CONTRACT DOCUMENT

FOR

CITY OF FERNANDINA BEACH

Amelia River Waterfront Stabilization Parking Lots C & D

CITY ITB#: 21-06

PREPARED BY:

PASSERO ASSOCIATES, LLC
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St. Augustine, FL 32095

PA PROJECT No. 99000047.0095 **May 10, 2021**

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INTRODUCTION

The City of Fernandina Beach, Florida is accepting competitive sealed bids for **AMELIA RIVER WATERFRONT STABILIZATION PARKING LOTS C AND D.**

The City will receive sealed bid submittals at the location stated below not later than **2:00pm (Eastern Time), June 18, 2021.**

A Mandatory Pre-bid meeting will be held at 11.00am (Eastern Time), May 18, 2021 at the City of Fernandina Beach City Hall, 204 Ash Street, Fernandina Beach, FL 32034. Submittals will not be accepted from any firm that is not represented at the Mandatory Pre-bid meeting.

Any submittal received after the above stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have its Bid delivered to the City of Fernandina Beach, by U.S. Mail, hand delivery or any other method available to him/her; however, facsimile, or electronic submittals will not be accepted. Delay in delivery shall be the sole responsibility of the Bidder. Submittals received after the deadline will not be considered. Award of the Bid is subject to authorization and appropriation of funds.

The original bid submittal **[1 original, 3 copies and 1 electronic copy, (CD or thumb drive)]** must be delivered to City Hall in a sealed package, clearly marked on the outside, **ITB #21-06** and addressed to:

City of Fernandina Beach
Attn: City Clerk's Office – **ITB #21-06**
204 Ash Street
Fernandina Beach, FL 32034

Hand delivered Submittal is to be taken to the Clerk's Office at the above address.

The bid shall be submitted on the specified **Contact Sheet,** hereto attached as "**Exhibit A**" and **Bid Form,** hereto attached as **"Exhibit A-1"**. The person signing the Bid Response Form shall have the authority to bind the proposer to the Bid. All information on the Bid form shall be provided, or the Bid may not be accepted.

The competitive sealed Bid shall be accompanied by a **"Public Entity Crimes",** herein provided as "**Exhibit B**", **"Drug-Free Workplace Certification"** herein provides as **"Exhibit C"**, "**E-Verify Statement**" herein provided as **"Exhibit D"**, **"Proposer Acknowledgements and Agreements",** herein provided as "**Exhibit E**", **"Conflict of Interest",** herein provided as, "**Exhibit F**", **"Non-Collusion Affidavit",** herein provided as "**Exhibit G" and "Dispute Disclosure",** herein provided as **"Exhibit H", "Statement of Bidders Qualifications form"**, hereto provided as **"Exhibit I". "Attachment "B", "Sample Contract" City of Fernandina Beach.**

In accordance with Item 16, General Terms and Conditions, please provide **proof the Contractor/Vendor is not listed in the Excluded Parties List System**, a federal suspension and debarment listing.

CITY OF FERANDINA BEACH
ITB 21-06
AMELIA RIVER WATERFRONT STABILIZATION PARKING LOTS C AND D

SCOPE OF WORK

Site Work and Installation of a new Living Shoreline, "I"- Wall and Boardwalk, complete including, but not limited to; selective demolition, earthwork, slope protection system,dewatering, traffic control, concrete work, flood barrier (purchase and installation), electrical lighting and associated work as indicated on the construction plans.

All tools, materials, tools, supervision, labor, and equipment for the Amelia River Waterfront Stabilization Parking Lots C & D to consist of a new Living Shoreline, "I"- Wall and Boardwalk including, selective demolition, earthwork, miscellaneous site work, installation of new oysters bags, revetment, "I"-Wall Boardwalk, and flood protection equipment, concrete installation, electrical lighting and all miscellaneous items as specified on the Construction plans.

SAFETY

The Contractor shall provide all necessary barriers and signage and take necessary precautions to protect buildings, general public and Contractor personnel. The Contractor shall at all times guard against damage or loss of City property or the general public and shall be held responsible for replacing or repairing any loss or damage to the satisfaction of The City of Fernandina Beach.

GENERAL CONSTRUCTION GUIDELINES

1. The contractor shall be required to coordinate his work schedule with City during the course of the project.

2. Survey Construction staking and testing of materials will be the contractor's responsibility for all aspects of the work including, but not limited to, compaction, proof-rolling, concrete mix, gradations, and concrete testing. The cost of such testing shall be included in the Contractors bid, and no additional compensation will be made.

3. The City does not commit to furnishing full-time inspection or testing of the work in progress or at material sources. Lack of inspection and/or testing by the City or A/E will in no way relieve the Contractor of his responsibility to provide quality workmanship in accordance with the Contract Documents.

4. The Contractor is required to submit shop drawings and material submittals to the A/E for review and approval prior to delivery and installation.

5. Bidder agrees to commence work within ten day after the Notice to Proceed is issued and to complete all work within 300 calendar days from Notice to Proceed.

6. Contractor is solely responsible for all construction means, methods, techniques, sequences, procedures and coordinating all portions of Work under Contract.

7. Contractor is responsible for all acts and omissions of his Subcontractors.

8. Engineer will not establish limits of Work between Contractor and Subcontractors nor will he act as an arbiter in establishing such limits.

CUTTING & PATCHING OF WORK

1. Contractor is responsible for all cutting, fitting, or patching that may be required to complete Work or to make its several parts fit together properly.

2. Contractor is responsible for cutting, fitting, or patching provided by Subcontractors.

EXCAVATING & BACKFILLING

1. Contractor is responsible for all excavating, trenching, backfilling or compaction that may be required to complete Work or to make its several parts fit together properly.

2. Contractor is responsible for excavating, backfilling, trenching or compaction provided by Subcontractors.

CONTRACT TIME

The Owner has established a **contract performance time of 300 calendar days** from the date of Notice-to-Proceed. All work shall be substantially completed within the stated timeframe. This project is subject to liquidated damages to be specified in the contract.

QUALIFICATIONS

Bidders must submit with the Bid Submittal evidence of capabilities to complete the Fernandina Beach Amelia River Waterfront Stabilization Parking Lots C & D project. This will include a reference list of similar projects (scope and size) successfully completed in the past, a reference list, and equipment list, a list of subcontractors, and other information requested by the City of Fernandina Beach. Failure to submit qualification information with the Bid Submittal may result in rejection of a Bid.

AWARD

Award recommendation shall be made to the most responsive and responsible bidder offering the best value. The City reserves the right, based upon its deliberations and in its opinion, to accept or reject any or all proposals. The City also reserves the right to waive minor irregularities or variations to the specifications and in the bidding process.

Successful Bidder is required to have a Business License in the city where their home office is located. If Bidder's business office is located in the City of Fernandina Beach a business tax license is required.

Bid Package

Bid Documents and Specifications are available to download from the City of Fernandina Beach website at www.fbfl.us/bids, and DemandStar at www.demandstar.com. Questions regarding bid package can be directed to Wanda Weaks, Purchasing Agent, wweaks@fbfl.org.

CONTACT

Specification questions during the bid period shall be submitted in writing to City Engineer, Charles George, cgeorge@fbfl.org with a copy to Purchasing Agent, Wanda Weaks, wweaks@fbfl.org.

Bidders are hereby put-on notice that no contact shall be made with any of the City Commission members, other City staff, or others that may be involved in the selection process to discuss this request or to influence the outcome of the selection.

ADDENDA

A written response to bidder questions will be issued via Addendum and posted on the City's website at www.fbfl.us/bids and DemandStar at www.demandstar.com. It is the bidder's responsibility to check the City's website for Addenda prior to submitting their bid. The deadline for questions is **ten** days before bid opening.

If there is an Addendum it becomes part of the original Bid and shall be acknowledged by attaching a copy of the Addendum, signed by an authorized representative of the person or company submitting the bid or proposal. Failure to do so may disqualify the bid or proposal.

ITB 21-06 SCHEDULE

Invitation to Bid	Date/Time
Advertisement of Bid	May 7, 2021
Mandatory Pre-Bid Meeting	11:00AM(EST) May 18, 2021
Addendum No 1 issued	3:00PM(EST) May 25, 2021
Deadline for submission of written questions	5:00PM(EST) June 8, 2021
Final Addendum issued	3:00PM(EST) June 9, 2021
Deadline for submission of Bids	2:00PM(EST) June 18, 2021

CONTRACTOR PERSONNEL

1. CITY reserves the right to reject any CONTRACTOR employee doing business for the awarded CONTRACTOR that has not received the proper safety training or is not performing work in a safe manner. Any costs resulting in a rejection of personnel will be solely at the CONTRACTOR's expense.

2. No sub-contractor shall be employed by CONTRACTOR for the provision of these services without the prior written approval of the CITY.

PERFORMANCE STANDARDS/QUALITY REQUIREMENTS

In addition to those requirements set forth in the Scope of Work, all services (and items incidental thereto) and work provided by CONTRACTOR shall conform to the following:

PROJECT SCHEDULE

CONTRACTOR shall begin no later than ten calendar days from issuance of Notice to Proceed; all work must be completed **within 300 calendar days of Notice to Proceed**.

Additionally, due to Grant funding requirements, the Contractor agrees to complete specific project items in accordance with the following milestone dates:

Slope Protection System Installation:	December 10, 2021
Living Shoreline Installation:	March 3, 2022
Boardwalk Installation:	February 10, 2022
Seawall Installation:	February 10, 2022
Petanque Courts Area Cleanup	November 1, 2021

TIME OF PERFORMANCE

1. CONTRACTOR may, upon approval by City designee, be provided weekends and after-hours access to the site, if necessary or desired, to complete the project, weather permitting. However, no additional sums shall be paid other than that specified in the bid response.

2. CONTRACTOR may set up equipment onto the jobsite without commencing work for a maximum of seven calendar days. Location of equipment storage will be provided by the City designee.

3. CONTRACTOR will, prior to any delay submit notification of delay in writing within five calendar days to the City designee.

4. CONTRACTOR shall submit documentation explaining the cause of the delay. CITY shall determine the extent of delay and extend the time for completing the work if, in CITY's judgement, the findings justify an extension. Any delay shall not entitle CONTRACTOR to any additional compensation. The sole remedy of CONTRACTOR shall be an extension of time.

5. CONTRACTOR shall arrange with the City designee a sequence of procedure, means of access, space for storage of materials and equipment and use of approaches, corridors, and stairways. CITY shall not be responsible for lost or stolen materials or tools left on the job site.

SITE MAINTENANCE

1. Extreme care shall be taken to safeguard all existing facilities, paved walkways, site amenities, utilities, windows, and vehicles on or around the job site. Damage to public and/or private property shall be the responsibility of CONTRACTOR and shall be repaired and/or replaced in equal or better condition at no additional cost to the CITY. CONTRACTOR shall use all means to protect existing objects, structures and vegetation designated to remain. In the event of damage, immediately make all repairs, replacements, and dressings to damaged materials, to the approval of CITY, at no additional cost to the CITY. In the event of damage to public and/or private property, CONTRACTOR shall immediately contact the CITY's designee and inform them about the location and extent of the damages and will stay on site until his investigation of the damage is concluded.
2. CONTRACTOR shall place all debris in refuse container and keep the premises free from rubbish at the end of each working day. The CONTRACTOR shall be responsible for supplying, emptying and the removal of waste containers/dumpsters, as necessary.
3. CONTRACTOR shall arrange material storage so as not to interfere with the CITY's operations.
4. CONTRACTOR shall at the completion of the job, remove unused material and rubbish from the site. If CONTRACTOR refuses at any time to remove the debris from the premises, or to keep the working area clean, such cleaning will be completed by the CITY and deducted from the balance due CONTRACTOR.
5. CONTRACTOR shall store all materials to be protected against weather, vandalism, and theft. Any materials found to be damaged or missing shall be replaced by CONTRACTOR at no cost to the CITY.
6. CONTRACTOR shall be responsible for clean up at the site at the conclusion of the project, including excess construction materials, and a thorough cleaning of all areas that were affected by CONTRACTOR or their subcontractors to the satisfaction of the CITY.

SAFETY

The Contractor shall provide all necessary barriers and signage and take necessary precautions to protect buildings, general public and Contractor personnel. The Contractor shall at all times guard against damage or loss of City property or the general public and shall be held responsible for replacing or repairing any loss or damage to the satisfaction of The City of Fernandina Beach.

1. CONTRACTOR shall be aware that this project is subject to public and private vehicular and pedestrian traffic at all times.
2. CONTRACTOR shall comply with all Federal/County/City laws/ordinances and City Fire codes during the execution of this project.
3. CONTRACTOR shall continuously maintain adequate protection of all work from damage and shall protect public and privately owned property, structures, vehicles, utilities, and work of any kind against damage or interruptions of service, which may result from the operations of the CONTRACTOR.
4. CONTRACTOR shall provide Safety Data Sheets: If any chemicals or materials or products containing toxic substances, as defined by Chapter 442, Florida Statutes, are to be used at any time during this the contract period, CONTRACTOR shall furnish Safety Data Sheets to the City designee prior to commencing this project.

5. CONTRACTOR shall perform all work under supervision of a capable supervisor using skilled employees.

6. CONTRACTOR shall have a person, which is on their payroll and with ***the authority to make decisions, on site at all times.***

REQUIRED INSPECTIONS

Prior to the start of any work, CONTRACTOR shall examine all surfaces and report in writing to the City designee any conditions detrimental to work. Failure to observe this injunction constitutes a waiver to any subsequent claims to the contrary.

CITY'S RIGHTS TO INSPECT, REJECT, AND STOP WORK

1. Right to Inspect Work - CITY will have the right to inspect the work at all times. Such inspection will not relieve CONTRACTOR of any of its obligations to perform the work in strict accordance with the contract documents.

2. Right to Reject Work - CITY will have the right to reject work which does not conform to the contract documents. CITY may require special inspection or testing of the work.

3. Right to Stop Work - If CITY reasonably believes that CONTRACTOR is failing to carry out the work in accordance with the contract documents; CITY may order CONTRACTOR to stop the work, or a portion of the work, until such time as the cause of such stop order has been eliminated.

4. Right to Carry Out Work - If CONTRACTOR fails to perform the work properly or fails to perform any provision of the contract documents, including unauthorized project schedule delays, CITY, after three days written notice to CONTRACTOR without correction, may correct the deficiencies through CITY's own forces or through others and may deduct the cost thereof from the payment then or thereafter due to the CONTRACTOR.

WARRANTY

1. CONTRACTOR shall provide warranty stating that the Waterfront Stabilization is complete in detail and finish, and free of hazardous conditions. The material warranty and workmanship must have a one-year warranty.

2. If CITY deems it unacceptable to have CONTRACTOR correct the work, which has been incorrectly done, a deduction from the contract price shall be made as determined by CITY. Such a deduction from the contract price shall in no way affect the CONTRACTOR's responsibility for defects, which may occur nor their ability for correcting them, and damage caused by them.

3. Supplies and/or services furnished as a result of this bid shall be covered by the most favorable commercial warranties, expressed or implied, that the bidder and/or manufacturer gives to any customer. The rights and remedies provided herein are in addition to and do not limit any rights afforded to the CITY by any other clause of this bid. Any applicable written warranty from the product manufacturer and/or representative company shall commence from date of completion and acceptance by the CITY.

LIQUIDATED DAMAGES

Should the awarded CONTRACTOR fail to complete work and make the area available for use within the stipulated period CONTRACTOR may be assessed by the CITY the amount of Five hundred dollars ($500.00) for each consecutive calendar day that expires after the time specified for completion and ready for final payment until the work is complete. The per diem charge may be invoked at the discretion of the CITY and said sum to be taken as liquidated damages and deducted from the final payment or charged back to CONTRACTOR. This deduction is in addition to other remedies available to the CITY pursuant to Florida Statutes or the terms and conditions of this solicitation.

INSURANCE REQUIREMENTS

Insurance requirements are outlined in the General Conditions of this Invitation to Bid.

BOND REQUIREMENTS

Bid bonds requirements are outlined in the General Conditions of this Invitation to Bid.

EQUAL OPPORTUNITY/AFFIRMATIVE ACTION

The City is an equal opportunity/affirmative action employer. The City is committed to equal opportunity employment effort and expects firms that do business with the City to have an affirmative action program.

