall; mount to withstand min. 250 lb. vertical load after installation.
3. Paper Towel Dispensers (PTD):
(a) Location: At each toilet and bathroom lavatory.
(b) Mounting: Max. 40" from finish floor to towel dispensing slot.
4. Toilet Tissue Dispensers (TTD):
(a) Location: One at each water closet.
(b) Mounting: 3'-0" from rear wall, 2'-0" from centerline to finish floor.

3.02 ADJUSTING AND CLEANING

A. Adjust toilet accessories for proper operation, verify mechanisms function smoothly.
1. Replace damaged or defective items.

B. Removing temporary labels and protective coatings, clean, polish exposed surfaces.

3.03 TOILET ACCESSORY SCHEDULE

SYMBOL	CATALOG NUMBERS	DESCRIPTION
TOILET ACCESSORIES		
MIR	A&J - U700T ASI - 0600B Bobrick - B-2908 Series Bradley - 700-2 McKinney/Parker - 150TG	Mirror: Stainless steel frame, ¼" thick ,tempered glass, Type I, Class 1, Quality q2, Kind FT, conforming to FS DD-G-451, with silvering, copper coating, and protective organic coating complying with FS DD-M-411; 18" wide x 30" high unless otherwise indicated on drawings.
GB	At H.C. water closets: A&J - UG30AX-42; UG30AX-36 ASI - 3201P-42; 3201P-36 Bobrick - B-6206.99 x 42"; B-6206.99 x 36" Bradley - 8122-00248; 8122-00136 McKinney/Parker - 9605F-48; 9605F-36	Grab Bars: Stainless steel, Min. 18 (.050") gage wall thickness; concealed mounting, manufacturer's standard flanges and anchorages,1½" clearance between wall and inside face of bar; Manufacturer's standard non-slip texture; heavy-duty 1½"OD.
TTD	A&J - U805 ASI - 0263-1 Bobrick - B-273 Bradley - 5071 McKinney/Parker - 1031	Toilet Tissue Dispensers, Single-Roll: Core type tissue 5" dia.; molded eccentric-shaped plastic spindle (revolve ½ revolution per dispensing operation), die-cast, satin-finished aluminum bracket, surface mounting; core not removable until roll empty.
PTD	A&J - U180 ASI - 0210 Bobrick - B-262 Bradley - 250-15 McKinney/Parker - 610	Surfaced-Mounted Towel Dispensers: Stainless steel unit, hinged front, tumbler lockset; pierced refill indicator slots at sides; cap. min. either 300 C-fold or 400 multifold towels.

END OF SECTION 10800

SECTION 133419
METAL BUILDING SYSTEMS

PART 1 GENERAL

1.01 SCOPE

A. 60x60 Box Hangar with hydraulic single-panel hangar door.

B. 80x120 Box Hangar with multi-panel unidirectional horizontally sliding hangar door.

C. T-hangars with upward acting bi-fold hangar doors. Refer to Exhibit A at the end of this section for specific requirements.
   1. Approved Manufacturers:
      a. Erecta-Tube - Basis of Design
      b. Equal products to be submitted for approval 10 days prior to bids.

1.02 SUBMITTALS

A. Product Data: Provide data on profiles, component dimensions, fasteners.

B. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections; wall and roof system dimensions, panel layout, general construction details, anchors and methods of anchorage, and installation; framing anchor bolt settings, sizes, locations from datum, and foundation loads; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths; provide professional seal and signature.

C. Samples: Submit two samples of precoated metal panels for each color selected, four by four inch (100 by 100 mm) in size illustrating color and texture of finish.

D. Manufacturer's Qualification Statement: Provide documentation showing metal building manufacturer is accredited under IAS AC472.

1.03 QUALITY ASSURANCE

A. Perform work in accordance with AISC 360 and MBMA (MBSM).

1.04 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Provide twenty year manufacturer warranty for weather-tightness.

C. Provide fourty year manufacturer warranty for painted metal panel colorfastness.

D. Provide fourty-five year manufacturer warranty for galvalume panels against structural failure, perforation and rupture.

PART 2 PRODUCTS

2.01 ASSEMBLIES

A. Single span rigid frame.

B. Primary Framing: Rigid frame of rafter beams and columns, canopy beams, and wind bracing.

C. Secondary Framing: Purlins, Girts, and Eave struts, and other items detailed.

D. Wall System: Preformed metal panels of vertical profile, with insulation, and accessory components.

E. Roof System: Preformed metal panels oriented parallel to slope, with insulation, and accessory components.

F. Roof Slope: 1 inches in 12 inches (1/12).

2.02 PERFORMANCE REQUIREMENTS

A. Installed Thermal Resistance of Wall System: R-vale of 13.

B. Installed Thermal Resistance of Roof System: R-value of 19.

C. Design structural members to withstand dead load, applicable snow load, and design loads due to pressure and suction of wind calculated in accordance with International Building code.

2.03 MATERIALS - FRAMING

A. Structural Steel Members: ASTM A36/A36M.

B. Structural Tubing: ASTM A500/A500M Grade B cold-formed.

C. Plate or Bar Stock: ASTM A529/A529M, Grade 50.

D. Anchor Bolts: ASTM A307, Grade A, with hot dip type for protective coatings.

E. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1; galvanized to ASTM A153/A153M.

F. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

2.04 MATERIALS - WALLS AND ROOF

A. Steel Sheet: ASTM A792/A792M aluminum-zinc alloy coated to AZ50/AZM150.

B. Insulation: ASTM C665 Type I
   1. Facing: Sheet vinyl, white.

C. Joint Seal Gaskets: Manufacturer's standard type.

D. Fasteners: Manufacturer's standard type, galvanized to comply with requirements of ASTM A153/A153M, finish to match adjacent surfaces when exterior exposed.

E. Roof Curbs: Insulated metal same as roofing, designed for imposed equipment loads, anchor fasteners to equipment, counterflashed to metal roof system.

F. Trim, Closure Pieces, Caps, Flashings, Gutters, Downspouts, Rain Water Diverter, Fascias, and Infills: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

2.05 COMPONENTS

A. Doors and Frames: Manufacturer's standard for personnel doors.

B. Overhead Doors and Frames: Refer to the table at the end of this section.

C. Unit Skylight: Manufacturer's standard transluscent roofing panels.
   1. Configuration: Single units.

2.06 FABRICATION - FRAMING

A. Fabricate members in accordance with AISC 360 for plate, bar, tube, or rolled structural shapes.

2.07 FABRICATION - WALL AND ROOF PANELS

A. Siding: Minimum 26 ga metal thickness, PBR ribbed profile, 1 1/4 inch (32 mm) deep, primary ribs at 12" centers and panel coverage of 36", lapped edges.

B. Roofing: Minimum 24 ga metal thickness, trapezoidal standing-seam profile, 3" high seams, 24" panel width, concealed clip anchorage male/female edges.

2.08 FABRICATION - GUTTERS AND DOWNSPOUTS

A. Fabricate of same material and finish as roofing metal.

B. Form gutters and downspouts of profile and size to collect and remove water. Fabricate with connection pieces.

C. Form sections in maximum possible lengths. Hem exposed edges. Allow for expansion at joints.

D. Fabricate support straps of same material and finish as roofing metal, color as selected.

2.09 FINISHES

A. Framing Members: Clean, prepare, and shop prime. Do not prime surfaces to be field welded.

B. Exterior Surfaces of Wall Components and Accessories: Precoated enamel on steel of silicon modified polyester resin finish, color as selected from manufacturer's standard range.

C. Exterior Surfaces of Roof Components and Accessories: Clear acrylic-coated galvalume.

PART 3 EXECUTION

3.01 ERECTION - FRAMING

A. Erect framing in accordance with AISC 360.

B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as indicated.

3.02 ERECTION - WALL AND ROOF PANELS

A. Install in accordance with manufacturer's instructions.

B. Use exposed fasteners.

3.03 ERECTION - GUTTERS AND DOWNSPOUTS

A. Rigidly support and secure components. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.

END OF SECTION 133419

SECTION 133419 – METAL BUILDING SYSTEMS – EXHIBIT A
TEE HANGAR WITH
ELECTRIC BI-FOLD DOORS

1.0 Tee hangars shall be supplied by a manufacturer who is regularly engaged in the manufacturing of aircraft hangar buildings and bi-fold hangar door systems. The tee hangar package shall be supplied as a complete system and furnished by a manufacturer who designs and manufactures bi-fold doors and hangar buildings as an integral hangar building package. The hangar manufacturer shall have been engaged in the manufacture for a minimum of ten (10) years and upon request from owner, provide a list of completed hangar projects.

2.0 Hangar sizes shall be as indicated on the drawings.

2.1 Bi-fold hangar door size shall have minimum clearances as stated or shown on plans.

3.0 Primary structural framing shall be main load carrying structural members. They shall include door trusses, rafters, interior columns and exterior columns. Minimum design deflection shall be L/240.

3.1 Rafters shall be steel wide flange beams "W" shaped ASTM A36 and shall be pre-punched for purlin connections, door truss, and interior column connections. Rafters shall be complete with factory welded ridge splice plates, and designed to support specified loads.

3.2 Door truss shall span width of bi-fold hangar door opening. Door truss design shall be integral with door design. Door truss shall be factory welded using square structural tube ASTM A500.

3.3 Door columns shall be manufactured of steel wide flange beams "W" shapes ASTM A36 and shall be W6 x 15 pounds per foot minimum with pre-welded base plate and door truss saddles. Field welding of components are not acceptable.

3.4 Interior column shall be square structural welded steel tube ASTM A500 with pre-welded four bolt base plates and girt clips.

4.0 Secondary framing shall be the structural members which carry the loads to the primary framing systems; and shall include the purlins, girts, wind bracing and miscellaneous structural members.

4.1 Interior partition girt shall be fabricated from 4" x 16 ga. red oxide steel "CEE" sections, when specified.

4.2 Provide wind bracing, rafter bracing, sheeting angles where required.

5.0 Structural field connections shall be bolted (unless otherwise noted). All primary bolted connections, as shown on manufacturer's drawing, shall be furnished with high strength bolts conforming to the physical specifications of ASTM A-325 or shall be Grade 5. All Grade 5 bolts shall be zinc plated.

6.0 All structural members shall be shop primed red oxide.

7.0 Roof sheets shall be as specified in this section.

7.1 Wall sheet shall be as specified in this section.

8.0 Partition sheet shall be 29 or 26 ga. galvalume. Panel configuration shall be 5/8" minimum with major ribs at 9" on center and a 36" panel coverage. Sheeting should have a minimum yield of 80 ksi. Partition sheeting to be full-height. Panel shall be furnished in full height and include bird-proofing trim between partition sheet and roof decking. Minimum 20-year limited warranty.

9.0 Building trim shall include eave trim, gable trim, corner trim, service door trim, bi-fold hangar door trim. All trim shall be 26 ga. and manufactured of flat stock material equal in quality to wall sheets and color as selected from manufacturer's standard color chart. All trims to be hemmed. Trim pieces shall be packaged for shipment at factory.

9.1 Roof caulking shall be at all roof sheet side laps and at pre-formed ridge caps. Roof caulk shall be a tape sealant type and shall be pre-formed butyl rubber base and shall be supplied as a 3/16" x 3/8" extruded shape.

9.2 Inside and outside semi-rigid cross-linked polyethylene foam closure shall be provided as required to provide a bird proof building. Closures are to be provided on bi-fold doors, gable end walls, side walls, roof overhang, eave and rake of end wall. Closure shall be self adhesive.
self-drilling screws.

10.0 Bi-fold doors shall be integral with hangar building design. Door framing members shall be square tube jig welded in full size panels to eliminate any field welding. Door frames shall have pre-located top hinges factory located to align with pre-located door truss hinges on door header to eliminate field welding. Structural steel shall be ASTM A500 Grade B square structural welded steel tubing.

10.1 Electric bi-fold door operator shall be a top mounted operator on center of door truss and shall be provided with adjustable turnbuckles and fastened securely. Motor shall be 3/4 H.P. (minimum) 230 V.A.C. single-phase thermally protected and supplied with a reset button. Motor shall be totally enclosed capacitor start. Cable drum shall be a direct drive drum by shaft mounted gearbox. Gearbox shall be oil bath two-stage gearbox, bronze worm gear, hardened steel spur gears, tapered roller and ball bearings. Door operator shall be pre-wired at factory complete with 24 V.A.C. momentary up and down pressure-down push button control, magnetic controllers, geared rotary limit switch attached to cable drum designed to coordinate reversing operation, spring set electric brake, and up-stop safety switch; over-ride safety mercury tilt switch to disconnect power in case of over travel. Power connection shall be by heavy-duty 230-volt plug for easy connection.