GENERAL CONDITIONS OF INVITATION TO BID

1. **PREPARATION OF BID** - INVITATION TO BID shall be prepared in accordance with the following:
   a. The enclosed Contact Sheet/Bid Form, attached hereto as "Exhibit A", shall be used when submitting your INVITATION TO BID.
   b. All information required by the Contact Sheet/Bid Form shall be furnished. The Bidder shall print or type his/her name and manually sign the Form and any continuation sheet on which an entry is made.
   c. Unit prices shall be shown and where there is an error in extension of price, the unit price shall govern.
   d. Alternate Bids will not be considered unless authorized by the Invitation to Bid.
   e. Bidders will **not** include federal taxes nor State of Florida sales, excise, and use taxes in prices, as the City is exempt from payment of such taxes. An exemption certificate will be signed where applicable upon request.
   f. Bidders shall make all investigations necessary to thoroughly inform themselves about any and all conditions related to the performance of the contract. Plea of ignorance by the Bidder of conditions that exists or may hereafter exist as a result of failure or omission on the part of the Bidder to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements provided for in the Purchasing Policy, Purchasing Ordinance and/or State and Federal Statutes. The City's Purchasing Ordinance is set forth in Chapter 2-420, *et seq*.
   g. Prices quoted must be FOB City of Fernandina Beach, Florida with all transportation charges prepaid unless otherwise specified in the Invitation to Bid.
   h. Deliveries are to be FOB Destination unless otherwise specified in the Invitation to bid
   i. Deliveries are to be made during regular business hours.
   j. Bids and Bid prices shall be valid for a minimum of ninety (90) days, unless otherwise stated on the INVITATION TO BID.

2. **SUBMISSION OF BID**
   a. Bids and changes thereto shall be enclosed in sealed envelopes & addressed as instructed on the Bid Form. The name and address of the Bidder, the date and hour of the Invitation to Bid opening and the material or service shall be placed on the outside of the envelope.
   b. INVITATION TO BID must be submitted on the forms furnished. Electronic Bids will not be considered.

3. **REJECTION OF BID**
   a. The City reserves the right to accept or reject any or all Bids, to waive irregularities and technicalities, and to request resubmission or to re-advertise for the services. The City shall be the sole judge of the submittals. The City's decision shall be final.

4. **WITHDRAWAL OF BID**
   a. Bids may not be withdrawn after the time set for the opening for a period of time as specified.

   b. Bids may be withdrawn prior to the time set for the opening. Such request must be in writing.

5. **LATE BID**
   a. INVITATION TO BID and modifications received after the time set for the opening will not be considered.
   b. Modifications in writing received prior to the time set for the opening will be accepted.

6. **LOCAL, STATE, AND FEDERAL COMPLIANCE**
   a. Bidders shall comply with all local, state, and federal directives, orders and laws as applicable to the INVITATION TO BID and subsequent contract(s) in accordance with the requirements as stated in CFR 200.321, including but not limited to Equal Employment Opportunity (EEO), Minority Business Enterprise (MBE), and Occupational Safety and Health Administration (OSHA) as applicable to this contract.
   b. A "Public Entity Crimes Statement", in accordance with Florida Statutes, Section 287.133 (3) (a), on Public Entity Crimes, attached hereto as "Exhibit B", must be received at the time of the bid.
   c. A "Drug Free Workplace Certification" attached hereto as "Exhibit C", must be received at the time of the bid.
   d. The City of Fernandina Beach requires that the Bidder selected will not discriminate under the contract against any person, in accordance with federal, state and local government regulations.
   e. An "E-Verify Statement" attached hereto as "Exhibit D" must be received at the time of the bid.

7. **AWARD OF INVITATION TO BID**
   a. The INVITATION TO BID will be awarded to the most responsive and responsible bidder offering the best value to the City of Fernandina Beach.
   b. The City reserves the right to accept and award item by item, and/or by group, or in the aggregate.
   c. A written award of acceptance, (Purchase Order), mailed or otherwise furnished to the successful Bidder shall result in a binding contract without further action by either party.
   d. Unless otherwise noted in the specifications, the length of the agreement shall be one year, with 2 one-year renewals possible based on the mutual consent of the parties.
   e. Upon award, for construction projects, the Contractor will be required to complete/execute the City's Contract and General Conditions for Construction Services. An example of the contract can be found on the City's website at www.fbfl.us/bids, Bids and Purchasing web page.

f. Agreement may be cancelled with 60-day notice unless otherwise stated in signed contract documents.

8. NOT RESPONSIBLE FOR COSTS

a. The City shall not be responsible for any cost incurred by a prospective Bidder in responding to this INVITATION TO BID.

9. BONDS

- If Bid is less than $100,000 no Bid Bond or Payment and Performance Bond required.
- If Bid is greater than $100,000 and is for material only, a Bid Bond is required but no Payment and Performance Bond is required.
- If Bid is $100,000 - $200,000, and is for services, a Bid Bond is required but no Payment and Performance Bond is required.
- If Bid is greater than $200,000, and is for services, Bid Bond and Payment and Performance Bond is required.

BID BOND:

a. If the Base Bid or the Base Bid plus the sum of any alternates fall into the criteria above requiring a Bid Bond, the bidder shall enclose a Certified Check or Bid Bond with each bid. A Certified Check or Bid Bond shall be for an amount not less than five percent (5%) of the Bid price and shall be made payable to the CITY OF FERNANDINA BEACH as a guarantee that the Bidder will not withdraw its bid for a period of ninety (90) calendar days after Bid closing time. Bid Bonds or Certified Checks will be returned to unsuccessful bidders within 10 days of bid award. Successful bidders will receive their Certified Check or Bid Bond after the contract/agreement has been signed and a Performance and Payment Bond is received.

PERFORMANCE AND PAYMENT BONDS:

a. In the event the Contract is awarded to the Bidder, Bidder will thereafter enter into a written contract with the CITY OF FERNANDINA BEACH and furnish a Payment and Performance Bond in an amount equal to the contract price. The form of the bonds shall be in accordance with Section 255.05 of Florida Statutes. Failing to do so, Bidder shall forfeit its bid security.

Payment and Performance Bond shall be secured from or countersigned by an agency or surety company recognized in good standing and authorized to do business in the State of Florida.

The following exceptions to bidder providing Performance and Payment Bonds are as follows: In lieu of the Performance and Payment Bonds, a contractor may file with the City an alternative form of security in the form of cash, a money order, a certified check, a cashier's check, an irrevocable letter of credit, or a security of a type listed in part II of

chapter 625, Florida Statutes. Any such alternative form of security shall be for the same purpose and be subject to the same conditions as those applicable to the bonds. The value of an alternative form of security shall be in the amount of the bid.

10. PUBLIC INFORMATION

a. All information contained in this Bid is public information, and as such will be handled in accordance with chapter 119, Florida Statutes.

11. ADDITIONAL INFORMATION

a. The City reserves the right to require Bidders to provide references and information on previous similar experience prior to award of the contract.

12. QUESTIONS

a. Any questions about the INVITATION TO BID should be communicated per instructions in the INVITATION TO BID.

13. INDEMNIFICATION AND INSURANCE

INDEMNIFICATION

The CONTRACTOR agrees to assume liability for and indemnify, hold harmless, and defend the City, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the CONTRACTOR, its agents, officers, contractors, subcontractors, employees, or anyone else employed or utilized by the CONTRACTOR in the performance of this Agreement. The CONTRACTOR's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this indemnification provision. This includes claims made by the employees of the CONTRACTOR against the City and the CONTRACTOR hereby waives its entitlement, if any, to immunity under Section 440.11, Florida Statutes. The obligations contained in this provision shall survive termination of this Agreement and shall not be limited by the amount of any insurance required to be obtained or maintained under this Agreement.

Subject to the limitations set forth in this Section, the CONTRACTOR shall assume control of the defense of any claim asserted by a third party against the City and, in connection with such defense, shall appoint lead counsel, in each case at the CONTRACTOR's expense. The City shall have the right, at its option, to participate in the defense of any third-party claim, without relieving CONTRACTOR of any of its obligations hereunder. If the CONTRACTOR assumes control of the defense of any third party claim in accordance with this paragraph, the CONTRACTOR shall obtain the prior written consent of the City before entering into any settlement of such claim. Notwithstanding anything to the contrary in this Section, the CONTRACTOR shall not assume or maintain control of the defense of any third-party claim, but shall pay the fees of counsel retained by the City and all expenses, including experts' fees, if (i) an adverse determination with respect to the third-party claim would, in the good faith

judgment of the City, be detrimental in any material respect to the City's reputation; (ii) the third party claim seeks an injunction or equitable relief against the City; or (iii) the

CONTRACTOR has failed or is failing to prosecute or defend vigorously the third-party claim. Each party shall cooperate, and cause its agents to cooperate, in the defense or prosecution of any third-party claim and shall furnish or cause to be furnished such records and information, and attend such conferences, discovery proceedings, hearings, trials, or appeals, as may be reasonably requested in connection therewith.

It is the specific intent of the parties hereto that the foregoing indemnification complies with Section 725.06, Florida Statutes, as amended. CONTRACTOR expressly agrees that it will not claim, and waives any claim, that this indemnification violates Section 725.06, Florida Statutes, as amended. Nothing contained in the foregoing indemnification shall be construed as a waiver of any immunity or limitation of liability the City may have under the doctrine of sovereign immunity or Section 768.28, Florida Statutes.

INSURANCE

Prior to commencement of any work under this Contract and until completion and final acceptance of the work, the CONTRACTOR/VENDOR shall, at its sole expense, maintain the following insurance on its own behalf, and furnish to the CITY certificates of insurance evidencing same and reflecting the effective date of such coverage as follows:

The term "Contractor" as used in the insurance rider, shall mean, and include Subcontractors of every tier.

A. Worker's Compensation and Occupational Disease Insurance in accordance with the applicable law or laws; Employer's Liability Insurance with limit of at least One Million ($1,000,000) dollars. This includes sole proprietorships and officers of corporations who will be performing work on the job.

B. Commercial General Liability with a combined Bodily Injury and Property Damage limit of not less than ONE Million ($1,000,000.00) dollars per occurrence and TWO Million ($2,000,000) Dollars in the aggregate. The aggregate must be applicable on a per project basis. Coverage must include the following perils:
   1. Broad Form Blanket Contractual Liability for liability assumed under this Contract and all other Contracts relative to the project.
   2. Completed Operations/Products Liability.
   3. Broad Form Property Damage
   4. Personal and Advertising Injury Liability
   5. Independent Contractors
   6. Endorsements must be furnished reflecting the inclusion of the interests of Owner, Construction Manager, General Contractor, Contractor, (your company) , their officers, directors, partners, representatives, agents and employees, and naming each as an Additional Insured on a primary and non-contributing basis.

7. Coverage is to be endorsed to reflect that insurance is to be primary and non-contributory with respect to any other collectable insurance, for the Owner, General Contractor, Contractor, (your company) and all other parties required to be named as additional insureds.
8. Coverage is to be provided on an "occurrence" basis with carriers licensed and admitted to conduct business in the State of [your state] or otherwise acceptable to the Contractor (your company).
9. A copy of policy and/or endorsement(s) and any other documents required to verify such insurance are to be submitted with the appropriate certificate(s), or upon the request of Contractor (your company). Failure to provide these documents is not to be construed as a waiver of the requirements to provide such insurance.

C. Commercial Automobile Liability Insurance covering the use of all Owned, Non-Owned, and Hired Vehicles with combined Bodily Injury and Property Damage Limit of at least One Million ($1,000,000.00) Dollars.

D. Umbrella I Excess Liability Insurance with a limit of no less than One Million ($1,000,000) minimum per occurrence.

E. During the term of this agreement, (if applicable) the Contractor/Vendor will carry Professional Liability Insurance which will cover liability for any damage or non-performance on account of any error, omission, or other provable negligence caused by the Contractor/Vendor. The amount of insurance shall not be less than One Million ($1, 000,000) per occurrence and aggregate.

F. Loss Deductible – If the insurance of any CONTRACTOR/VENDOR contains deductible(s), penalty(s) or self-insured retention(s), the CONTRACTOR/VENDOR
Whose insurance contains such provision(s) shall be solely responsible for payment of such deductible(s), penalty(s) or self-insured retention(s).

G. Where an Off Project Site Property exposure exists, the Contractor at its sole expense shall furnish to the Owner and Contractor (your company) Certificates of Insurance and other required documentation evidencing the following coverage which shall provide for the interests of [Name of Owner] , [Name of General Contractor] and (your company) to be named as Loss Payees and shall contain a provision requiring the insurance carriers to waive their rights of subrogation against all indemnities' named in the contract.
"All Risk" Property Insurance on all materials, equipment and supplies intended to become a permanent part of the construction stored on premises away from the project site and while in transit, until actually delivered to the project site. Coverage is to be provided on a replacement cost basis.

H. The above insurances shall each contain the following wording verbatim: "[Name of Owner], [Name of General Contractor], and (your company) are interested in the maintenance of this insurance and it is agreed that this insurance will not be canceled materially changed or not renewed without at least a thirty (30) day advance written notice to [Name and address of Owner], [Name and address of General Contractor] and [Name and address of your company] by certified mail-return receipt requested."

I. The amount of insurance contained in the aforementioned insurance coverages shall not be construed to be a limitation of the liability on the part of the Subcontractor or any of its Subcontractors.

J. The Contractor shall file certificates of insurance prior to the commencement of work with the Owner and the General Contractor which shall be subject to the Owner, General Contractor and (your company) approval of adequacy of protection and the satisfactory character of the Insurer.

K. Any type of insurance or any increase of limits of liability not described above which the Subcontractor requires for its own protection or on account of statute shall be its own responsibility and at its own expense.

L. The carrying of the insurance described shall in no way be interpreted as relieving the Contractor or Subcontractor of any responsibility of liability under this Contract.

M. Any policies effected by the Contractor on its Owned and/or Rented Equipment and Materials shall contain a provision requiring the insurance carriers to waive their rights of subrogation against the [Name of Owner], [Name of General Contractor], [Name of Contractor (your company)] and all other indemnities named in the Contract.

N. Should the Contractor engage a Subcontractor, the same conditions will apply under this contract to each Subcontractor, however, the retained Subcontractor shall be required to maintain limits of liability of not less than One Million ($1,000,000.00) Dollars per occurrence and Two Million ($2,000,000) Dollars in the aggregate, with said limits applicable on a per project basis, or such greater limits as may be required by the retaining Subcontractor.

14. PAYMENT

Payment due hereunder shall be made by the City to CONTRACTOR/VENDOR in accordance with the Florida Prompt Payment Act. The City's preferred method of payment is electronically by credit card/line. Upon award, CONTRACTOR/VENDOR will be contacted by the City's provider, Commerce Bank, to participate in the City's electronic payments program. **CONTRACTOR/ VENDOR must state on Exhibit "A" Bid Form whether they accept credit card payments and provide their Accounting Department contact name, phone number and email address.**

15. BID PROTESTS

Bid protest conditions and procedures are in accordance with City Ordinances – Part 2, Chapter 2, Article VII, Division 2, Section 2-444.

16. FEDERAL GRANT MONEY

In the event this project is funded with federal grant monies, CONTRACTOR/VENDOR may not participate in the bid if CONTRACTOR/VENDOR is listed in the Excluded Parties List System (EPLS) a federal suspension and debarment listing www.sam.gov CONTRACTOR/VENDOR shall include copy of search results with bid or proposal.

17. LOBBYING

a. Lobbying is defined as any action taken by an individual, firm, association, joint venture, partnership, syndicate, corporation, and/or all other groups who seek to influence the governmental decision of a Board Member, the City Manager, and/or any City Personnel during the solicitation process. The lobbying black-out period commences upon the issuance of this solicitation and concluded upon the signing of the agreement. CONTRACTORS shall not contact any Commission Member and/or any requesting or evaluating Department/Office personnel during said black-out period. All questions and procedural matters shall be directed to the City Manager. The City Commissioners and/or the City Manager may disqualify any solicitation response where any Commissioner, the City Manager, and/or City Personnel have been lobbied in violation of the black-out period.