10.2 Bi-fold door hardware shall include 3" dia. bottom guide roller with sealed bearing and column followers, manual cam locks of bi-fold door, center cane bolt pin 1" dia. minimum and embedded floor sockets, 16" minimum center plated door poppers and skid plates, all require hinge pins, 3/16" dia. 7x19 galvanized aircraft cables with wire rope clips and thimbles, bottom and top 2-ply rubber astragals, 5" dia. steel sheave wheels with ball bearings.

10.3 Each bi-fold door shall be provided with two 3'-0" x 6'-0" white steel flush entry door, 1-3/4” 24 ga. polyurethane foam core thermal broke leaf with R-12 insulation value, 16 ga. white thermal broke frame, dual seal bulb weather-stripping, and ANSU A156.2 Series 4000, Grade 2 lever lockset keyed
and master keyed.

10.4 Manual latches of each side of bi-fold door.

10.5 Bi-fold door shall be installed according to manufacturer's installation instructions.

11.0 Building manufacturer to provide contractor with anchor layout plan and building column reactions.

12.0 Personnel Doors for End Units of Tee Hangars.

12.1 3'-0" x 7'-0" white steel flush entry door, 1-3/4” 24 ga. polyurethane foam core thermal broke leaf with R-12 insulation value, 16 ga. white thermal broke frame, dual seal bulb weather-stripping, ADA compliant low profile sill and ANSU A156.2 Series 4000, Grade 2 lever lockset keyed and master keyed. Door leaf has blocking for future door closer. Doors to be ADA compliant.

13.1 Vent consists of 26 ga. galvalume or color finish ridge vent cap, ProfileVent ventilation core, roof sealant and mounting components.

14.0 Insulation.

14.1 Insulation to be 4” (R-13) fiber glass insulation laminated to a white Metalized Polypropylene Scrim Kraft facing. System R values under ASTM C1136.

14.0 Light Panels.

14.1 Polycarbonate soft white light panels for installation in roof, locations as shown on the drawings. Panels to be minimum of .039 in thickness and to match panel coverage of 24” in width. Sealant required on vertical laps with trim strips to cover lap material for aesthetics.

15.0 Interior partition wall inside and outside “L” corner trim should be provided to seal gaps and cover exposed rough edges of partition sheeting. Trim to be of 26 ga. material.

16.0 Lock out safety switches on manual door latches of bi-fold door so as to prevent bi-fold door system from opening unless both latches are unlocked.

17.0 3” x 8” 11 ga. fuel containment angle at the base of all interior partition walls to prevent fuel spills from penetrating adjacent units. Includes fuel resistant sealant. Anchors by others.

18.0 Storage Unit

19.1 One square storage unit fully partitioned off from the adjacent T-Hangar. Includes (one) framed opening for an overhead door and (one) 3070 entry door. See specifications for overhead door and 3070 entry door.

19.2 One “L” Shaped storage unit fully partitioned off from the adjacent T-Hangar. Includes (one) framed opening for an overhead door and (one) 3070 entry door. See specifications for overhead door and 3070 entry door.

Design/System/Construction/Assembly Usage Disclaimer

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

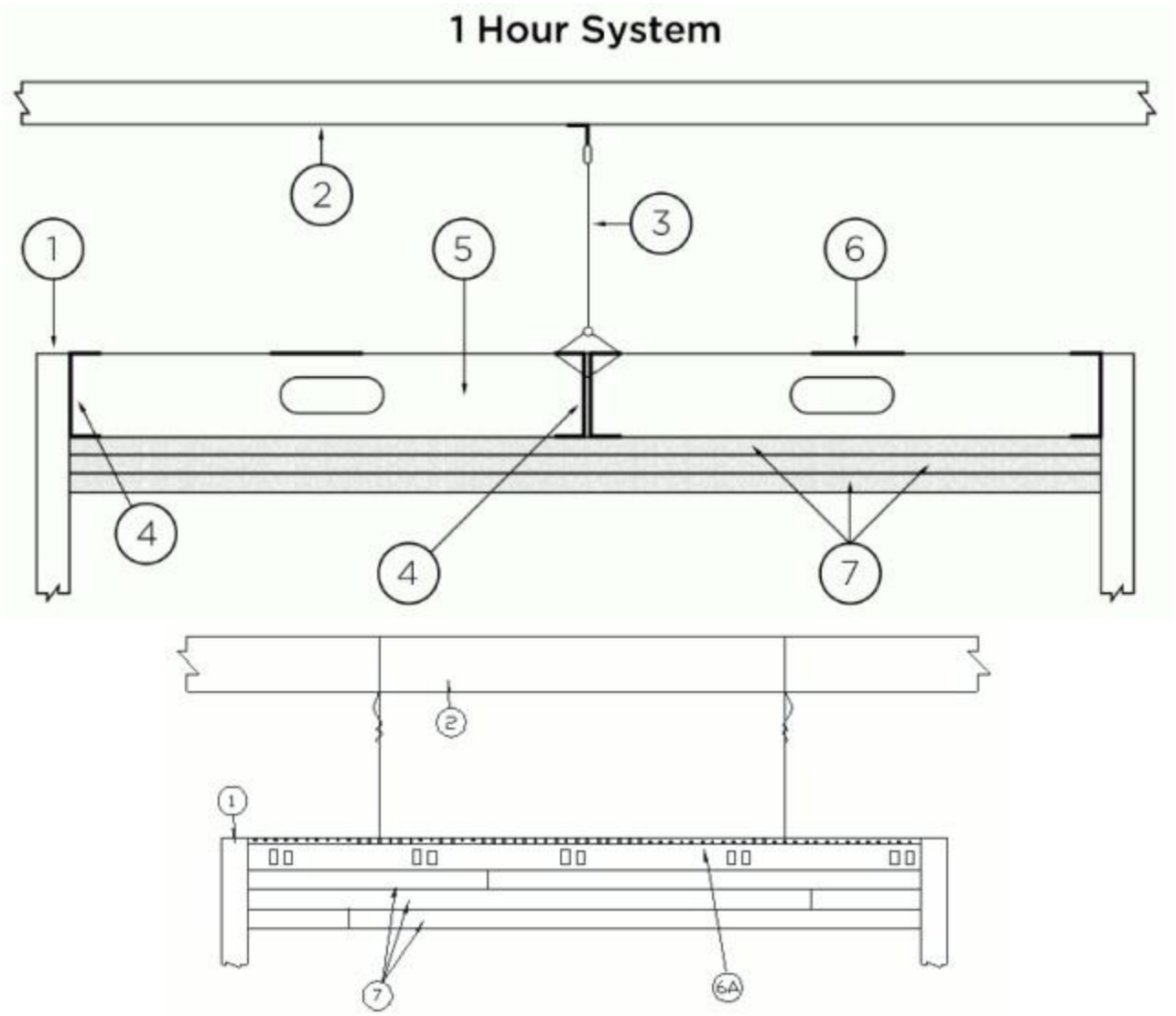
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **I504**

June 13, 2024

Ceiling Membrane Rating - 1 Hr.
Load Restriction - Limited to the Dead Weight of the Assembly
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Supporting Structure #1 —** Fire-resistance rated. Suitable point of attachment of C-Channels (Item 4).

2. **Supporting Structure #2 —** If necessary - Suitable point of attachment of hanger wire (Item 3).

3. **Hanger Wire —** If necessary - Min. 8 gauge steel wire, hung from holes punched in C-Channel (Item 4). Hanger wire spaced nominally 24 in. OC.

4. **C-Channels —** Used to support steel studs at both ends. Min. 3-5/8 in. deep with min. 1-1/4 in. legs and formed from min. No. 20 MSG galv. steel. Perimeter channels attached to a fire-resistance rated supporting structure (Item 1) with fasteners spaced not greater than 24 in. O.C. at both the top and bottom of the vertical leg. When used with Items 2 and 3, C-Channel secured back to back with 1/2 in. Type S screws spaced 24 in. OC along centerline of C-Channels. Where C-Channels form a butt joint, screws placed at both top and bottom of both sides of butt joint.

5. **Steel Studs —** Min. 3-5/8 in. wide with min. 1-5/8 in. legs containing folded back flanges and formed from min. No. 20 MSG galv. Steel. Studs to be cut 3/8 in. to 5/8 in. less than the clear span between the vertical legs of the perimeter channels. Studs spaced a max. 16 in. OC. At each end of the stud, the top and bottom legs shall be secured to the perimeter channel with one 3/8 in. long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels (Item 4). Maximum unsupported length of studs not to exceed 8 ft. 1 in.

6. **Steel Strap —** Min 4 in. wide formed from min. No. 20 MSG galv. Steel. Secured perpendicular to the studs at the centerline of the span using one 3/8 in. long pan-head steel screw. Strips to overlap one full stud bay at splice locations. As an alternate to the steel strap, C-Channels (Item 4) may be substituted and installed in the same manner as the steel straps. If a continuous piece is not used, abut channels on each side of the centerline of the span and overlap one full stud bay.

6A. **Framing Members* —** As an alternate to items 3, 4, 5, and 6 - Main runners, cross tees, cross channels and wall angle as listed below:
a. **Main Runners —** Nom 10 or 12 ft long , 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 24 in. OC, twist tied to supporting structure.

b. **Cross Tees —** Nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. The cross tees or cross channels may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

c. **Cross Channels —** Nom 4 ft long, installed perpendicular to main runners, spaced 16 in. OC.

d. **Wall Angle or Channel —** — Painted or galv steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment of the gypsum panel.
ARMSTRONG WORLD INDUSTRIES INC — Type DFR-8000.

7. **Gypsum Board* —** Three layers of nom. 5/8 in. thick gypsum board installed with long dimension perpendicular to the steel studs or Framing Members*. Base secured to studs and perimeter channels with 1 in. long Type S steel screws spaced max. 16 in. OC. Middle layer secured to the studs or Framing Members* and perimeter supports with 1-5/8 in. long Type S steel screws spaced max. 16 in. OC. Middle layer edge and end joints staggered a min. 16 in. from base layer joints. Face layer secured to the studs or Framing Members* and perimeter supports with 2-1/4 in. long Type S steel screws spaced max. 12 in. OC. Face layer edge and end joints staggered a min. 16 in. from middle layer joints.
NATIONAL GYPSUM CO — Type FSW, FSW-6, FSW-C, eXP-C

8. **Joint Tape and Compound —** Not Shown — (Optional, Not Required On Joints or Screw Heads) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, nom. 2 in. wide, embedded in first layer of compound over all joints.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2024-06-13

Design/System/Construction/Assembly Usage Disclaimer

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

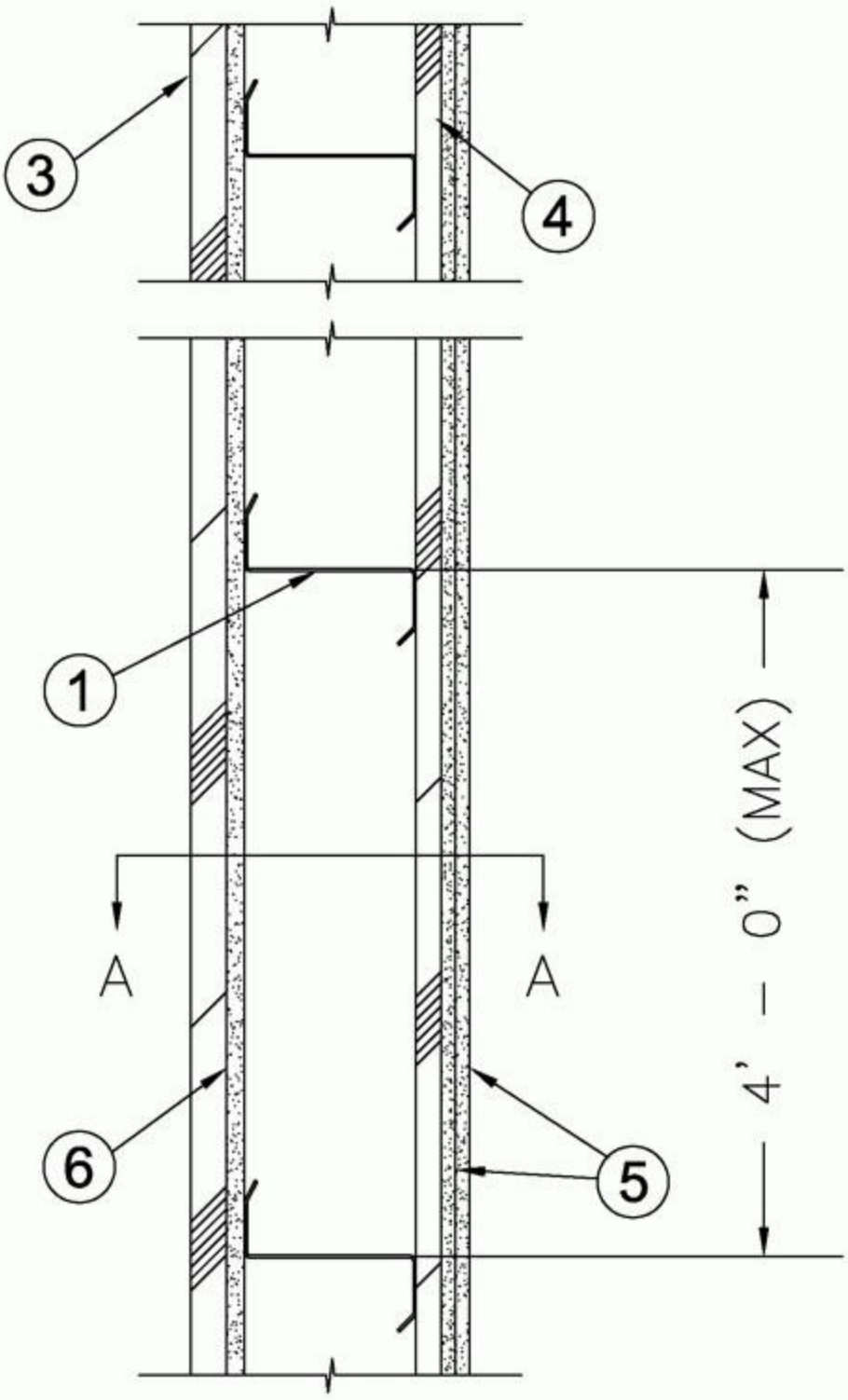
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