EXHIBITS

EXHIBIT "A"	**Contact Sheet**
EXHIBIT "A-1"	**Bid Form**
EXHIBIT "B"	**Public Entity Crimes**
EXHIBIT "C"	**Drug-Free Workplace Certification**
EXHIBIT "D"	**E-Verify Statement**
EXHIBIT "E"	**Proposer Acknowledgements and Agreements**
EXHIBIT "F"	**Conflict of Interest**
EXHIBIT "G"	**Non-Collusion Affidavit**
EXHIBIT "H"	**Disputes Disclosure**
EXHIBIT "I"	**Statement of Bidder's Qualifications Form**

EXHIBIT "A"
CONTACT SHEET

Name: _____

Federal Taxpayer ID: _____

Mailing Address: _____

City, State, & Zip Code: _____

Telephone: _____ **Fax:** _____

Email: _____

Submitted By: _____

Title: _____

FIRM Accepts Credit Cards*: Yes No

Accounting Contact:

Name: _____ **Title:** _____

Email Address: _____ **Phone:** _____

***See preferred method of payment under "Prompt Payment Act" section of the General Conditions**

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "A-1"

BID FORM

A.	MOBILIZATION	LS	$ _____
B.	PROJECT SURVEYING & STAKING	LS	$ _____
C.	TRASH/DEBRIS REMOVAL & DISPOSAL	LS	$ _____
D.	EROSION & SEDIMENTATION CONTROL	LS	$ _____
E.	SELECTIVE DEMOLITION & REMOVAL OF EXISTING MINOR STRUCTURES & BOARDWALK	LS	$ _____
F.	CONSTRUCTION FENCING & TRAFFIC PROTECTION	LS	$ _____
G.	SELECTIVE DEMOLITION & REPLACEMENT OF EXISTNG TIMBER DOCK SECTIONS (2)	LS	$ _____
H.	UNCLASSIFIED EXCAVATION	LS	$ _____
I.	NEW SHEET PILE BULKHEAD & CONCRETE CAP (753 lf)	LS	$ _____
J.	NEW 8 ft WIDE X 515 lf LONG COQUINA MIX CONCRETE BOARDWALK ON GRADE	LS	$ _____
K.	NEW 12 ft WIDE X 278 lf LONG COQUINA MIX CONCRETE BOARDWALK ON GRADE	LS	$ _____
L.	NEW 25 lf TIMBER BULKLHEAD, COMPLETE	LS	$ _____
M.	NEW 915 sy ARTICULATING OPEN CELL CONCRETE MATTRESS SLOPE PROTECTION SYSTEM, COMPLETE	LS	$ _____
N.	HYDRO-DEFENSE FLOOD PLANKING SYSTEM COMPLETE (AT 4 OPENINGS)	LS	$ _____
O.	ELECTRICAL SYSTEM CONSISTING OF NEW EXTERIOR LED RECESSED PATHWAY LIGHTING WITH CONNECTION TO EXISTING SITE ELECTRICAL SYSTEM, COMPLETE	LS	$ _____
P.	645 sy BERMUDA SOD W/ RYE OVERSEEDING	LS	$ _____

Q.	INSTALLATION OF 3" X 645 sy TOPSOIL	LS	$ _____
R.	WETLAND PLANTINGS & INSTALLATION, COMPLETE	LS	$ _____
S.	FINAL SITE GRADING OF DISTURBED AREAS	LS	$ _____
T.	PROJECT CLOSE-OUT INCLUDING AS-BUILTS & FINAL CROSS SECTIONS	LS	$ _____
	TOTAL PROJECT BASE BID		**$** _____

BID ALTERNATE NO. 1:

The Contractor will include all miscellaneous materials, tools, equipment, supervision, labor & equipment required for the complete demolition of the existing Marina Bathhouse and Restroom Building including site restoration that meets all required current codes including but not limited to the following:

- Complete building demolition and removal of debris of the existing approximately 35 ft x 50 ft single story structure on grade adjacent to the existing public boat ramp on Front Street.
- Demolition to include the complete removal of structure constructed of timber, concrete, steel framing and metal roofing, the complete removal of the concrete foundations and supports.
- Removal and disposal of fixtures, architectural finishes, electrical equipment, mechanical systems, and the proper termination of all utilities serving the existing building including but not limited to, water sanitary sewer and electrical.
- All demolished material is to be removed and disposed off-site.
- Upon completion of the demolition the building site is to be cleaned to a smooth, level grade.
- Water line will be capped back at water meter and back flow preventor since both are to remain.
- Electrical wiring and conduit to be removed back to electrical transformer.
- Contractor to provide acceptable clean fill as required to infill site for grade to have positive drainage off site including providing sod and seeding to stabilize site.

Add to the Base Bid: $ _____

BID ALTERNATE NO. 2:

In lieu of the Articulating Open Cell Concrete Block Mattress, install 915 sy of Blended Class 3 Granite Stone Rip Rap Revetment (no more than 10% of stone greater than 22"dia., no more than 50% greater than 16" dia., and no more than 10% less than 8" dia., & minimum22 inches uniform thickness layer.)
Add/Deduct from the Base Bid: $ _____

UNIT PRICES

Additions to or deductions from Base Bid quantities will be computed in accordance with the following fixed unit prices which include all direct and indirect construction costs, overhead, profit, and taxes. The undersigned agrees that such unit prices represent the total cost to the City for additions to or deductions from the Contract Sum.

DESCRIPTION	UNIT PRICE
1. 8" thick Concrete Boardwalk Installation	$ _____/sy
2. ACB Slope Protection Mattress	$ _____/sy
3. Sheet Pile Bulkhead and Cap	$ _____/lf
4. Wetland plantings & Installation	$ _____/AC

This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in Florida is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____
Title: _____

Second Joint Venturer Name: _____
(SEAL)

By: _____

(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venture entity must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)Bidder's

Business Address _____
_____
_____

Phone No. _____ Fax No. _____

E-mail _____ _____

SUBMITTED on_____ 20 ____.

State Contractor License No. _____

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "B"

SWORN STATEMENT UNDER F.S. SECTION 287.133(3) (A), ON PUBLIC ENTITY CRIMES
THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid, Proposal or Contract for _____.

2. This sworn statement is submitted by (entity) _____ whose business address is _____ and (if applicable) Federal Employer Identification Number (FEIN) is _____(If a Sole Proprietor and you have no FEIN, include the last four (4) digits of your Social Security Number: _____.)

3. My name is_____and my relationship to the entity named above is _____.

4. I understand that a "public entity crime" as defined in Paragraph 287.133(a) (g). Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any proposal or contract for goods or services to be provided to any public entity or any agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in paragraph 287.133(a) (b), Florida Statutes, means finding of guilt or a conviction of a public entity crime with or without an adjudication of guilt, in any federal or state trial court of records relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "affiliate" as defined in Paragraph 287.133(1) (a), Florida Statutes, means:

    1. A predecessor or successor of a person convicted of a public entity crime; or

    2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The City of Fernandina Beach, Florida ownership by one of shares constituting a controlling income among persons when not for fair interest in another person, or a pooling of equipment or income among persons when not for fair market

value under a length agreement, shall be a prima facie case that one person controls another person. A person who was knowingly convicted of a public entity crime, in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of the state or of the United States with the legal power to enter into a binding contract for provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies)

____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.

____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. (Please attach a copy of the final order.)

____ The person or affiliate was placed on the convicted FIRM list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in public interest to remove the person or affiliate from the convicted FIRM list. (Please attach a copy of the final order.)

____ The person or affiliate has not been placed on the convicted FIRM list. (Please describe any action taken by, or pending with, the Department of General Services.)

_____

Signature Date:

STATE OF FLORIDA
COUNTY OF _____
PERSONALLY, APPEARED BEFORE ME, the undersigned authority, who, after first being sworn by me, affixed his/her signature at the space provided above on this ___ day of _____, 20___, and is personally known to me, or has provided _____ as identification.

_____

Notary Public
My Commission expires: _____

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "C"

DRUG-FREE WORKPLACE CERTIFICATION

The below-signed INDIVIDUAL/FIRM certifies that it has implemented a drug-free workplace program. In order to have a drug-free workplace prepare, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violation of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or services a copy of the statement specified in paragraph 1.
4. In the statement in paragraph 1., notify the employees that, as a condition of working on the commodities or contractual services that are under proposal, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of nolo contendere to, any violation occurring in the workplace no later than five (5) working days after such conviction.
5. Impose a sanction on, or require fine satisfactory participation in drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign this statement, I Certify that this firm complies fully with the above drug-free workplace requirements.

COMPANY: _____

CITY: _____ STATE: _____ ZIP CODE: _____

SIGNATURE: _____ PHONE: _____

NAME (TYPED OR PRINTED): _____ TITLE: _____

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "D"
E-VERIFY STATEMENT

Bid/Proposal Number: _____

Project Description: _____

_____

I/FIRM acknowledges and agrees to the following:

I/FIRM shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of:

1. All persons employed by the FIRM during the term of the Contract to perform employment duties within Florida; and

2. All persons assigned by the FIRM to perform work pursuant to the contract with the Department.

Individual/Company/Firm: _____

Authorized Signature: _____

Title: _____

Date: _____

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "E"

PROPOSER ACKNOWLEDGEMENTS AND AGREEMENTS

The undersigned, as an employee or agent of the Proposer, having the authority to sign a binding agreement on behalf of the corporation, company, or firm presenting this submittal, confirms understanding and/or agreement and/or takes exception with any statement in the following sections of this RFP document.

1. INTRODUCTION AND GENERAL INFORMATION
   Understands and agrees to all terms.

2. PROPOSAL INSTRUCTIONS, TERMS AND CONDITIONS
   Understands and agrees to all terms.

3. EVALUATION AND CONTRACT OVERVIEW
   Understands and agrees to all terms.

4. PROPOSER'S RESPONSE: SUBMITTAL INFORMATION
   Understands and agrees to all terms.

5. PROPOSER'S RESPONSE: PROPOSED TEAM
   Understands and agrees to all terms.

6. PROPOSER'S RESPONSE: PROPOSED COMPENSATION
   Understands and agrees to all terms.

Name: _____ Title: _____

Signature: _____ Date: _____

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "F"

CONFLICT OF INTEREST STATEMENT

This sworn statement is submitted with Bid, Proposal or Contract for _____.

This sworn statement is submitted by (entity) _____ whose business address is _____ and (if applicable) Federal Employer Identification Number (FEIN) is _____(If a Sole Proprietor and you have no FEIN, include the last four (4) digits of your Social Security Number: _____.)
My name is_____and my relationship to the entity named above is_____.

1. The above-named entity is submitting a Proposal for the City of Fernandina Beach.
2. The Affiant has made diligent inquiry and provides the information contained in the Affidavit based upon his/her own knowledge.
3. The Affiant states that only one submittal for the above proposal is being submitted and that the above-named entity has no financial interest in other entities submitting proposals for the same project.
4. Neither the Affiant nor the above-named entity has directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraints of free competitive pricing in connection with the entity's submittal for the above proposal. This statement restricts the discussion of pricing data until the completion of negotiations if necessary and execution of the Contract for this project.
5. Neither the entity not its affiliates, nor anyone associated with them, is presently suspended or otherwise ineligible from participation in contract letting by any local, State, or Federal Agency.
6. Neither the entity nor its affiliates, nor anyone associated with them have any potential conflict of interest due to any other clients, contracts, or property interests for this project.
7. I certify that no member of the entity's ownership or management is presently applying for an employee position or actively seeking an elected position with the City of Fernandina Beach.
8. I certify that no member of the entity's ownership or management, or staff has a vested interest in any aspect of the City of Fernandina Beach.
9. In the event that a conflict of interest is identified in the provision of services, I, on behalf of the above-named entity, will immediately notify the City of Fernandina Beach.

_____
Signature Date:

STATE OF FLORIDA
COUNTY OF _____

PERSONALLY, APPEARED BEFORE ME, the undersigned authority, who, after first being sworn by me, affixed his/her signature at the space provided above on this ___ day of _____, 20___, and is personally known to me, or has provided _____ as identification.

_____ My Commission expires: _____
Notary Signature

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "G"

NON-COLLUSION AFFIDAVIT

This sworn statement is submitted with Bid, Proposal or Contract for _____.
This sworn statement is submitted by (entity) _____ whose business address is _____ and (if applicable) Federal Employer Identification Number (FEIN) is _____(If a Sole Proprietor and you have no FEIN, include the last four (4) digits of your Social Security Number: _____.)

My name is_____and my relationship to the entity named above is_____.

1. The above named is fully informed respecting the preparation and contents of the attached submittal and of all pertinent circumstances respecting such submittal;
2. Such Submittal is genuine and is not a collusive or sham submittal;
3. Neither the said Submitter nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Submittal in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm, or person to fix the price or prices in the attached submittal or any other Bidder, or to fix any overhead, profit or cost element of the submittal price or the submittal price of any other Bidder, or to secure through any collusion, connivance, or unlawful agreement any advantage against the City of Fernandina Beach, Florida or any person interested in the proposed Contract; and
4. The price or prices quoted in the attached submittal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____
Signature Date:

STATE OF FLORIDA
COUNTY OF _____

PERSONALLY, APPEARED BEFORE ME, the undersigned authority, who, after first being sworn by me, affixed his/her signature at the space provided above on this ___ day of _____, 20__, and is personally known to me, or has provided _____ as identification.

_____ My Commission expires: _____
Notary Signature

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "H"

DISPUTES DISCLOSURE FORM

Answer the following questions by placing as "X" after "YES" or "NO". If you answer "YES", please explain in the space provided, or via attachment.

Has your firm or any of its officers, received a reprimand of any nature or been suspended by the Department of Professional Regulations or any other regulatory agency or professional association within the last five (5) years?
YES___ NO____

Has your firm, or any member of your firm, been declared in default, terminated or removed from a contract or job related to the services your firm provides in the regular course of business within the last five (5) years?
YES_____NO_____

Has your firm had against it or filed any request for equitable adjustment, contract claims, bid protest, or litigation in the past five (5) years that is related to the services your firm provides in the regular course of business?
YES_____NO_____

If yes, state the nature of the request for equitable adjustment, contract claim, litigation, or protest, and state a brief description of the case, the outcome or status of the suit and the monetary amounts or extended contract time involved.

I hereby certify that all statements made are true and agree and understand that any misstatement or misrepresentation or falsification of facts shall be cause for forfeiture of rights for further consideration of this proposal for the City of Fernandina Beach.

_____

Firm Date

_____

Authorized Signature Printed or Typed Name and Title

THIS FORM MUST BE INCLUDED WITH BID/PROPOSAL

EXHIBIT "I"

STATEMENT OF BIDDERS QUALIFICATIONS FORM

All questions in this section must be answered. The data provided must be clear and comprehensive. This statement must be signed and notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he/she desires in response to each question.
The Sponsor reserves the right to reject any bid proposal that is not supported by documented qualifications and recent, relevant, successful project experience from the bidder, bidder's principal, bidder's project manager, bidder's construction superintendent or other related factor listed within this section.

1. Name of Bidder: _____

2. Permanent office address: _____

3. Years at permanent office address: _____

4. What is the general character of work performed by your company: _____

5. How many years has the firm been engaged in the business related to this project, under present firm or trade name? _____

6. Are you licensed to do business as a contractor in Florida for this project? Yes No

7. Has your contractor's license been revoked at any time in the last five years? Yes No

8. Has a surety firm completed a contract on your behalf, or paid for completion because your firm was in-default or terminated (in any way) by the project owner within the last five years? Yes No

9. At the time of submitting this form, is your firm ineligible to bid on or be awarded any local, state or federal public works contract, or perform as a subcontractor on any such public works contract? Yes No

10. At any time during the last five years, has your firm or any of its owners or officers been convicted of a crime involving the awarding of a contract of a government construction project, or the bidding or performance of a government contract? Yes No

11. In the past five years, have you ever failed to complete any work awarded to you? Yes No

12. In the past five years, have you ever been terminated by the Owner of a project? Yes No

13. In the last five years has your firm been assessed and paid liquidated damages prior to or after completion of the project under a construction contract with either a public or private owner? Yes No

14. In the last five years has your firm been debarred, disqualified, removed or otherwise prevented from bidding on, or completing any government agency or public works project for any reason? Yes No

15. In the past five years has any claim against your firm concerning your firm's work on a construction project been filed in court or arbitration? Yes No

16. In the past five years has your firm filed any claim against a project owner or consultant concerning work on a project or payment for a contract and filed that claim in court or arbitration? Yes No

17. In the last five years, have you sued an Owner of a project? Yes No

18. In the past five years, have you sued a Consultant (engineer, architect or other) representing the Owner of a project? Yes No

19. Identify and list all administrative, arbitration, or litigation actions, terminations, construction claims or the like (cumulatively referred to as "claims") related to issues arising from any construction contract performed within the past five years for which the Bidder or its team members was a party. For each claim, identify the project, the parties to the claim, the court or jurisdiction (if applicable), the initiator of the claim and the final resolution, or if not resolved the status (attach additional sheets as needed).

_____

_____

_____

_____

20. Experience for Bidder (Business / Corporation): Relevant and recent experience in similar work by the Bidder is required on this project. Please provide the following information on three (3) projects completed:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, titles, and telephone numbers:
3. Dates of Completion:

21. Experience for Bidder (Principal / Owner responsible for this project): Relevant and recent experience in similar work by the Bidder's Principal / Owner (responsible for this project) is required on this project. Please provide the following information on three projects completed in the past three years:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, title, and telephone numbers:
3. Dates of Completion:

22. Experience for Bidder (Business / Corporation): Relevant and recent experience in similar work by the Bidder is required on this project. Please provide the following information on three projects completed in the past three years:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, title, and telephone numbers:
3. Dates of Completion:

23. Experience for Bidder (Project Manager): Relevant and recent experience in similar work is by the Bidder's Project Manager is required on this project. Please provide the following information on three projects completed in the past three years:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, title, and telephone numbers:
3. Dates of Completion:

24. Experience for Bidder (Construction Superintendent): Relevant and recent experience in similar work by the Bidder's Construction Superintendent is required on this project. Please provide the following information on three projects completed in the past three years:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, title, and telephone numbers:
3. Dates of Completion:

25. Experience for Major Subcontractor (Any subcontractor that is completing more than 10% of the work): Relevant and recent experience in similar work by any subcontractor that is completing more than 10% of the work is required on this project. Please provide the following information on three projects completed in the past three years:

1. Scope (size, type of construction, dollar-value) of the projects:
2. Client's name, title, and telephone numbers:
3. Dates of Completion:

26. Primary Bank Reference: _____
_____
_____
_____

27. Bonding Capacity: Provide documentation from your surety identifying the following:

Name of bonding company / surety: _____
Name of surety agent: _____
Address: _____
Phone: _____

28. Will you, upon request, fill out a detailed financial statement and furnish any other pertinent information that may be required by the Owner? Yes No

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

Dated at _____, this _____ day of _____, 20___.

_____ By: _____

(Contractor)

Title: _____

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

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

SUBSCRIBED AND SWORN to before me this _____ day of _____, 20___.

Notary's Signature _____

Notary's Printed Name_____

NOTARY PUBLIC, STATE OF _____

My commission expires:
_____, 20 ____

"ATTACHMENT B"
CITY OF FERNANDINA BEACH
"SAMPLE CONTRACT" AND GENERAL CONDITIONS
FOR
CONSTRUCTION SERVICES

This **AGREEMENT** made on the _____ day of _____in the year of 20____, **BETWEEN** the owner, CITY OF FERNANDINA BEACH, 204 Ash Street, Fernandina Beach, FL 32034 (hereinafter referred to as "Owner" or "City") and the Contractor, (insert Name, Address, City, State, Zip)

PROJECT: AMELIA RIVER WATERFRONT STABILIZATION PARKING LOTS C& D

CONTRACTOR:

ARCHITECT/ENGINEER: PASSERO ASSOCIATES

The OWNER and CONTRACTOR agree as follows:

ARTICLE 1 - CONTRACT DOCUMENTS

1. Enumeration of Contract Documents

Contract Documents comprise this Agreement, the plans, drawings, specifications, project manual, addenda, and other materials contained in City of Fernandina Beach Bid Number_____. Documents comprising Bid Number _____are incorporated into this Agreement by reference and are a part of this Agreement as if attached or repeated herein. This Agreement represents the entire Agreement between the parties hereto and supersedes any prior negotiations, representations, agreements, or understandings, either written or oral.

2. Intent of Contract Documents

Execution of the Contract by the Contractor is a representation that the Contractor has become familiar with the Contract Documents and field conditions under which the Work is to be performed within the requirements of Work specified by the Contract Documents.

The headings of the sections of this Agreement and capitalizations are for the purpose of convenience only and shall not be deemed to expand or limit the provisions contained in such sections.

3. Definitions:

Definitions are provided in Appendix 1 of this Agreement.

ARTICLE 2 - SCOPE OF WORK

The Contractor shall execute the entire Work described in the Contract Documents, Summary of Work.

ARTICLE 3 - COMMENCEMENT DATE

The Commencement Date shall be established by the Owner and communicated to the Contractor in a Notice to Proceed (NTP) sent by registered mail to the Contractor's place of business not later than 30 days following execution of the Contract, or receipt of all insurance certificates, bonds, and Schedules of Values required by the Contract, whichever is later. Failure to provide the required insurance or bonds within ten (10) days of the Award of Bid shall constitute a delay by the Contractor in honoring his Bid.

The Contractor will not commence Work on the project until receiving a Notice to Proceed from the Owner.

ARTICLE 4 - SUBSTANTIAL COMPLETION DATE

The Contractor shall commence work within ten calendar days from the date of Notice to Proceed. The Contractor shall achieve Substantial Completion of the Work not later than _____consecutive calendar days after the date specified by the Notice to Proceed, subject to adjustments of the Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the work not later than thirty (30) days after reaching Substantial Completion.

Time limits herein stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

ARTICLE 5 - CONTRACT AMOUNT

The Owner shall pay the Contractor the sum of $_____ subject to additions and deductions as provided in the Contract Documents for all Work described in Article 2.

ARTICLE 6 - LIQUIDATED DAMAGES

The Contractor and Owner mutually agree that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the Work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing.

If the said Contractor shall neglect, fail or refuse to complete the work within the time specified, or any proper extension thereof granted in

accordance with this Agreement, then the Contractor does hereby agree, as a part consideration for the award of this contract, to pay to the Owner Five Hundred Dollars ($500.00) per calendar day from the twenty first day beyond the Substantial Completion Date not as a penalty but as liquidated damages for such breach of Contract. Furthermore, the Contractor agrees to pay to the Owner the amount of Five Hundred Dollars ($500.00) for each calendar day that the Work remains incomplete after the date established for Final Completion.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticably and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain. Also, failure to meet requirements for substantial or final completion shall subject the Contractor to reinspection fees as set forth in the specifications.

In addition to liquidated damages, should the Owner become liable for additional architectural fees due to delays by the Contractor which extend construction beyond the contracted construction time, the Contractor shall be liable for payment of such expenses to the Owner.

Both Liquidated Damages and Reinspection Fees shall be implemented using a Deductive Change Order or Construction Change Directive. The exact form used and its titling of such change order shall be as determined by the Owner.

ARTICLE 7 - PAYMENTS

1. Progress Payments

Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/Engineer, the Owner shall make progress payments on account of the Contract Amount to the Contractor as provided below and elsewhere in the Contract Documents.

The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

Provided an Application for Payment is received by the Architect/Engineer not later than the 15th day of the month, the Owner shall make payment to the Contractor not later than the last day of the month. If a valid Application for Payment is received by the Architect/Engineer after the Application date fixed above, payment shall be made 15 days after the Architect/Engineer received the Application for Payment.

Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor in accordance with the Contract Documents.

Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

Take that portion of the Contract Amount properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Amount allocated to that portion of the Work in the Schedule of Values, less retainage of 10%.

Add that portion of the Contract Amount properly allocable to materials and equipment delivered and stored at the Project Site for subsequent incorporation into the Work, less retainage of 10%.

Subtract the aggregate of previous payments made by the Owner.

The progress payment amount shall be further modified under the following circumstances:

Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to 90% of the Contract Amount, less such amounts as the Architect/Engineer and Owner shall determine for incomplete Work and unsettled claims.

2. Final Payment

Final payment, comprising the entire unpaid balance of the Contract Amount, shall be made by the Owner to the Contractor when the Contract has been fully performed and accepted by the Owner. Final payment shall be contingent upon the Contractor providing all warranties, guaranties and waivers of liens required under the Project Closeout Section of the Specifications. Furthermore, payment shall be made in accordance with the Florida Prompt Payment Act applicable to local governments.

3. Certifying a Schedule of Values

Within 10 days after award of the Contract, the Contractor shall submit to the Architect/Engineer a Schedule of Values allocating the values

of various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect/Engineer or Owner may require. This Schedule of Values shall be reviewed by the Architect/Engineer and approved by the Owner, and shall be used as the basis for reviewing the Contractor's Applications for Payment.

The Schedule of Values shall include a cost breakdown indexed per the Sections of the Specifications, which shall clearly set forth labor as distinct from materials and from equipment. Rough-in work shall be shown separately from finish work.

4. Contractor Applications for Payment

By the 15th of each month the Contractor shall submit to the Architect/Engineer an itemized Application for Payment in accordance with the Schedule of Values. Such application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect/Engineer may require. Payment shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation into Work. If approved in writing by the Owner, payment may similarly be made for materials and equipment suitably stored off the site.

Applications for Payment shall not include:

- Request payments on account of changes in the Work which have not been approved by the Owner in a Change Order; and
- Payment of amounts the Contractor does not intend to pay to a Subcontractor or Supplier because of a dispute or other reason.

The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that all work, equipment and materials included in the Application for Payment are to the best of the Contractor's knowledge, information and belief, free from liens, claims, security interests or encumbrances.

5. Certification of Payment Requests

Within seven (7) days after receipt of a Contractor's Application for Payment, the Architect/Engineer, in consultation with the Owner, will issue a Certificate for Payment for an amount the Architect/Engineer and Owner determines is due, or notify the Contractor in writing of the reasons for withholding certification. A Certificate for Payment shall not constitute acceptance of Work not in accordance with the Contract Documents.

6. Criteria for Withholding A Certificate for Payment

The Architect/Engineer or Owner may withhold approval of a Certificate for Payment or, because of subsequent events, may nullify a prior approval of payment in whole or in part if in the Architect/Engineer's or Owner's opinion Contractor representations to the Owner are not supported or are deemed inaccurate. If the Contractor and Architect/Engineer or Owner cannot agree on a revised amount, the Architect/Engineer will promptly issue a Certificate of Payment for the amount to which the Architect/Engineer and Owner are able to certify payment. Certification may be withheld for these reasons:
Defective Work not corrected;

- Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Amount
- Damages owed to the Owner or others;
- Evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or estimated Liquidated Damages; or
- Failure by Contractor to make payments properly and promptly to subcontractors or suppliers; or
- Persistent failure to carry out the Work in accordance with the Contract Documents or other material breach by Contractor.

When reasons for withholding certification are corrected, the Architect/Engineer and Owner will certify amounts previously withheld.

ARTICLE 8 - TERMINATION OR SUSPENSION OF THE CONTRACT

1. Termination by The Contractor

The Contractor may terminate the Contract if work is stopped for a period of 60 days or longer for the following reasons:

- Issuance of a Stop Work Order by a court regulatory agency having jurisdiction over the project; or
- An act of Government making materials or labor unavailable.

If any one of the reasons stated above exists, the Contractor shall be compensated as provided in this Agreement only for Work executed in accordance with the Contract Documents.

2. Termination by The Owner For Cause

The Owner may terminate the Contract due to the Contractor's inability to perform for these reasons:

- Refusal or failure to supply properly skilled workers or materials;
- Disregarding the laws, ordinances or regulations of public authorities having jurisdiction over the Work; or
- Substantially breaching provisions of the Contract Documents.

If such conditions exist the Owner may, without prejudice of any other rights or remedies of the Owner, after having given the Contractor and the Contractor's surety seven days written notice, terminate the Agreement and, subject to any prior rights of the surety:

- Take possession of the site and materials, equipment, tools, and machinery therein owned by the Contractor;
- Accept assignment of Subcontracts; and
- Finish the work by whatever means are available to the Owner.

Should the Work be terminated according to this section the Contractor shall not be entitled to receive further payment until the Work is finished.

If the unpaid balance of the Contract Amount exceeds the costs of finishing the work, such excess shall be used to pay the Contractor amounts due for materials and equipment stored on site and Work completed in accordance with the Contract Documents which has been Certified by the Architect/Engineer and accepted by the Owner. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner, which obligation for payment shall survive the termination of the Agreement.

The costs of finishing the Work include, without limitation, all reasonable attorney's fees, additional title costs, insurance, additional interest because of delay in completing the Work, and all other direct, indirect, and consequential costs incurred by the Owner by reason of the termination of the Contractor as stated herein. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's costs have been established, and to apply such amounts to such costs.

Should the Owner's termination of the Contractor for Cause be challenged, and should such challenge prevail, then the Owner's termination of the Contractor shall be deemed to have been a Termination for Convenience, and Contractor's entitlement to compensation shall be determined in accordance with paragraph 3 below.

3. Termination by the Owner for Convenience

The Owner may, without cause, order the Contractor in writing to suspend, delay or terminate the Work in whole or in part for such period of time the Owner may determine. The Owner shall adjust the Contract Amount for increases in the cost of performance under the Contract caused by suspension, delay, or interruption.

No change in Contract Amount shall be made where the suspension, delay, or interruption for which the Contractor is responsible or attributable.

In the event of termination for convenience by the Owner, the Contractor shall only be entitled to and paid compensation earned through the date of termination and Termination Expenses. Termination Expenses are those jobsite costs directly attributable to termination (such as jobsite demobilization costs). Contractor shall not be entitled to direct, indirect, or consequential damages, or other damages for loss from and including, but not limited to economic loss, lost profit on under-performed portions of the work, loss of anticipated profits, idle equipment expenses, interest or carrying costs, overhead expenses, loss of efficiency, or loss of productivity, lost or reduced bonding capacity.

ARTICLE 9 - EXECUTION OF THE PROJECT

A. OBLIGATIONS OF THE ARCHITECT/ENGINEER

1. Architect/Engineer as Owner's Representative

The Architect/Engineer will provide project management services as described in the Contract Documents, and will serve as the Owners representative during construction, and until final payment is certified. The Architect/Engineer will consult with and advise the Owner. The Architect/Engineer will have the authority to act on behalf of the Owner only to the extent as provided in the Contract documents.

The Architect/Engineer specifically assumes no duty or responsibility which may be construed as being for the benefit of and thereby enforceable by other parties providing labor, materials or services in connection with the Work such as, though not limited to, Contractor, Subcontractors, Sub-subcontractors, their agents, employees, or any of their bonding companies, it being understood that the Architect/Engineer's obligations are to the Owner, and in performing such obligations the Architect/Engineer may consequently alter the burdens and expense of such other parties. If the Contractor claims additional cost or time on account of the Architect/Engineers performing such obligations, the Contractor shall give notice as provided in Article 13.

The Owner and Contractor shall communicate through the Architect/Engineer. Communications by and with the Architect/Engineer and Architect/Engineer's consultants shall be through the Architect. Communications by and with subcontractors and suppliers shall be through the Contractor. Communication by and with other Contractors working on the site which are not parties to this Agreement shall be through

the Owner.

2. Monitoring Progress, Quality and Compliance with Contract Requirements

The Architect will perform site inspections at critical stages of construction to become generally familiar with progress and quality of completed Work to determine if in general the Work is performed in accordance with the Contract Documents. The Architect will have authority to reject work which does not comply with the Contract Documents. Wherever considered necessary, the Architect may require additional inspection or testing of the Work whether the Work is fabricated, installed or completed.

The Architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work.

Actions of the Architect undertaken while providing administration of the Contract shall not be construed as either supervision or coordination, since these are solely the Contractor's responsibility.

3. Review and Approval of Contractor's Submittals

The Architect will review and approve the Contractor's Submittals, such as shop drawings and product samples, for the limited purpose of checking for compliance with the Contract Documents. The Architect's review does not relieve the Contractor of his obligations under the Contract to comply with the plans and specifications.

The Architect's approval of a submittal which contains a deviation which has not been specifically called to the Architect's attention excludes approval of that deviation and shall not serve as a waiver of the rights of the Architect or Owner unless the Architect makes specific written acceptance of said deviation on the Architect's letterhead or Owner makes specific written acceptance of said deviation on the Owner's letterhead.

4. Interpret Plans

The Architect will provide interpretations of the Plans and Specifications for compliance with the Contract Documents. The Architect's response to interpretation requests shall be made with reasonable promptness, or a maximum of 15 days from the date of written request.

Interpretations of the Architect will be consistent with the intent of the Contract Documents and will be documented in writing or in the form of plans and drawings.

The Architect may, as the Architect judges desirable, issue additional drawings or information indicating in greater detail the construction or design of the various parts of the Work; such drawings or information may be affected by field order or other notice to the Contractor, and provided such drawings or information are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings or information without additional cost or extension of the Contract Time. If the Contractor claims additional cost or time on account of such additional drawings or information, the Contractor shall give the notice provided in Article 13.

5. Approving Non-Substantial Deviations

The Architect will have the authority to order minor changes in the Work not involving adjustments of Contract Amount or Contract Time, and which is not inconsistent with the intent of the Contract Documents. Such changes shall be implemented by issuing a Construction Change Directive which shall be immediately binding on the Contractor upon receipt.

6. Certifying Applications for Payment

Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review amounts due the Contractor and will, upon approval by Owner, issue Certificates for Payments.

7. Preparing Change Orders

The Architect will prepare Change Orders for approval by the Owner.

8. Substantial Completion and Acceptant Reviews

The Architect will conduct inspections, and if Work is found Complete by the Owner and Architect, establish the date or dates of Substantial

Completion and the date of Final Completion. The Architect will receive and forward to the Owner for the Owners' review, project records, written warranties and related documents required by the Contract and assembled by the Contractor. The Architect will issue a final Certificate for Payment upon compliance with requirements of the Contract Documents and acceptance by the Owner.

B. OBLIGATIONS OF THE OWNER

1. Project Manager

The Owner will designate a Project Manager, through which the City will communicate with the Architect and Contractor.

2. Information Provided by Owner

The Owner shall furnish surveys describing physical characteristics of the site, and utility locations.