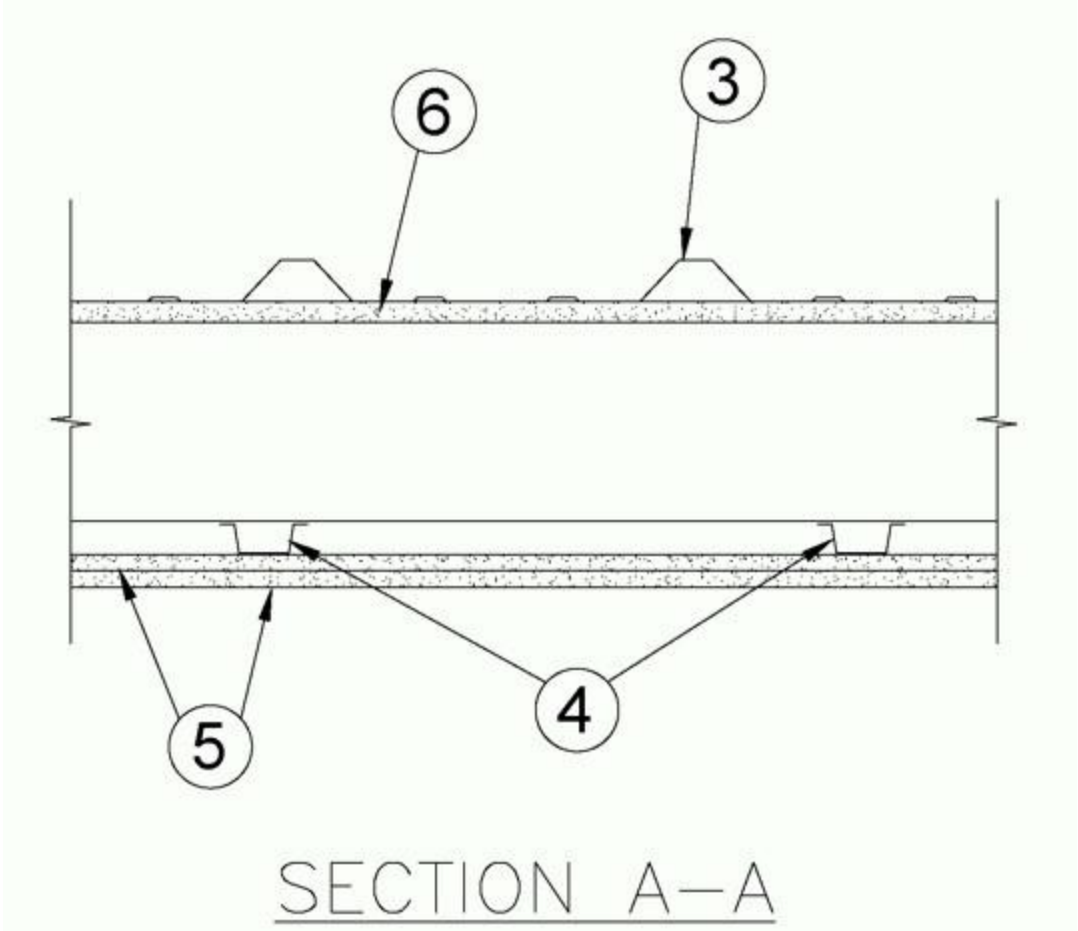
Design No. **V421**

August 4, 2023

Nonbearing Wall Ratings — 1 & 2 Hr
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



VERTICAL SECTION



1. **Girts —** "Z" or "C" shaped girts, 0.056 to 0.120 in. thick steel, 6 to 12 in. deep, with 2 to 4 in. wide flanges. Girts placed horizontally (with flanges up or down) and spaced max 48 in. OC. Girts are secured to columns with girt clips, Item 2, or bolted to the column through the girt flange.

2. **Girt Clips —** (not shown) — Steel secured to column by welds or bolts.

3. **Steel Wall Panels —** Min No. 26 MSG, min 16 in. wide coated steel panels. Panel joints offset 6 in. from gypsum sheathing joints. If one layer of exterior wallboard is used, panels are fastened to the horizontal girts with 1-1/2 in. (min) long No. 12-14 self-drilling screws 12 in. OC. If two layers of exterior wallboard are used, panels are fastened to the horizontal girts with 2 in. (min) long No. 12-14 self-drilling screws 12 in. OC. Vertical raised rib profiles of adjacent panels are overlapped approximately 3 in. and attached to each other with 7/8 in. long 1/4-14 (min) self-drilling screws (stitch screws) 24 in. OC (max) along the lap.

3A. **Steel Siding or Brick —** (Optional, not shown) For Fire Resistance Ratings from inside of wall only, steel siding or brick veneer meeting the requirements of local code agencies, may be installed over additional furring channels (not shown), Item 4, on exterior of wall in place of steel wall panels. Brick veneer attached to furring channels with corrugated metal wall ties attached to each furring channel with steel screws, not more than each sixth course of brick. When a minimum 3-3/4 in. thick brick veneer facing is used, the fire resistance rating applies from either side of the wall.

4. **Furring Channels —** Hat shaped, minimum 25 MSG galv steel, approximately 2-5/8 in wide, 7/8 in. deep, spaced 24 in. OC perpendicular to girts. Channels are secured to each girt with 3/8 in. (min) long self-drilling pan head sheet steel type screws. Two screws are used at each fastening location, one through each leg of the furring channel.

5. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** See table under Item 6 for number of layers and thickness on interior face of wall. Any 5/8 in. or 1/2 in. thick gypsum board applied horizontally or vertically. First layer attached to furring channels, Item 4, using 1 in. long Type S bugle head gypsum board screws spaced 24 in. OC. vertically and horizontally. Second layer attached to furring channels using 1-5/8 in. long Type S bugle head gypsum board screws spaced 12 in. OC. vertically and 24 in. OC. horizontally. Third layer, when used, attached to furring channels using Type S bugle head gypsum board

screws spaced 12 in. OC. vertically and 24 in. OC. horizontally, 1-7/8 in. long for 1/2 in. gypsum board and 2-1/4 in. long for 5/8 in. gypsum board. Fourth layer, when used, attached to steel strapping using 1 in. long (min) bugle head drywall screws spaced 8 in. OC. Steel strapping from flat stock, 1-1/2 in. wide, fabricated from 0.020 in. thick (25 gauge) galv steel. Steel strapping located vertically and attached to third layer of gypsum board at each vertical joint and intermediate stud using 2-5/8 in. Type S bugle head drywall screws 12 in. OC. The horizontal or vertical joints of the wallboard are offset 24 in. when 2 successive layers are applied in the same orientation.

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

5A. **Gypsum Board* —** (As an alternate to Item 5) - Fastened as described in Item 5. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only.

NATIONAL GYPSUM CO — Type SBWB

5B. **Gypsum Board* —** (As an alternate to Items 5 and 5A) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES

5C. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 5 through 5C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and secured as described in Item 5.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

5D. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Item 5) - Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 5. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 5, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 5.
NATIONAL GYPSUM CO — Type FSW

6. **Gypsum Board* —** See following table for number of layers on exterior face of wall. Any exterior grade 5/8 in thick gypsum wallboard or gypsum sheathing applied horizontally or vertically. First layer attached to girts, Item 1, using 1-1/4 in. long (min) self-drilling bugle-head sheet steel type gypsum board screws spaced 8 in. OC. horizontally. Second layer, when used, attached to girts using 1-5/8 in. long (min) self-drilling bugle-head sheet steel type gypsum board screws spaced 8 in. OC horizontally. The horizontal or vertical joints of the gypsum board are offset 24 in. if 2 successive layers are applied in the same orientation.

Fire Resistance from Both Sides of Wall

Rating	Layers 5/8 In. Gypsum Board (Item 5) on Interior Face	Layers 5/8 In. Gypsum Board (Item 6) on Exterior Face
1	1	1
2	2	2
2	3	1

Fire Resistance from Inside of Wall Only

Rating	Layers 1/2 In. Gypsum Board (Item 5) on Interior Face	Layers 5/8 In. Gypsum Board (Item 6) on Exterior Face
1	3	0

Rating	Layers 5/8 In. Gypsum Board (Item 5) on Interior Face	Layers 5/8 In. Gypsum Board (Item 6) on Exterior Face
2	4	0

Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305. See **Gypsum Board** (CKNX) category for names of Classified companies.

7. **Column Protection —** (not shown) — Horizontal wall girts, Item 1, are attached to vertical structural steel columns. See Column Design Nos. X524 and X530 for protection of columns.

8. **Batts and Blankets* —** (optional, not shown) — Glass Fiber Batts placed in the cavities of exterior walls.
See Batts and Blankets* (BZJZ) — category for names of manufacturers.

8A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 8) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

8B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 8) and Item 8A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

8C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 8) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

9. **Joint Tape and Compound —** (not shown, optional) — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of face layer of gypsum board. Paper or glass fiber tape embedded in first layer of compound over all joints.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-08-04

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- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
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BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

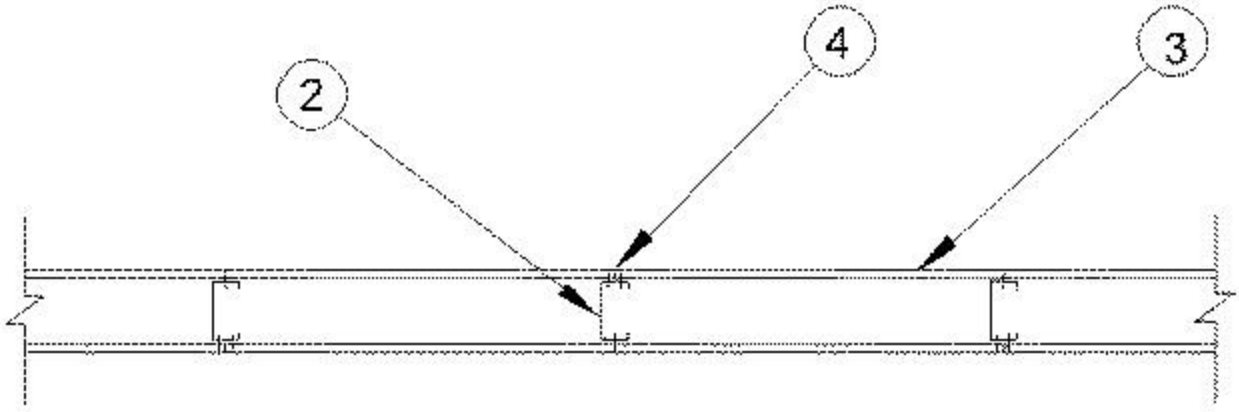
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. V450

February 8, 2024

Nonbearing Wall Rating — 1, 2 or 2-1/2 Hr (See Items 1, 2, 3 through 3G, 3K)
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — For a 1 hour rating, use with Items 3, through 3K only, proprietary channel shaped, min. 3-5/8 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max. For a 2 hour rating, use with Items 3A through 3F, proprietary channel shaped, min.