Information or services requested by the Contractor and under the Owner's control shall be promptly supplied to the Contractor in order to promote orderly progress of the Work. Such information and services will be provided to the Contractor free, unless otherwise provided in the Contract Documents.

The Owner will furnish the Contractor, free of charge, a maximum of ten sets of Construction Documents.

The Owner disclaims any responsibility for information not expressly set forth in the plans or specifications. Therefore, the Owner shall not be responsible for archived information or other information that may be in the Owner's possession or control, but which has not been utilized by the Project Architect and expressly contained, depicted, or otherwise expressly set forth in the Contract Documents.

3. Permits

Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for any and all Permits necessary to construct the facilities described by the Contract Documents.

4. Owner's Right to Stop Work

If the Contractor fails to correct Work which is not in accordance with requirements of the Contract Documents or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may order the Contractor to stop work or any portion thereof until the cause of such order has been eliminated. Such an order must be in writing.

5. Owner's Right to Carry Out Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, after giving seven (7) days written notice, the Owner may without prejudice to other remedies, correct such deficiencies. In such a case, a Change Order shall be issued deducting from the Contract Amount the cost of correcting such deficiencies, including additional design and administrative costs as may be necessary by the default, neglect, or failure.

6. Interpretation of Contract Documents and Performance

In all matters concerning performance under this Agreement and requirements of the Contract Documents, the Owner's interpretation will prevail.

7. Approving Substantial Deviations

The Owner will approve in writing all changes in the Work involving:

- Adjustments to the Contract Amount;
- Contract Time; or
- Work that is inconsistent with the Intent of the Contract Documents.

8. Owner's Right to Expedite Schedule

If Owner determines, in its reasonable opinion, that the performance of the Work as of any date during construction has not progressed or reached the level of completion required by the Contract Documents and/or the construction schedule acceptable to Owner, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the progress of construction including, without limitation, (I) working additional shifts or overtime, (ii) supplying additional manpower, equipment and facilities, and (iii) other similar measures (hereinafter referred to collectively as "Corrective Measures"),. Such Corrective Measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents and the construction schedule. The Contractor shall not

be entitled to an adjustment in the Contract Sum in connection with Corrective Measures required by Owner pursuant to this paragraph. The Owner may exercise the rights furnished hereunder or specifically pursuant to this paragraph as frequently as Owner deems reasonably necessary to ensure that the Contractor's performance of the Work will comply with the construction schedule and the Contract Documents.

Such changes shall be affected by a Change Order signed by the Contractor, Architect, and the Owner.

C. OBLIGATIONS OF THE CONTRACTOR

1. Superintendent

The Contractor shall employ a competent Superintendent and necessary assistants who shall be in attendance at the Project Site during performance of the Work. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be as binding as if given to the Contractor.

2. Review of Contact Documents

The Contractor shall carefully review Contract Documents and information provided by the Owner, and shall at once report to the Architect any errors, omissions, or inconsistencies discovered.

If the Contractor performs any construction activities with knowledge of an error, omission or inconsistencies in the Contract Documents without such notice to the Architect, the Contractor shall assume responsibility for such performance.

3. Review of Field Conditions

The Contractor shall take field measurements and verify field conditions and carefully compare such with the Contract Documents before commencing the Work. Errors, omissions or inconsistencies discovered shall be reported to the Architect at once. The Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials (except for unforeseeable serious material shortages), tools and equipment, (5) availability of temporary utility service and (6) other similar issues. The Owner assumes no responsibility or liability for the physical condition or safety of the Project site or any improvements located on the Project site. Except as set forth in subparagraph

10.1.2, the Contractor shall be solely responsible for providing a safe workplace. The Owner shall not be required to make any adjustment in either the Contract Sum or Contract Time in connection with any failure by the Contractor of any Subcontractor to comply with the requirements of this Subparagraph.

4. Supervision and Construction Procedures

The Contractor shall perform the Work in accordance with the Contract Documents and Submittals approved by the Architect.

The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures; and for coordinating all portions of the Work, under Contract, unless otherwise specified in the Contract Documents.

The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors, Suppliers, and their agents and employees, and other persons performing portions for the Work under a contract with the Contractor or his Subcontractors.

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect or, the Owner's Project Manager, in administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

5. Inspection of Work

The Contractor shall be responsible for inspection of portions of the Work already performed under this Contract to determine if such portions are in proper condition to receive subsequent Work.

6. Labor and Materials

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, water, electric, other utilities, transportation, taxes and other facilities and services necessary for proper execution and completion of the Work. It is the Contractor's responsibility to provide these resources whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.

The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

7. Warranty

The Contractor warrants to the Owner that materials, equipment, and skilled labor will be provided in accordance with the Contract Documents, and that the Work will be free from defects. Work not conforming with these requirements, including substitutions not properly approved and authorized, may be considered defective.

8. Construction Schedule

Prior to issuance of a Notice to Proceed, but not later than fourteen (14) days after Notice of Award, the Contractor shall prepare and submit to the Architect a Construction Schedule for the Work. The Schedule shall not exceed the time limits established in the Contract Documents, nor shall the Schedule reflect an early completion of the Work. The construction schedule shall document major construction activities and tasks, identifying the estimated beginning and ending dates for each identifiable component of the Work with activity durations limited to 14 days. The Construction Schedule shall also identify the critical path and any other near critical events which would most greatly affect the Construction Schedule. The Construction Schedule will be prepared in sufficient detail as may be acceptable to the Architect. The Construction Schedule shall be revised at appropriate intervals as required by conditions of the Work.

9. Project Records

The Contractor shall maintain the following project records at the project site:

- Construction Schedule
- Plans and Drawings
- Specifications
- Addenda
- Change Orders
- Construction Change Directives
- Shop Drawings
- Product Data
- Samples
- Required Submittals
- Superintendent's Log

Records shall be maintained in good order and, marked to reflect current changes and selections made during the construction process.

Records shall be available to the Architect and Owner and, with the exception of the Superintendent's Log, shall be delivered to the Architect for submittal to the Owner upon completion of the Work.

Additionally, the Superintendent's Log shall at a minimum document the dates and times of critical inspections; instructions received from the Architect; and weather conditions including dates, times, and amount of rainfall received.

10. Approval of Shop Drawings and Other Submittals

The Contractor shall review, approve, and submit to the Architect Shop Drawings, Product Data, Samples, and other Submittals required by the Contract Documents for approval by the Architect prior to their implementation. The Contractor shall perform no portion of the Work requiring submittal and review of these or similar data until approved by the Architect. Such Work shall be accomplished in accordance with approved Submittals.

The Contractor shall not submit any shop drawing or other submittal that is merely a tracing or other copy of any of the Contract Documents. Each submittal item must be prepared by the Contractor, or for the Contractor by a Subcontractor or Supplier of the Contractor. The Architect shall have the authority to reject any submittal items that violate this provision, and no extension of Contract Time shall be given on account of such rejection. Architect's review and action on any such Submittals shall not serve as a basis for or give rise to any claim in favor of Contractor or any third party against the Owner or Architect.
By submitting the materials described above to the Architect for approval, the Contractor represents that he has determined and verified materials, field measurements, and field construction criteria related to the Submittals and has checked and verified their compliance with requirements of the Contract Documents. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or other Submittals. The Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents unless the Architect makes specific written acceptance of said deviations on the Architect's letterhead.

11. Use of the Project Site

The Contractor shall confine operations to the Site as designated by the Owner and shall confine operations and activities to those permitted by law, ordinances, permits, and the Contract Documents; and should not unreasonably encumber the site with materials or equipment. The Contractor is specifically prohibited from the storage of materials, equipment, or supplies not related to the Work on the Project Site.

The Owner will be responsible for resolving disputes between the Contractor and other Contractors with which the Owner has a separate Agreement concerning use of the Project Site.

12. Cleanup of Project Site

The Contractor shall keep the premises and surrounding area reasonably free of rubbish, waste materials, or debris caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project Site, waste materials, rubbish, tools, construction equipment, machinery, and surplus materials to the Owner's satisfaction. Should the Contractor fail to clean up as provided in the Contract Documents, the Owner may do so and the cost charged to the Contractor through a deductive Change Order or Construction Change Directive.

13. Observations and Inspections

The Contractor shall provide Owner and Architect access to the Work, wherever located and in whatever stage of construction for the purpose of providing inspections and observations necessary to assess compliance with applicable codes and to identify the quality and quantity of Work performed.

If a portion of the Work is covered contrary to the Architect's request or to the requirements expressed in the Contract Documents, it must be uncovered to allow the requested inspection or observation and replaced at the Contractor's expense without change in Contract Time.

If a portion of the Work has been covered for which the Owner or Architect has not specifically requested prior observation, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work has been completed in accordance with the Contract Documents, the cost for uncovering and replacement shall be born by the Owner and implemented through a Change Order recommended by the Architect and approved by the Owner. If such Work was inspected and found not to be in conformance with the Contact Documents, the Contractor shall pay the cost of uncovering and replacement without a change in Contract Time.

14. Correcting Rejected Work

The Contractor shall promptly correct Work rejected by the Architect for failing to conform to the requirements of the Contact Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed, or completed. The Contractor shall bear the costs of correcting such Work, including those for additional testing and inspections and compensation for any additional design or necessary administrative costs.

If, within one year after the date of Final Acceptance, or before the expiration of warranties provided by the Contractor, Subcontractor, or Suppliers, whichever is greater, or by the terms of a special warranty required by the Contract Documents; any of the Work is found not to be in accordance with the requirements of the Contract Documents, the Contractor shall correct it within ten (10) days after receipt of a written notice from the Owner. This obligation shall survive acceptance of the Work under the Contract and Termination of the Contract, if such

Termination has been exercised by the Owner.

If the Contractor fails to correct nonconforming Work within ten (10) days or such reasonable time as may apply, the Owner may complete the work in accordance with the provisions in Article 9-B-5 and 9-B-8 of this Agreement.

15. Acceptance of Non-Conforming Work

The Owner may at his option accept Work which is not in accordance with the requirements of the Contact Documents instead of requiring its removal and correction. In such cases the Contract Amount will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

16. Tests & Inspections

Tests, inspections and approvals of portions of the Work required by law, ordinance, rules, regulations, or other orders of public authorities having jurisdiction shall be made at the appropriate time. Unless otherwise provided, the Contractor will make arrangements for such tests, inspections and approvals, and shall be responsible for paying testing, inspection, and reinspection fees.

Other tests, inspections, and approvals required by the Contact Documents shall also be made at the appropriate times. The Contractor shall make arrangements for such tests, inspections and approvals with the independent testing laboratories or entities designated by the

Owner. The Owner shall bear the costs related to these tests, inspections and approvals.

For all tests and inspections conducted under this section, the Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that observations may be made.

If tests or inspections reveal failure of portions of the Work to comply with the Contract Documents, or approval is not secured from a public authority having jurisdiction over the project for a portion of the Work covered by the Contract Documents, the Contractor shall bear all costs made necessary by such failure.

Certificates of testing, inspection or approval shall be secured by the Contractor and promptly delivered to the Architect

ARTICLE 10 - SUBCONTRACTORS

1. Reporting of Proposed Subcontractors

As soon as practical after the issuance of a Notice to Proceed, or as otherwise provided in the Contract Documents, the Contractor will furnish in writing to the Architect the names of persons or entities, including Subcontractors, material suppliers, equipment suppliers, and fabricators proposed for Principal Portions of the Work. After conferring with the Owner, the Architect will promptly inform the Contractor in writing whether or not there are reasonable objections to the any of the proposed persons or entities unto which the Contractor proposes to enter into an Agreement.

2. Rejection of Subcontractors

Neither the Contractor nor the Owner shall be required to Contract with anyone to whom either party has made a reasonable objection; excepting instances where the Contract Documents require use of a material, equipment, or other product for which there is no acceptable alternate supplier or installer.

3. Removal of Subcontractors

The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner makes reasonable objection to such change.

4. Subcontractors Bound by Contract Documents

By appropriate Agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, under this Agreement, assumes toward the Owner.

Each Subcontract shall preserve and protect the right of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that Subcontracting thereof will not prejudice such rights and shall allow the Subcontractor, to the extent provided in the Contract Documents, the benefit of all rights, remedies and redress against the Contractor that the Contractor has against the Owner.

In all Contracts between the Contractor and Subcontractor, suppliers, or fabricators, the Owner will be named as third party beneficiary.

Each Subcontract for a portion of the Work is assigned by the Contractor to the Owner under these conditions:

- Assignment is effective only after termination of the Contract by the Owner for cause pursuant to Article 8-2 of this Agreement.
- Assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

ARTICLE 11 - CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

1. Owner's Right to Perform Construction

The Owner reserves the right to perform construction or operations related to the Project outside the scope of this Agreement with Owner's own forces and to award separate Contracts in connection with other portions of the Project not covered under the scope of this Agreement.

2. Owner to Provide Coordination

The Owner shall provide for coordination of activities of the Owner's own forces and for Contractors under a separate Agreement to provide construction services on the Project Site. If part of the Contractor's Work depends upon prior Work performed by the Owner or other separate Contractors, the Contractor shall, prior to proceeding with that portion of the Work, at least forty-eight (48) hours prior to the start of such activity, report to the Architect apparent discrepancies or defects in other such construction that would render it unsuitable for the proper execution and results of the Contractor's Work. Failure of the Contractor to so report shall constitute an acknowledgment that the

Owner's previously completed construction is fit and proper to receive the Contractor's Work. Further, Contractor shall cooperate in scheduling the work by providing the Owner with all requested schedule information and shall adjust the sequencing of its work, at no additional cost to the Owner.

ARTICLE 12 - CHANGES IN THE WORK

1. Contract Held Valid

Changes in the Work may be accomplished after execution of the Contract without invalidating the Contract where they are documented by a Construction Change Order or Construction Change Directive executed in accordance with this Agreement.

2. Construction Change Directive

Changes in the Work may be directed by a Construction Change Directive prepared and signed by the Architect. A Construction Change Directive signed by the Contractor indicates agreement of the Contractor with the actions specified in the Directive, including the inclusion or absence of an adjustment in Contract Amount or Contract Time or the method for determining them. Construction Change Directives shall be issued using AIA Form G714.

3. Construction Change Order

In addition to a Construction Change Directive, a Construction Change Order will be required wherever the issuance of a Construction Change Directive would involve a change in:

- Contract Amount
- Contract Time
- The intent of the Contract Documents

In such instances, a Construction Change Order must be signed by the Architect, Contractor and Owner. Construction Change Orders shall be issued using AIA Form G701.

Change Orders may not have typed text altered or additions placed thereon after the signing process has begun. Change Orders with alterations to typed text or additions placed thereon shall not be considered altered by such, and the original Change Order shall govern. Should alterations or additions to a Change Order be desired, said Change Order shall be re-typed and re-signed, and said Change Order shall be identified as "Revised".

4. Changes in Contract Amount

No change in the Work, whether by way of alteration or addition to the Work, shall be the basis of an addition to the Contract Sum or a change in the Contract Time unless and until such alteration or addition has been authorized by a Change Order executed and issued by Owner. This requirement is of the essence of the Contract Documents. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the Owner has been unjustly enriched by an alteration or addition to the Work, whether or not there is in fact any such unjust enrichment, shall be the basis for any claim to an increase to the Contract Sum or change in the Contract Time. Claims for disputes concerning Contract Amount shall be determined in accordance with Article 13 of this Agreement.

5. Cost of Work

The term "Cost of Work," or "Direct Cost." for the purpose of Change Orders, means the costs necessarily incurred and paid by the Contractor in the proper performance of the Change Order Work. Except as may be agreed to in writing by the Owner, such costs shall be in amounts no higher than those prevailing in the area of the project and may include the following categories:

- Labor (payroll, taxes, fringe benefits, workers' compensation, health and retirement benefits, sick leave)
- Owned equipment (at lowest applicable equipment manual rate)
- Rented equipment (at actual rental rate)
- Materials
- Supplies
- Subcontractor's costs
- Bonds and insurance

The Contractor shall require all Subcontractors and suppliers to comply with all requirements of, and provide itemizations of all claims in accordance with this Article.