1-5/8 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max. For a 2-1/2 hour rating, use with Item 3F, proprietary channel shaped, min. 2-1/2 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max. Gypsum board may be applied vertically or horizontally as described in Items 3 through 3F.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK™

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

2. **Framing Members* — Steel Studs —** For a 1 hour rating, use with Items 3 through 3K only, proprietary channel shaped studs, min. 3-5/8 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. For a 2-1/2 hour rating, use with Item 3F only, proprietary channel shaped studs, min. 2-1/2 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height. For a 2 hour rating, use with Items 3A through 3I only, proprietary channel shaped studs, min. 1-5/8 in. wide, fabricated from min. 0.0150 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height. Gypsum boards may be applied vertically or horizontally as described in Items 3 through 3I.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD™

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

3. **Gypsum Board* —** For 1 Hour rating, one layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1-1/4 in. long bugle head screws spaced 8 in. OC at the perimeter and 12 in. OC in the field of the boards. Vertical joints are staggered from vertical joints on opposite sides of the wall.
UNITED STATES GYPSUM CO — Type C

USG BORAL DRYWALL SFZ LLC — Type C

3A. **Gypsum Board* —** (As an alternate to Item 3) — For 1 Hour Rating, one layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1 in. long bugle head screws spaced 8 in. OC at the perimeter and in the field of the boards. Vertical joints are staggered from vertical joints on opposite sides of the wall. For 1 Hour Rating, one layer of 5/8 in. thick gypsum board applied horizontally to studs with #6 x 1 in. long bugle head screws spaced 8-1/2 in. OC at the perimeter and in the field of the boards with the last two screws installed 1 and 2-1/2 in. from the edges of the boards . Vertical butt joints are staggered from vertical butt joints on opposite sides of the wall. Horizontal joints need not to be staggered on opposite sides of the wall or backed by steel framing. For 2 Hour Rating (Not Shown), two layers of 5/8 in. thick gypsum board applied horizontally. Base layer of board attached to studs with #6 x 1 in. long bugle head screws spaced 16 in. OC. starting 8 in. from the edge of the board with one screw 1-1/4 in. from the edge. Face layer of board attached to studs with #6 x 1-5/8 in. long bugle head screws spaced 16 in. OC. Starting 8 in. from the edge of the board with one screw 1-1/4 in. from the edge. Horizontal joints on the face layer are staggered 12 in. from the base layer. Horizontal joints need not to be backed by steel framing.

UNITED STATES GYPSUM CO — Type SCX
USG BORAL DRYWALL SFZ LLC — Type SCX

3B. **Gypsum Board* —** (As an alternate to Item 3) — For 1 hr rating (Vertical application) — One layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1-1/4 in. long bugle head screws spaced 8 in. OC at the perimeter and 12 in. OC in the field of the boards. Vertical joints are centered over studs and staggered from vertical joints on opposite sides of the wall. For 2 hr rating (Vertical application - Not shown) - Two layers of 5/8 in. thick gypsum board applied vertically. Inner layer attached to studs with #6 x 1 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges. Outer layer attached to studs with #6 x 1-5/8 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges with screws offset 8 in. from inner layer. Vertical joints are centered over studs and staggered between layers and on opposite sides of the wall. For 2 hr rating (Horizontal application) - Two layers of 5/8 in. thick gypsum board applied horizontally. Inner layer attached to studs with #6 x 1 in. long Type S bugle head screws spaced 24 in. OC with the 1st screw installed 1-1/4 in. from the board edge and to the track only spaced 24 in. OC. Outer layer attached to studs with 1-5/8 in. long Type S bugle head screws spaced 16 in. OC with the 1st and 2nd screws installed 1-1/4 in. and 8 in. from the board edge, respectively; and to the track only spaced 16 in. OC. Horizontal joints on the face layer are staggered 12 in. from the base layer. Horizontal joints need not to be backed by steel framing.
NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSL, FSMR-C, FSW, FSW-3, FSW-6, FSW-8, FSW-C

3C. **Gypsum Board* —** (As an alternate to Item 3) — For 1 hr rating (Vertical application) — One layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1-1/4 in. long bugle head screws spaced 8 in. OC at the perimeter and 12 in. OC in the field of the boards. Vertical joints are centered over studs and staggered from vertical joints on opposite sides of the wall. For 1 hr rating (Horizontal application) - One layer of 5/8 in. thick gypsum board attached horizontally to studs with 1 in. long Type S bugle head screws spaced 8 in. OC.; and to floor and ceiling runners with 1 in. long Type S bugle head screws spaced 8 in. OC. with the 1st screw 2 in. from board edge Horizontal joints need not be staggered on opposite faces or backed by steel framing. For 2 hr rating (Not Shown) - Two layers of 5/8 in. thick gypsum board applied vertically or horizontally. Inner layer attached to studs with #6 x 1 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges. Outer layer attached to studs with #6 x 1-5/8 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges. Vertical joints are centered over studs and staggered between layers and on opposite sides of the wall. Horizontal joints on the face layer are staggered 12 in. from the base layer. Horizontal joints need not to be backed by steel framing.
CERTAINTEED GYPSUM INC — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD

3D. **Gypsum Board* —** (As an alternate to Item 3) — For 1 hr rating (Vertical application) — One layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1 in. long bugle head screws spaced 8 in. OC at the perimeter and 12 in. OC in the field of the boards. Vertical joints are centered over studs and staggered from vertical joints on opposite sides of the wall. For 2 hr rating (Vertical application - Not Shown) - Two layers of 5/8 in. thick gypsum board applied vertically. Inner layer attached to studs with #6 x 1 in. long bugle head screws spaced 24 in. OC along the top and bottom tracks and 24 in. OC in the field and along the vertical edges. Outer layer attached to studs with #6 x 1-5/8 in. long bugle head screws spaced 16 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges. Vertical joints are centered over studs and staggered between layers and on opposite sides of the wall.
GEORGIA-PACIFIC GYPSUM L L C — Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

3E. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Item 3B) — Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 3B. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 3B, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 3B.
NATIONAL GYPSUM CO — Type FSW

3F. **Gypsum Board* —** (As an alternate to Item 3) — For 1 Hour Rating — One layer of 5/8 in. thick, 4 ft. wide, gypsum board applied vertically to studs with #6 x 1 in. long bugle head screws spaced 8 in. OC at the perimeter, starting 4 in. from the edge of the boards, and 12 in. OC in the field of the boards, starting 6 in. from the edge of the board. Vertical joints are staggered from vertical joints on opposite sides of the wall. For 2 or 2-1/2 Hour Rating - (Not Shown) - Two layers of 5/8 in. thick, 4 ft. wide, gypsum board applied vertically. Inner layer attached with #6 x 1 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks with one screw located 6 in. from each edge of the board and 16 in. OC along the studs with one screw located 8 in. from one edge of the board. Outer layer attached with #6 x 1-5/8 in. long bugle head screws spaced 12 in. OC along the top and bottom tracks with one screw located 1-1/2 in. from each edge of the board and 16 in. OC along the studs with one screw located 8 in. from one edge of the

board as to offset the face layer screws 8 in. from the base layer screws. Vertical joints are centered over studs and staggered between layers and on opposite sides of the wall.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, LightRoc