The term "Cost of the Work" or "Direct Cost" shall not include any of the following:

- Payroll costs and other compensation of the Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by the Contractor whether at the site or in its principal or a branch office for general administration of the Change Order Work and not specifically included in the agreed upon schedule of job classifications, all of which are to be considered administrative costs covered by the Contractor's allowance for overhead and profit.
- Extraordinary fringe benefits not specifically identified above.
- Expenses of Contractor's principal and branch offices other than the Contractor's office at the job site.
- Any part of the Contractor's capital expenses, including interest on the Contractor's capital used for the Change Order Work and charges against the Contractor for delinquent payments.
- Costs due to the negligence of the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including, but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

For all changes, the Contractor shall submit an itemized cost breakdown, together with supporting data in such detail and form as prescribed by the Architect. When a credit is due, the amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in direct cost will be the amount of the actual net decrease in direct cost as determined by the Architect plus the actual reduction in overhead and profit. When both additions and credits are involved in any change, the combined overhead and profit shall be calculated on the basis of the net change, whether an increase or decrease. In any event, the minimum detail shall be an itemization of all man-hours required by discipline/trade with the unit cost per man-hour and total labor price, labor burden equipment hours and rate for each piece of equipment, material by units of measure and price per unit, other costs specifically itemized, plus the overhead and profit allowance.

The allowance for combined overhead and profit included in the total cost to the Owner shall be based upon the following schedule:

- For the Contractor, for Work performed by the Contractor's own forces, fifteen percent (15%) of the cost.
- For the Contractor, for Work performed by the Contractor's Subcontractor, seven and one-half percent (7-1/2%) of the amount due to the Subcontractor.
- For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, fifteen percent (15%) of the cost.
- For each Subcontractor, for Work performed by the Subcontractor's Sub-contractor, seven and one-half percent (7-1/2%) of the amount due the Sub-contractor.

6. Changes in Contract Time

Changes in Contract Time shall be granted only by Construction Change Order. Claims for disputes concerning Contract Time shall be determined in accordance with Article 13 of this Agreement.

7. Changes in Contract Time Due to Weather Conditions

The Contractor shall consider climatic conditions in preparing the construction schedule and shall anticipate therein periods where work may not be practical due to adverse weather conditions.

Weather conditions shall not comprise grounds for extension of Contract Time unless the Contractor is able to demonstrate that the number of rain days during the entire Contract Time exceeded 120% of that for the same period in the prior year. In making such an assertion the Contractor shall use rain data recorded in the Superintendent's Log, which must include the date, duration and volume of rain recorded at the Project Site for each day, as compared to that recorded for the area closest to the Project Site, as reported by the National Weather Service. The Owner shall determine the criteria for establishing "rain days".

8. Contractor's Obligation to Comply with Construction Change Directives

Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work. The Contractor shall promptly comply with the Construction Change Directive whether or not a Construction Change Order has been executed.

9. Effective Date of Change Orders

Construction Change Orders shall become effective immediately upon execution by the Contractor, Architect, and Owner.

ARTICLE 13 - CLAIMS AND DISPUTES

1. Time Limits on Claims

Contractor Claims must be made by written notice within 14 days after the occurrence of the event giving rise to such Claim or within 14 days after the Contractor would have reasonably first recognized the condition giving rise to the Claim, whichever is later. Claims for additional time and additional compensation must be made in accordance with the conditions of this Article.

Such written notice of Contractor Claims shall be complete. Written notice which is incomplete and only partially identifies a claim, with wording such as "(time or cost) impact to be determined at a later date" or "we reserve the right to claim additional (time or cost) at a later date" will not be considered.

2. Continuing Performance on the Contract

Pending resolution of a Claim, unless otherwise agreed to in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

3. Claims for Concealed or Unknown Conditions

If conditions are encountered at the Site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or comprise unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and are generally recognized as inherent in construction activities of the character provided for in the Contract Documents; then the Contractor shall inform the Project Architect of the materially different field conditions in writing within 14 days after first observance of the conditions, or within 14 days after the Contractor would have reasonably first recognized the materially different field conditions.

The Architect will promptly investigate and report to the Owner if field conditions were found to be materially different than those which could have been reasonably found given the criteria indicated above. If field conditions are found to be materially different, the Owner shall prepare a Construction Change Order providing an equitable adjustment in Contract Amount and/or Contract Time.

If the Owner determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the contract are justified, the Owner shall so notify the Contractor in writing stating the reasons.

4. Claims for Additional Time

Claims for an increase in Contract Time will be made by the Contractor by presenting a "Request for Delay" (RFD) form to the Architect within 14 days of the occurrence giving rise to the claim. All claims for an increase in the Contract Time are waived if not so presented. RFD forms will be supplied to the Contractor by Owner or the Architect.

The sole and exclusive manner of increasing the Contract Time due to some occurrence giving rise to the representation of an RFD form is by Construction Change Order. Timely presentation of a RFD form is the prerequisite for obtaining a Construction Change Order. The Construction Change Order shall address any and all Claims based on said occurrence. With respect thereto, Contractor agrees that its exclusive remedy for delays in the performance of the Contract caused by events beyond its control, including delays claimed to be caused by the Owner or the Architect or attributable to the Owner or the Architect, and including Claims based on breach of Contract or negligence, shall be an extension of the Contract Time. Contractor hereby waives any and all other Claims based on said occurrence which are not addressed by the Construction Change Order.

Nothing contained herein will prevent the parties from increasing the Contract Time by mutual agreement.

5. Claims for Additional Compensation

Owner's liability to Contractor for any Claims other than Claims for extension of Contract Time, as described above, arising out of or related to the subject matter of this Contract including, but not limited to, claims for payment by Owner of the costs, damages, or losses because of changed condition under which the Work is to be performed or for additional Work, shall be governed by Article 12-4 and must be submitted in strict accordance with the following provisions:

All Claims must be submitted as a Request for Construction Change Order in the manner provided herein;

- Contractor must submit a Notice of Claim to the Owner and to the Architect within fourteen days (14) of when the Contractor was, or should have been, aware of the occurrence of the event giving rise to the Claim; and
- Within fourteen days (14) of submitting its Notice of Claim, Contractor shall submit to the Architect and Owner its Request for Construction Change Order using AIA Form G701, which shall include a written statement of details of the Claim, including a description of the Work affected.

Contractor agrees that the Owner shall not be liable for any Claim the Contractor fails to submit as a Request for Construction Change Order or as a timely presented RFD form as provided in this Agreement.

After receipt of a Request for Construction Change Order, Owner, in consultation with the Architect, shall deliver to Contractor within thirty (30) days after receipt of request its written determination of the Claim.

Contractor's exclusive remedy for delays in performance of construction caused by events beyond its control, including delays claimed to be caused by or attributable to the Owner or the Architect including claims based on breach of contract or negligence, shall be a Claim or a RFD form submitted in compliance with this Article.

Contractor expressly agrees that the conditions established by this Article constitutes its sole and exclusive remedies for delays and changes in such Work and eliminates any other remedies for Claim for increase in the Contract Amount, delays, changes in the Work, damages, losses, or additional compensation.

6. Resolution of Disputes by the Owner

If a Claim has not been resolved after consideration under other terms of this Article, the Architect shall notify the Contractor in writing that the Owner shall make a determination within seven (7) days, which determination shall be final and binding on the Parties, but subject to litigation in a court having competent jurisdiction. Upon expiration of such time period, the Owner shall render to the parties a written decision relative to the Claim, including any change in Contract Amount and/or Time.

If there is surety and there appears to be a possibility of the Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the dispute.

7. Injury of Damage to Person or Property

If any party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or for others whose acts such party is legally liable; written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable amount of time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to the Claim is to be asserted, it shall be filed as a Claim pursuant to the conditions of this Article.

ARTICLE 14 - PROJECT CLOSEOUT

1. Substantial Completion of a Designated Portion

The Owner may release a Designated Portion of the Work under this Contract upon the issuance of a Certificate of Substantial Completion for the Designated Portion. Subsequent to said release, the Owner may make payment to the Contractor up to the pro-rated amount of the Contract Amount which is allocable to the value of the Designated Portion of the Work under the Contract. Payment under this provision may be made in full with no retainage or, a lesser retainage, at the sole discretion of the Owner.

Further, the parties agree that in the event the Owner releases a Designated Portion of the Work, whether or not retainage is released for the Designated Portion of the Work, the Contractor agrees that all insurance required by the Contract Documents will remain in full force and effect until final acceptance of the entire Work by the Owner.

2. Substantial Completion

When the Contractor considers that the Work, or a portion thereof, which the Owner agrees to accept separately, is Complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed and corrected. The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on the list does not relieve the Contractor of the responsibility to complete all Work in accordance with the Contract Documents.

Upon receipt of the Contractor's list, the Architect will make an inspection, and with the approval of the Owner, determine whether the Work, or designated portion thereof, is Complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not in accordance with the requirements of the Contact Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect.

The Contractor may request additional inspections by the Architect as may be reasonable to determine when Substantial Completion has been achieved. When the Work or designated portion thereof, is Complete, the Architect will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion and shall establish responsibilities of the Owner and Contractor for:

- Security
- Maintenance
- Water, sewer, electric and other utilities
- Damages to the Work; and

- Insurance Responsibilities

The Certificate shall also establish the time within which the Contractor shall finish all items on the list of incomplete Work or corrections otherwise necessary to meet the requirements of the Contract Documents.

Warranties required by the Contract Documents shall commence on the date of Substantial Completion, or designated portion thereof, unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to each.

Upon Substantial Completion of the Work, or designated portion thereof, and upon application by the Contractor, certification by the Architect, and approval by the Owner, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof as provided in the Contract Documents.

3. Final Acceptance and Payment

Upon receipt of written notice that the Work is ready for Final Inspection and upon receipt of a Final Application for Payment, the Architect shall promptly inspect the Work. When the Architect and Owner find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect shall issue a Certificate for Final Payment.

Neither final payment nor any remaining retainage shall become due until the Contractor submits to the Architect all information required in the Contract Documents, including, but not limited to, warranties, as-built plans, and operation and maintenance manuals.

Furthermore, final payment, nor any remaining retainage, shall be due until the Contractor executes and presents to the Owner a "Certificate of Claims Paid" and "Release of all Claims" form in such a form as may be acceptable to the Owner. Acceptance of final payment by the Contractor shall comprise a release of all claims under the Contract, and receipt of which acknowledges full and complete payment for all Work done, materials and equipment furnished, and damages or claims arising under this Agreement.

ARTICLE 15 - PROTECTION OF PERSONS AND PROPERTY

1. Compliance with Federal, State, and Local Laws, Ordinances, and Regulations

Contractor agrees to comply with all applicable Federal, State, and local laws, regulations, and ordinances, including, but not necessarily limited to, the following:

- Title VI of the 1964 Civil Rights Act.
- Title VII of the 1964 Civil Rights Act, as amended by the Equal Employment Opportunity Act which prohibits discrimination I employment.
- Age Discrimination Act of 1973.
- Contract Work Hours and Safety Standards Act.
- Section 504 of the Rehabilitation Act prohibiting discrimination in the employment of the handicapped.
- Fair Labor Standards Act.
- Chapter 112, Florida Statutes, prohibiting conflicts of interest in the procurement of contracts with a governmental agency.
- Trench Excavation System & Shoring standards as adopted by the Department of Labor and Employment Security and related trenching regulations.
- Construction Work Hours and Safety Act (Construction Safety Act)

2. Safety of Employees and Property

The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- Employees on the Project Site and other persons who may be affected thereby;
- The Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or sub-subcontractors; and
- Other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work,

the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

The Contractor shall promptly remedy damage and loss (other than damage or loss insured under requirements of the Contract Documents) to property referred in this Section caused in whole or in part by the Contractor, Subcontractor, Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor.

The Contractor shall designate a responsible member of the Contractor's organization at the Site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

The Contractor shall not load or permit any part of the construction or Site to be loaded so as to endanger its safety.

3. Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in this Agreement.

ARTICLE 16 - INDEMNIFICATION, INSURANCE AND BONDS

1. Indemnification

The parties recognize that the Contractor is an independent contractor. The Contractor agrees to assume liability for and indemnify, hold harmless, and defend the Owner, its commissioners, mayor, officers, employees, agents, and attorneys of, from, and against all liability and expense, including reasonable attorney's fees, in connection with any and all claims, demands, damages, actions, causes of action, and suits in equity of whatever kind or nature, including claims for personal injury, property damage, equitable relief, or loss of use, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Contractor, its agents, officers, contractors, subcontractors, employees, or anyone else utilized by the Contractor in the performance of this Agreement. The Contractor's liability hereunder shall include all attorney's fees and costs incurred by the City in the enforcement of this indemnification provision. This includes claims made by the employees of the Contractor against the Owner and the Contractor hereby waives its entitlement, if any, to immunity under Section 440.11, Florida Statutes. Such obligations contained in this provision shall survive termination of this Agreement and shall not be limited by the amount of any insurance required to be obtained or maintained under this Agreement.

Subject to the limitations set forth in this Section, Contractor shall assume control of the defense of any claim asserted by a third party against the Owner and, in connection with such defense, shall appoint lead counsel, in each case at the Contractor's expense. The Owner shall have the right, at its option, to participate in the defense of any third party claim, without relieving Contractor of any of its obligations hereunder. If the Contractor assumes control of the defense of any third party claim in accordance with this paragraph, the Contractor shall obtain the prior written consent of the Owner before entering into any settlement of such claim. Notwithstanding anything to the contrary in this Section, the Contractor shall not assume or maintain control of the defense of any third party claim, but shall pay the fees of counsel retained by the Owner and all expenses, including experts' fees, if (i) an adverse determination with respect to the third party claim would, in the good faith judgment of the Owner, be detrimental in any material respect to the Owner's reputation; (ii) the third party claim seeks an injunction or equitable relief against the Owner; or (iii) the Contractor has failed or is failing to prosecute or defend vigorously the third party claim. Each party shall cooperate, and cause its agents to cooperate, in the defense or prosecution of any third party claim and shall furnish or cause to be furnished such records and information, and attend such conferences, discovery proceedings, hearings, trials, or appeals, as may be reasonably requested in connection therewith. It is further the specific intent and agreement of said parties that all the Contract Documents on this Project are hereby amended to include the foregoing indemnification. CONTRACTOR expressly agrees that it will not claim, and waives any claim, that this indemnification violates Section 725.06, Florida Statutes or is unenforceable pursuant to Section 725.06, Florida Statutes.

Nothing contained in the foregoing indemnification shall be construed as a waiver of any immunity or limitation of liability the Owner may have under the doctrine of sovereign immunity or Section 768.28, Florida Statutes.

2. Waiver of Subrogation

The Owner and the Contractor waive all rights against each other for damages caused by perils coverage by insurance provided under this Agreement to the extent covered by such insurance, except such rights as they may have to the proceeds of such insurance held by the Owner and the Contractor as trustees. The Contractor shall require similar waivers from all subcontractors and their subcontractors and suppliers.

The Owner and the Contractor waive all rights against each other for loss or damage to any equipment used in connection with the Project and covered by any property insurance. The Contractor shall require similar waivers from all subcontractors and their subcontractors and suppliers.

The Owner waives subrogation against the Contractor on all property and consequential loss policies carried by the Owner on adjacent properties and under property and consequential loss policies purchased for the Project after its completion.

If the insurance policies referred to in this Section require an endorsement to provide for continued coverage where there is a waiver of subrogation, the owner of such policies will cause them to be so endorsed; failure to obtain endorsement nullifies the waiver of subrogation.

3. Contractor's Insurance

The Contractor shall not commence any Work in connection with this Agreement until he has obtained all of the following types of insurance and such insurance has been approved by the Owner, has named the Owner as an additional insured, except for Worker's Compensation Coverage, nor shall the Contractor allow any Subcontractor to commence Work on his subcontract until all similar insurance required of the Subcontractor has been so obtained.

Such insurer shall have a currently valid Certificate of Authority issued by the State of Florida, Department of Insurance authorizing it to write insurance policies in the State of Florida and be doing business in the State of Florida. Insurers shall have at least a Policy Holders Rating of A-, and Financial Rating of Class VI as identified in the latest issue of "Best's Key Rating Guide" unless otherwise accepted by the Owner in writing.

The Contractor's insurance, and the insurance of any other party bound to the Contractor, shall be considered primary. The Owner's insurance, if any, shall be considered excess, as may be applicable to claims which arise out of indemnifications, insurance, certificates of insurance and any additional insurance provisions of this Agreement.

4. Loss Deductible

The Owner shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of deductibles shall be the sole responsibility of the Contractor.

5. Subcontractor's Insurance

The Contractor shall require each of his Subcontractors to procure and maintain, during the life of the subcontract, insurance of the types specified in this Article or insure the activities of his Subcontractors in his policy as required in this Article.

6. Certificate of Insurance

The Owner shall be furnished proof of insurance coverage as follows:

- The name of the insured Contractor, the specific job by name and job number, the name of the insurer, the number of the policy, its effective date, and its termination date
- Statement that the insurer will mail notice to the Owner and a copy to the Architect at least thirty (30) days prior to any material changes in provisions, cancellation, renewal, or non-renewal of the policy
- Certificate of Insurance shall be in the form as approved by the Owner and such Certificate shall clearly state all the coverages required in this Article
- If requested by the Owner, the Contractor shall furnish complete copies of his and his Subcontractor's insurance policies, forms and endorsements; and
- Receipt of certificates or other documentation of insurance or policies or copies of policies by the Contractor or by any of its representatives which indicate less coverage than required by the Contract Documents does not constitute a waiver of the Contractor's obligations to fulfill the requirements of this Article.

7. Workers' Compensation Insurance

The Contractor shall take out and maintain, during the life of this Agreement, Workers' Compensation and Employer's Liability Insurance for all his employees connected with the Work of this Project, and in case any Work is sublet, the Contractor shall require the Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees, unless such employees are covered by the protection afforded by the Contractor. Such insurance shall comply with the Florida Workers' Compensation Law. In case any class of contract at the Project Site is not protected under the Workers' Compensation statute, the Contractor shall provide adequate insurance, satisfactory to Owner for the protection of employees not otherwise protected.

8. Liability Insurance

The Contractor shall take out and maintain, during the life of this Agreement, Commercial General Liability and Commercial Automobile Liability Insurance as shall protect Owner from claims for damage for bodily injury and personal injury, including accidental death, as well as claims for property damages which may arise from operating under this Agreement, whether such operations are by himself or by anyone directly or indirectly employed by him, and the amount of such insurance shall be minimum limits as follows:

Commercial General Liability:

- Minimum Coverage is $2,000,000 including a separate project aggregate limit of $2,000,000 for the Contract.
- Coverage shall include premises, operations, products, completed operations, independent contractors, contractual liability covering this Agreement, contracts and leases, broad form property damage coverages, personal injury and bodily injury.

- The Contractor is required to continue to purchase products and completed operations coverage for Work performed under this Agreement for a minimum of three (3) years following Substantial Completion.
- If Umbrella or Excess liability coverage is used to satisfy the requirements of this Section, it shall not be more restrictive than the underlying insurance policy coverages.

Commercial Automobile Liability:

- Minimum Coverage is $1,000,000.

Coverage shall include bodily injury and property damage arising out of ownership, maintenance or use of any auto, including owned, non-owner and hired automobiles and employee non-ownership use.

9. Builder's Risk Coverage

The Contractor shall take out and maintain during the life of this Agreement a "Builder's Risk Policy" completed value form issued to provide coverages on an "all risk" basis, including:

- Theft Coverage, and flood insurance where specified in the Contract Documents.
- A waiver of any co-insurance or deductible requirements.
- Off-site storage, transit and installation risks.
- Coverage of the interests of all parties, including the Contractor, Owner, Subcontractors, Sub-subcontractors and suppliers.
- A provision that the coverage shall not be lapsed or canceled due to occupancy by the Owner prior to final acceptance and payment by the Owner.
- The Owner being named as an additional insured.

10. Payment and Performance Bond

Contractor shall provide Owner with a Payment and a Performance Bond in the amount of the Contract Price within ten (10) days of the Notice of Award of Contract. Failure to provide the bond(s) shall result in this Agreement becoming null and void. No action on the part of the Owner shall be deemed to waive this requirement except a written amendment to this Agreement. Said bonds shall be in substantially the same form as in Section 255.05, Florida Statutes.

Additionally, bonds must meet the following specifications:

- The surety company shall have a currently valid Certificate of Authority issued by the State of Florida, Department of Insurance, authorizing it to write surety bonds in the State of Florida and be doing business in the State of Florida
- The surety company shall have a currently valid Certificate of Authority issued by the United States Department of the Treasury under Sections 9304 and 9308, Title 31, of the United States Code.
- The surety company shall be in full compliance with the provisions of the Florida Insurance Code
- The surety company shall have at least twice the minimum surplus and capital required by the Florida Insurance Code at the time the invitation to bid is issued; and
- The surety company shall have at least a Policy Holding's Rating of "A-" and Financial Rating of VI in the latest issue of "Best's Key Rating Guide".

Alternative forms of security as described in Section 255.05, Florida Statues, are acceptable where approved by the Owner in writing.

ARTICLE 17 - COMMENCEMENT OF STATUTORY LIMITATION PERIOD

1. The Commencement of Statutory Limitation Periods Between the Owner, Contractor and assignees are as follows:

- Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion.

- Between Substantial Completion and Final Certificate for Payment. As to acts or failure to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and

- After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any warranty provided under the Contract Documents, the date of any correction of the Work or failure to correct the Work by the Contractor or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

2. Concerning Latent Defects and Fraud

As to latent defects and fraud, the applicable statute of limitations shall commence upon the date of discovery or the date discovery of the defect should reasonably have occurred.

ARTICLE 18 - MISCELLANEOUS PROVISIONS

1. Governing Law

This Agreement shall be governed by the laws of the State of Florida.

2. Successors and Assigns

The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without the written consent of the other. If either party attempts to make such an assignment without such written consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

3. Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice. Email delivery shall also constitute delivery of written notice, and may, at Owner's sole discretion, include US Mail with proof of delivery in addition to the email.

4. Limitation of Liability

The Owner shall be liable only to the extent of its interest in the Project; and no elected official, officer, agent, or employee of the Owner shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights or obligations under a Subcontract.
The Architect shall be liable only to the extent of its interest in the Project; and no officer, director, partner, agent, or employee of the Architect (or any partner of a partner or any agent or employee of a partner) shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation.

5. Attorney Fees and Costs

In the event of any action brought by either party against the other to enforce any of the obligations hereunder or arising out of any dispute concerning the terms and conditions hereby created, the losing party shall pay the prevailing party such reasonable amounts for fees, costs, and expenses, including attorney fees, as may be set by the Court.

6. Validity, Severability and Reformation

The validity, interpretation, construction, and effect of this agreement shall be in accordance with and be governed by the laws of the State of Florida. Any provision or part of this Agreement held to be void or unenforceable under any law shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the parties. The parties agree that this Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision which comes as close as possible to expressing the intention of the stricken provision.

7. Force Majeure

Neither party hereto shall be liable for its failure to perform hereunder due to any circumstances beyond its reasonable control, such as acts of God, wars, riots, acts of terrorism, national emergencies, sabotage, strikes, labor disputes, accidents, and governmental laws, rules, ordinances, rules of regulations. The Contractor or Owner may suspend its performance on any assignment as a result of a force majeure

without being in default of this Agreement, but upon the removal of such force majeure, the Contractor or Owner shall resume its performance as soon as is reasonably possible.

8. Contractor Not A Third Party Beneficiary

Contractor understands and agrees that it shall look only to the City/Owner for payment and that it is not a third party beneficiary or in any manner otherwise a beneficiary of that certain Interlocal Agreement between the City of Fernandina Beach and Nassau County, Florida regarding payment of invoices on this project. Contractor, for good and valuable consideration contained in this Agreement does hereby irrevocably waive any right it might claim to seek payment from Nassau County, Florida for work performed on this project.

9. Public Records Law and Obligations

Pursuant to Section 119.0701, Florida Statutes, Contractor shall: (a) keep and maintain all public records as that term is defined in Chapter 119, Florida Statutes ("Public Records"), that ordinarily and necessarily would be required by the City in order to perform the work contemplated by this Agreement; (b) provide the public with access to Public Records, on the same terms and conditions that the City would provide the records and at a cost that does not exceed the costs provided in Chapter 119, Florida Statutes, or as otherwise provided by law; (c) ensure that Public Records that are exempt or confidential and exempt from public

records disclosure requirements are not disclosed except as authorized by law; (d) meet all requirements for retaining Public Records and transfer, at no cost to the City, all public records in possession of Contractor within thirty (30) days after termination of this Agreement, however terminated, and destroy any duplicate Public Records that are exempt or confidential and exempt from public records disclosure requirements and provide the City with a letter confirming that this has been done within thirty (30) days of the termination of this Agreement. All Public Records stored electronically must be provided to the City in a format that is compatible with the information technology of the City. If Contractor does not comply with a public records request, the City may pursue any and all remedies available in law or equity, including but not limited to specific performance.

IN WITNESS WHEREOF the parties have executed the Agreement on the day and date first above written.

OWNER: The City of Fernandina Beach

_____
Dale L. Martin, City Manager

_____
ATTEST –Caroline Best, City Clerk

APPROVED AS TO FORM AND LEGALITY:

_____
Tammi E. Bach, City Attorney

CONTRACTOR:

_____
Contractor's Name:

_____
Title/Officer

_____

ATTEST -

APPENDIX I - DEFINITIONS

Allowance - An amount included in the contract amount to be used exclusively for equipment, materials, or some other purpose specified in the Contract Documents and whose use is under the control of the Owner.

Application for Payment - A formal written request for payment submitted by the Contractor to the Architect for payment for work performed pursuant to this Agreement.

Architect - The design professional retained by the Owner responsible for designing the facilities to be constructed and/or the design professional responsible for providing contract administration during construction services and to assess whether construction services are provided in accordance with the Contract Documents.

Bid - A properly signed proposal to do the work, or designated portion thereof for the stipulated sum indicated on the bid form and supported by data required by the Bid Documents.

Bid Documents - The documents either provided or incorporated by reference defining and documenting the scope of services, conditions under which services are to be provided, conditions under which a contractor will be selected and the work will be performed, and the technical specifications for the equipment, goods, or services being procured.

Certificate for Payment - An application for payment which has been signed by the Architect, who certifies that the pay request is proper and all representations made by the Contractor are correct.

Certificate of Substantial Completion - A form signed by the Architect certifying that the work, or a designated portion of the work, has been completed to such an extent that it may be occupied by the Owner for its intended purpose.

Change Order - A form documenting the Contractor's and Owner's agreement to modify the work where the modification involves a change in Contract Amount, Contract Time, or the intent of the Contract Documents.

Claim - A demand or assertion by one of the parties to the Agreement for an adjustment or interpretation of contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. Claims may also include other disputes between the Owner and Contractor concerning the manner in which work is being performed.

Construction Change Directive - An order signed by the Architect instructing the Contractor to change the Work.

Construction Schedule - An action plan summarizing how the Contractor proposes to complete the entire work in the Contract Documents within the established Contract Time. The Construction Schedule should identify key tasks and activities necessary to complete the project within the Contract Time.

Contract/Agreement - The Agreement between the Owner and the Contractor as defined by the Contact Documents.

Contractor - The person or entity identified in the Contract Documents as being responsible for performing the work under the Contract.

Contract Amount - The stipulated sum to which the Owner agrees to pay the Contractor for performing the work described in the Contract Documents, as modified by Change Order.

Contract Documents - Individual documents which collectively comprise the Contract between the Owner and Contractor, including: 1) the Agreement between the Owner and Contractor, 2) Bid Documents including the invitation to bid, Instructions to bidders and Contractor bid package, 3) Drawings, Specifications, Plans prepared by the Architect which describe the work to be performed, 4) addenda issued prior to execution of the Contract, 5) other documents listed in the Agreement, and 6) modifications issued after execution of the Contract, including: 1) written amendments to the Contract signed by both parties, 2) Construction Change Orders, and Construction Change Directives.

Contract Time - The period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the work. Contract Time is the time between the Date of Commencement identified in the Notice to Proceed issued by the Owner and the date established in the Agreement for Substantial Completion.

Date of Commencement - The date specified in the Notice to Proceed issued by the Owner specifying when the Contractor may begin work on the Project.

Day - As referenced in this Agreement "Day" includes all calendar days including weekends, holidays, and days of inclement weather.

Drawings & Plans - Graphic and pictorial portions of the Contract Documents, showing the design, location and dimensions of the work generally including plans, elevations, sections, details, schedules and diagrams.

Final Acceptance - The Owner's final acceptance of the work performed by the Contractor as recognized by making final and complete payment for all work intended by the Contract Documents.

Invitation to Bid - A formal solicitation issued by the City of Fernandina Beach identifying the scope, terms, conditions, and specifications of goods and services procured from private contractors.

Non-Substantial Deviation - A change in the work or - deviation from the plans, specifications, or other Contract Documents which does not change the Contract Amount, Contract Time, or the intent of the Contact Documents.

Notice of Award of Contract - Written notice to the Contractor that his Bid has been accepted by the City Commission with the intent to enter into a Contract for the Construction of the Project.

Notice of Claim - A memorandum or letter presented to the Architect detailing a Claim for additional compensation. The memorandum or letter must be labeled "Notice of Claim" and specifically identify the conditions giving rise to the Claim and the amount of additional compensation being requested.

Notice to Proceed - A letter issued by the Owner officially communicating the date when the Contractor may begin work on the Project or a designated portion of the Project.

Owner - The City of Fernandina Beach, or the City of Fernandina Beach's authorized representatives.

Partial Occupancy or Substantial Completion of a Designated Portion - Declaration by the Owner that a designated portion of the work has been completed so that it is ready for occupancy by the Owner for its intended purpose.

Principal Portion of the Work - Work or equipment provided by a Subcontractor with which the Contractor has a direct Contract; and Sub-Subcontractors or other material or equipment providers as designated by the Architect or Project Manager.

Project - All physical improvements planned for a defined site. Work performed under the Contract Documents may comprise the whole work, or a part of the work planned for the Project Site.

Product Data - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the work.

Project Manual - A volume or volumes usually assembled to describe the work which may include bidding requirements, sample forms, the Contract, and specifications.

Project Manager - The City's authorized agent for communication with the Architect and Contractor and making decisions on the City's behalf as provided in the Contract Documents.

Project Site - The physical location identified in the Contact Documents where work is to be accomplished.

Samples - Physical examples which illustrate the materials, equipment, workmanship, or application methods by which the work will be judged.

Schedule of Values - The amount of money and percentage of the Contract Amount attributable to various components or portions of the work, where prepared in such a form and supported by such data to substantiate its accuracy.

Shop Drawings - Drawings, diagrams, schedules and other data specially prepared for the work by the Contractor or a Subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the work in greater detail than is provided in the plans or specifications.

Specifications - That portion of the Contract Documents comprising written standards and requirements for materials, equipment, construction systems, and workmanship for the work, and performance of related systems.

Subcontractor - A person or entity who has a direct Contract with the Contractor to perform a portion of the work.

Substantial Completion - The stage of construction where the work or designated portion thereof is sufficiently complete so that the Owner can occupy or use the work for its intended purpose.

Substantial Deviation - A change in the work which deviates from the intent of the Contract Documents, Contract Amount, or Contract Time.

Superintendent - The Contractor's authorized representative on the Project Site.

Supplier - A person or entity who provides equipment, material, or other resources required by the Contractor or Subcontractors to perform the Work.

Work - The construction and services required by the Contract Documents, whether completed or partially completed, including all labor, materials, equipment and services provided or to be provided by the Contractor in fulfillment of obligations under the Contract. The work may constitute the whole Project or part of the Project.

PART 2

GENERAL PROVISIONS

GENERAL PROVISIONS

I. GENERAL

The Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, July 2021, are referenced within the Contract Documents. Also, two reports entitled *Geotechnical Engineering Report FHB Riverfront dated Mach 31, 2020, prepared by ECS Florida, LLC; and Final Report Geophysical Investigation Riverfront Site Fernandina Beach, FL,* dated March 16, 2021, as prepared by GeoView, Inc., are referenced and included in the Contract Documents. These documents are formally included as a part of the Contract Specifications and may be referred to elsewhere in the Contract Documents by similar terminology such as FDOT Specifications or "Soils Report." They all shall be considered a part of the Contract Specifications as if they were printed and included in the Contract Documents. Should the Contract Documents refer to a specific FDOT Section, all other applicable FDOT specifications and requirements referenced therein, not specifically excluded otherwise by these documents, shall also be considered as referenced by these specifications. The Technical Specifications Items specifically included within the Contract Documents, for example Item 101 Mobilization, are considered as revisions or additional requirements to the FDOT Specifications.

This project will be constructed in the vicinity of a marina, businesses, and public park facilities, that must remain accessible and open throughout construction. The Contractor will need to close certain areas of the work to public access during construction, but at no time shall his work prevent the public's or emergency personnel's access to any business during normal hours of operation. Prior to beginning work, the Contractor shall submit a detailed Construction Phasing & Maintenance of Traffic plan covering the closing of facilities and managing access to the Engineer & Owner for review and acceptance. This plan shall be modified as needed to meet the above requirements in the event of unforeseen circumstances. See the Plans, for general requirements and guidance.

Utility service to the marina, businesses and other existing customers shall be maintained during construction.

A. Materials Testing

The Contractor shall secure the services of a licensed and certified testing laboratory to perform materials testing as specified in the plans and specifications. The Contractor shall be responsible for the cost of all testing, including retesting of any failed tests. Testing results shall be provided by Contractor to Engineer on an incremental basis as soon as they are received from the testing laboratory. The Contractor shall also maintain a file of the testing results, in chronological order, and provide Engineer with a complete set of testing results upon completion of the project for his use in preparing final certifications.