3G. **Gypsum Board* —** (As an alternate to Item 3) — For 1 Hour Rating — One layer of 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges. Gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. When applied horizontally, gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws 1-1/2 in. from board edges, 3 in. from board edge, every 8 in. OC in the field, and 12 in. along the top and bottom edges of the wall. When applied vertically, gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws every 8 in. OC in the field and 12 in. along the top and bottom edges of the wall. For 2 hr rating - (Not Shown) - Two layers of 5/8 in thick, 4ft wide, gypsum board applied vertically or horizontally Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints to be staggered between layers and on opposite side of wall. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints between layers to be staggered a min of 12 in. For vertical application of gypsum board, base layer to be fastened with 1 in. screws spaced 12 in. OC and face layer to be fastened with 1-5/8 in. screws spaced 12 in. OC. For horizontal application of gypsum board, base layer to be fastened with screws spaced 16 in. OC and face layer to be fastened with 1-5/8 screws spaced 16 in. OC. In either vertical or horizontal applications, Type S or Type S-12 steel screws are to be used.
CERTAINTEED GYPSUM INC — Type X-1, Easi-Lite Type X-2, GlasRoc, Type Silent FX

3H. **Gypsum Board* —** (As an alternate to Items 3 through 3G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 12 in. OC.
NATIONAL GYPSUM CO — Type SBWB

3I. **Gypsum Board* —** (As an alternate to Items 3-3H) — Required to be used with Item 5) — For 1 Hour Rating — One layer of 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges. Gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. When applied horizontally, gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws 1-1/2 in. from board edges, 3 in. from board edge, and every 8 in. OC in the field, and 12 in. along the top and bottom edges of the wall. When applied vertically, gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws every 8 in. OC in the field and 12 in. along the top and bottom edges of the wall. For 2 hr rating - (Not Shown) - Two layers of 5/8 in thick, 4ft wide, gypsum board applied vertically or horizontally Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints to be staggered between layers and on opposite side of wall. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints between layers to be staggered a min of 12 in. For vertical application of gypsum board, base layer to be fastened with 1 in. screws spaced 12 in. OC and face layer to be fastened with 1-5/8 in. screws spaced 12 in. OC. For horizontal application of gypsum board, base layer to be fastened with screws spaced 16 in. OC and face layer to be fastened with 1-5/8 screws spaced 16 in. OC. In either vertical or horizontal applications, Type S or Type S-12 steel screws are to be used.
CERTAINTEED GYPSUM INC — 5/8 in. Easi-Lite Type X

3J. **Gypsum Board* —** (As an alternate to Item 3) — For 1 hr rating (Vertical application) — One layer of 5/8 in. thick gypsum board applied vertically to studs with #6 x 1 in. long bugle head screws spaced 8 in. OC at the perimeter and 12 in. OC in the field of the boards. Vertical joints are centered over studs and staggered from vertical joints on opposite sides of the wall. For 2 hr rating (Vertical application - Not shown) - Two layers of 5/8 in. thick gypsum board applied vertically. Inner layer attached to studs with #6 x 1 in. long bugle head screws spaced 24 in. OC along the top and bottom tracks and 24 in. OC in the field and along the vertical edges. Outer layer attached to studs with #6 x 1-5/8 in. long bugle head screws spaced 16 in. OC along the top and bottom tracks and 16 in. OC in the field and along the vertical edges. Vertical joints are centered over studs and staggered between layers and on opposite sides of the wall.
CERTAINTEED GYPSUM INC — Type C

3K. **Gypsum Board* —** (As an alternate to Item 3) — For 1 Hour Rating — One layer of 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges. Gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws every 12 in. OC in the field and perimeter when applied vertically or horizontally. For 2 hr rating - (Not Shown) - Two layers of 5/8 in thick, 4ft wide, gypsum board applied vertically or horizontally Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints to

be staggered between layers and on opposite side of wall. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints between layers to be staggered a min of 12 in. For vertical application of gypsum board, base layer to be fastened with 1 in. screws spaced 12 in. OC and face layer to be fastened with 1-5/8 in. screws spaced 12 in. OC. For horizontal application of gypsum board, base layer to be fastened with screws spaced 16 in. OC and face layer to be fastened with 1-5/8 in. screws spaced 16 in. OC. In either vertical or horizontal applications, Type S or Type S-12 steel screws are to be used.
CGC INC — Type ULIX

UNITED STATES GYPSUM CO — Type ULIX

3L. **Gypsum Board* —** As an alternate to Item 3 (For 1 hr rating) — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications.
NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSL, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSMR-C

3M. **Gypsum Board* —** (As an alternate to Item 3) — For 1 Hour Rating (Required to be used with Item 5) — One layer of 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges. Gypsum panels applied vertically or horizontally with joints centered over studs. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Gypsum panels fastened to framing with 1 in. long Type S or S-12 steel screws spaced 8 in. OC in the field and 12 in. OC along the top and bottom edges of the wall. For 2 Hour Rating, Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers staggered one stud cavity. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Horizontal edge joints and horizontal butt joints in adjacent layers need not be staggered. Base layer panels fastened to framing with 1 in. Type S or S-12 steel screws spaced 16 in. OC. Face layer fastened to framing with 1-5/8 in. Type S or S-12 steel screws spaced 16 in. OC, starting with an 8 in. stagger at the joint. Additional terminating screw at face layer joint located approximately 1 in. from horizontal joints.
CERTAINTEED GYPSUM INC — Types CLLX

3N. **Gypsum Board* —** (As an alternate to Item 3, for 1 hr. rating) — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 12 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications.

CERTAINTEED GYPSUM INC — Type X-1, SilentFX, GlasRoc, Type C

4. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to outer layer joints and screw heads. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints.

5. **Batts and Blankets* —** (Optional, Not Shown) — Friction fit in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Fire Resistance.
See **Batts and Blankets** (BZJZ) for names of Classified companies.

6. **Framing Members* — Resilient Channels —** (Optional, Not Shown) — Resilient furring channels fabricated from min. 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. flange portion attached to each intersecting stud with 1/2 in. long Type S-12 panhead steel screws.
CLARKDIETRICH BUILDING SYSTEMS — Type RCSD, RCUR

7. **Barrier Mesh —** (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 3) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier

Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.

CLARKDIETRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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