B. NPDES Permitting, Monitoring and Compliance (SWPPP Plan Preparation)

It is the goal of the City to have the project's construction completed in full compliance with the requirements of the EPA/FDEP with respect to the management of sediments during construction, without transfer of any sediments or other pollutants to waterbodies, environmentally sensitive areas or offsite that exceed State Water Quality standards. An NPDES Permit for Storm-water discharge during construction activity will be required, and it shall be the Contractor's

responsibility to obtain the permit and comply with the requirements. The work shall also be performed in accordance to FDOT Section 104, except as may be more stringently required below.

This includes preparation of a job-specific Storm Water Pollution Prevention Plan (SWPPP). While the construction drawings may include details and locations of specific recommended erosion control measures, it is the Contractor who is responsible for implementing erosion control measures as necessary to meet State and Federal requirements. The following is a list of items that should be addressed in a typical SWPPP. Not all items may apply to every contract, but each of these items must be considered and those that apply addressed.

1. The plan should be entitled as an SWPPP plan and refer to the NPDES permit # upon issuance. This plan shall be kept at the jobsite at all times, along with a copy of the permit.
2. The plan should include a location map that shows the location of the work on the site and as a part of the overall project work. Property boundaries and major waterways, drainage routes, roads, preserve areas and/or other significant features should be identified as well as the Contractor's proposed routes for ingress and egress and delivery of equipment and materials.
3. The plan should include an overall depiction of the project work, and to the extent possible, the locations and extent of the proposed BMP's. This should include the locations of any property boundaries and major waterways, drainage routes, roads, preserve areas and/or other significant features that are in the immediate vicinity. Depicting the site topography and specific locations where storm water may be anticipated to collect and/or concentrate are important elements of this.
4. The plan should include any project phasing, if applicable.
5. The plan should include a projected schedule identifying all major elements of the work, including implementation of the temporary BMP's used during construction and the permanent BMP's that will be left in place after the temporary elements are removed, e.g. grassing, riprap, etc. The schedule should reflect construction sequencing to minimize the amount of area disturbed at any one time.
6. The plan should identify those elements of the work with potential to cause turbidity, and the specific BMP's proposed to address each element. The plan should include details and or descriptions to stipulate how these BMP's will be installed and maintained.
7. The plan should include a stabilized construction entrance to trap soil on tires moving from open ground onto pavement to remove soil from tires. Access should be limited to this location or locations only. If washing vehicles is necessary to remove soil, an area dedicated for that purpose should be identified and included in the plan.
8. The plan should include locations and BMP's for any short or long-term soil or material stockpiles, with adequate measures included for both water and wind-borne erosion.
9. If dewatering is required for construction, a detailed dewatering plan should be included in the SWPPP, including anticipated pumping rates and a settling basin or other BMP sized to handle turbidity for the anticipated flows.
10. If it is anticipated that customary physical BMP's might not be adequate to control sediment transfer during construction, chemical treatment should be considered and planned for. It is critical that the correct chemicals in the correct application rate be applied and the plan should include an analysis of the anticipated soil and water conditions so that the correct application materials can be at hand. FDEP has a list of approved chemicals. No chemical treatment can be used without first obtaining approval from the FDEP. Chemical treatment is most commonly used in settling ponds to remove suspended silts and clays during dewatering operations but can also be effective in other applications.

11. The plan should include the location of proposed rain gauges used in the monitoring, along with locations for any proposed turbidity measurement to establish background conditions and for regular testing during construction should this be advisable for the particular project.
12. The plan should include a detailed estimate of the quantities of BMP's proposed, i.e. linear feet of silt fence, square yards of mulch, riprap, etc.
13. The plan should include a list of equipment that will be used on the site and a description of any anticipated maintenance/service of equipment that might be required. Include a location map or description of where the equipment will be stored and/or serviced.
14. The plan should include a list of all materials such as fuel, paint, cements, coatings, solvents, grease, oils, etc. that will be used on the job and a depiction/description of where/how these materials will be safely used, stored and ultimately disposed of or removed from the site.
15. The plan should include a description of how any minor spills of such materials will be addressed and the equipment and materials the Contractor will have readily available at all times on site to clean up those minor spills.
16. The plan should include locations and descriptions of portable toilet facilities and schedule for maintenance (if applicable).
17. The plan should include a depiction or description of temporary contractor waste/debris disposal facilities.
18. The plan should include the name and contact information of the ***qualified*** individual(s) who will be responsible for the NPDES inspections and reporting (FDEP NPDES Inspector certification is required for the Contractor's employee or sub-contractor who will be providing the inspection and required record-keeping).

The SWPPP shall be submitted by the Contractor and reviewed by Engineer prior to permitting the Contractor to begin work on site. If the plan appears to be acceptable, it shall be returned to the Contractor marked as "Accepted for Implementation". If the plan is unacceptable, it shall be returned to the Contractor marked "Rejected" along with a description of the perceived short-comings and a request for re-submittal of a revised document for further review. It is important that the Contractor understand that they are ***solely*** responsible for meeting the permit requirements and that acceptance of the Contractor's SWPPP plan by The City or Engineer/ other consultants does not relieve him in any way of that responsibility.

The list above is not intended to be complete or to address all eventualities that may occur, but rather as a guide to assist The City and Engineer in evaluating proposed SWPPP plans. All Contractor's should refer to available literature, such as Florida Storm Water Erosion and Sedimentation Control Inspector's Manual, published by the FDEP July 2018; or secure the services of a licensed Florida Engineer familiar with these practices to assist them in preparing the plans. The FDEP also provides guidance materials including an example of a properly completed plan at their website:
http://www.dep.state.fl.us/water/stormwater/npdes/construction1.htm.

PART 3

STORM WATER POLLUTION PREVENTION

STORM WATER POLLUTION PREVENTION PLAN

SITE DESCRIPTION

Project Name and Location: (Latitude, Longitude, or Address)	Amelia River Waterfront Stabilization Parking Lots C & D (30°40' 09.41"N, 81°27'53.16"W) South Front Street Fernandina Beach, FL 32034	**Owner Name and Address:**	City of Fernandina Beach 204 Ash Street Fernandina Beach, FL 32034
Description (Purpose and Types of Soil Disturbing Activities):	The proposed Base Bid: Installation of approximately 800 feet of concrete boardwalk and I-wall including living shoreline with approximately 600 feet of hand-placed articulating open cell concrete block along the riverbank, oyster bags, and wetland plantings. The existing topsoil will be removed to allow for the placement of the concrete boardwalk on grade including a 2-foot-wide trench will be dug for the I-Wall. The articulating block will be placed along existing riverbank with a 2:1 slope max requiring clean fill in eroded areas and along the existing timber bulkhead. The articulating block would be placed on the existing slope. The proposed Bid Additive "1": The complete demolition of the existing approximately 31' x 50' Marina Bathhouse and Restrooms Building upon completion of the building demolition the building site approximately 1,550 SF of area will be restored with clean fill to allow for positive flow off the site, sod and seed as required.		
Runoff Coefficient:	The existing and proposed runoff coefficient for the site is 0.6.		
Site Area:	The area of disturbed work encompasses the proposed construction as described above. Erosion control protection, such as silt fences and turbidity barriers will be provided in all areas that are disturbed.		

GENERAL

The Contractor shall at a minimum implement the Contractor's requirements outlined below and those measures shown on the Erosion and Turbidity Control Plan. In addition, the Contractor shall undertake additional measures required to be in compliance with applicable permit conditions and state water control standards. Depending on the nature of materials and methods of construction, the Contractor may be required to add flocculants to the retention system prior to placing the system into operation.

SEQUENCE OF MAJOR ACTIVITIES

The general order of activities for each project will be as follows:

1. Set up Contractor staging area and haul road.
2. Set up Maintenance and Protection of Traffic measures as specified on plans.
3. Install silt fence and other erosion control measures as specified on plans.
4. Strip and stockpile topsoil.
5. Earthwork.
6. Stabilize disturbed areas and stockpiles within 14 days of last construction activity in that area.
7. Installation of open cell articulating concrete block.
8. Installation of oyster bag reef and wetland plantings.
9. Installation of I-Wall and boardwalk.
10. Installation of new lighting, electrical wiring, and associated work.
11. Final grading, seeding, mulching, and sodding of all disturbed areas.
12. When all work areas are complete and the entire area is stabilized, remove the erosion control and maintenance and protection of traffic measures.

Name of Receiving Waters:	Existing drainage system - Ultimately Amelia River

TIMING OF CONTROLS/MEASURES

As indicated in the Sequence of Major Activities, the silt fences and hay bales and stabilized construction entrance will be constructed prior to clearing or grading of any other portions of the site. Stabilization measures shall be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased. Once construction activity ceases permanently in an area, that area will be stabilized permanently in accordance with the plans. After the entire site is stabilized, the accumulated sediment will be removed from the sediment traps and the earth dike/swales will be regraded/removed and stabilized in accordance with the Erosion and Turbidity Control Plan.

CONTROLS

It is the Contractor's responsibility to implement the Erosion and Turbidity Controls as shown on the Erosion and Turbidity Control Plan. It is also the Contractor's responsibility to ensure these controls are properly installed, maintained, and functioning properly to prevent turbid or polluted water from leaving the project site. The Contractor will adjust the Erosion and Turbidity Controls shown on the Erosion and Turbidity Control Plan and add additional control measures, as required, to ensure the site meets all federal, state, and local erosion and turbidity control requirements. The following best management practices will be implemented by the Contractor as required by the Erosion and Turbidity Control Plan and as required to meet the erosion and turbidity requirements imposed on the project site by the regulatory agencies.

EROSION AND SEDIMENT CONTROLS STABILIZATION PRACTICES

1. Hay Bale Barrier: Hay bale barriers can be used below disturbed areas subject to sheet and rill erosion with the following limitations:
   a. Where the maximum slope behind the barrier is 33 percent.
   b. In minor swales or ditch lines where the maximum contributing drainage area is no greater than 2 acres.
   c. Where effectiveness is required for less than 3 months.
   d. Every effort should be made to limit the use of straw bale barriers constructed in live streams or in swales where there is the possibility of a washout. If necessary, measures shall be taken to properly anchor bales to insure against washout.

   Refer to SWPP plans for constructing the hay bale barrier. Also refer to SWPP plans for proper location, material, and usage.
2. Filter Fabric Barrier: Filter fabric barriers can be used below disturbed areas subject to sheet and rill erosion with the following limitations:
   a. Where the maximum slope behind the barrier is 33 percent.
   b. In minor swales or ditch lines where the maximum contributing drainage area is no greater than 2 acres.

   Refer to SWPP plans for proper construction of the filter fabric barrier.
3. Brush Barrier with Filter Fabric: Brush barrier may be used below disturbed areas subject to sheet and rill erosion where enough residue material is available on site.
4. Level Spreader: A level spreader may be used where sediment-free storm runoff is intercepted and diverted away from the graded areas onto undisturbed stabilized areas. This practice applies only in those situations where the spreader can be constructed on undisturbed soil and the area below the level lip is stabilized. The water should not be allowed to reconcentrate after release. Level spreader shall be constructed in accordance to SWPP plans.
5. Stockpiling Material: No excavated material shall be stockpiled in such a manner as to direct runoff directly off the project site into any adjacent water body or stormwater collection facility.
6. Exposed Area Limitation: The surface area of open, raw erodible soil exposed by clearing and grubbing operations or excavation and filling operations shall not exceed 10 acres. This requirement may be waived for large projects with an Erosion Control Plan which demonstrates that opening of additional areas will not significantly affect off-site deposit of sediments.
7. Inlet Protection: Inlets and catch basins which discharge directly off-site shall be protected from sediment-laden storm runoff until the completion of all construction operations that may contribute sediment to the inlet.
8. Temporary Seeding: Areas opened by construction operations and that are not anticipated to be re-excavated or dressed and receive final grassing treatment within 30 days shall be seeded

	with a quick growing grass species which will provide an early cover during the season in which it is planted and will not later compete with the permanent grassing. 9. Temporary Seeding and Mulching: Slopes steeper than 6:1 that fall within the category established in Paragraph 8 above shall additionally receive mulching of approximately 2 inches loose measure of mulch material cut into the soil of the seeded area adequate to prevent movement of seed and mulch. 10. Temporary Grassing: The seeded, or seeded and mulched area(s) shall be rolled and watered or hydromulched or other suitable methods if required to assure optimum growing conditions for the establishment of a good grass cover. Temporary grassing shall be the same mix and amount required for permanent grassing in the contract specifications. 11. Temporary Regrassing: If, after 14 days from seeding, the temporary grassed areas have not attained a minimum of 75 percent good grass cover, the area will be reworked, and additional seed applied sufficient to establish the desired vegetative cover. 12. Maintenance: All features of the project designed and constructed to prevent erosion and sediment shall be maintained during the life of the construction so as to function as they were originally designed and constructed. 13. Permanent Erosion Control: The erosion control facilities of the project should be designed to minimize the impact on the off-site facilities. 14. Permanent Seeding: All areas which have been disturbed by construction will, as a minimum, be seeded. The seeding mix must provide both long-term vegetation and rapid growth seasonal vegetation. Slopes steeper than 4:1 shall be seeded and mulched or sodded.
STRUCTURAL PRACTICES	1. Temporary Diversion Dike: Temporary diversion dikes may be used to divert runoff through a sediment-trapping facility, and it shall be constructed in accordance with SWPP plans. 2. Temporary Sediment Trap: A sediment trap shall be installed in a drainage way at a storm drain inlet or at other points of discharge from a disturbed area. The following sediment traps may be constructed either independently or in conjunction with a temporary diversion dike: a. Block and Gravel Sediment Filter: This protection is applicable where heavy flows and/or where an overflow capacity is necessary to prevent excessive ponding around the structure. Refer to SWPP plans for construction of a curb inlet sediment filter, and SWPP plans for construction of a drop inlet sediment filter. b. Gravel Sediment Trap: This protection is applicable where heavy concentrated flows are expected, but not where ponding around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas. Refer to SWPP plans for construction of curb inlet and drop sediment traps. c. Drop Inlet Sediment Trap: This protection is applicable where the inlet drains a relatively flat area (S < 5%) and where sheet or overland flows (Q < 0.5 CFS) are typical. This method shall not apply to inlets receiving concentrated flows such as in street or highway medians. Refer to SWPP plans for construction of hay bale and fabric sediment filters. 3. Outlet Protection: Applicable to the outlets of all pipes and paved channel sections where the flow could cause erosion and sediment problems to the receiving water body, silt fences and hay bales are to be installed immediately downstream of the discharging structure as show on the outlet protection detail. 4. Sediment Basin: Will be constructed at the common drainage locations that serve an area with 10 or more disturbed acres at one time. The proposed stormwater ponds (or temporary ponds) will be constructed for use as sediment basins. These sediment basins must provide a minimum of 3,600 cubic feet of storage per acre drained until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from off-site areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basis. Any temporary sediment basins constructed must be backfilled and compacted in accordance with the specifications for structural fill. All sediment collected in permanent or temporary sediment traps must be removed upon final stabilization.
OTHER CONTROLS	
WASTE DISPOSAL:	Waste Material – All waste materials except land clearing debris shall be collected and stored in a securely lidded metal dumpster. The dumpster will meet all local and state solid waste management regulations. The dumpster will be emptied as needed and the trash will be hauled to a state

	approved landfill. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted at the construction site by the Construction Superintendent, the individual who manages the day-to-day site operations, will be responsible for seeing that these procedures are followed. Hazardous Waste – All hazardous waste materials will be disposed of in a manner specified by local and state regulations or by the manufacturer. Site personnel will be instructed in these practices and the Site Superintendant, the individual who manages the day-to-day operations, will be responsible for seeing that these practices are followed. Sanitary Waste – All sanitary waste will be collected from the portable units as needed to prevent possible spillage. The waste will be collected and disposed of in accordance with state and local waste disposal regulations for sanitary sewer or septic systems.
OFF-SITE VEHICLE TRACKING:	A stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept daily to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

INVENTORY FOR POLLUTION PREVENTION PLAN

Select Granular Fill	Bituminous Prime Coat	PVC Conduit	Rebar
Precast Concrete	Topsoil	Reinforced Concrete Pipe	Sod
Lights, Wires	Mulch	Steel Frames & Grates	Concrete Block
Seed	Asphalt Concrete	Silt Fence	Signs
Paints	Bituminous Tack Coat	HDPE Conduit	Metal Roofing
Lime Rock Subbase	Fertilizer	Rigid Steel Conduit	PT Wood/Timber

SPILL PREVENTION

MATERIAL MANAGEMENT PRACTICES	The following are the Material Management Practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.
GOOD HOUSEKEEPING:	The following Good Housekeeping Practices will be followed on-site during the construction project: • An effort will be made to store only enough product required to do the job. • All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure. • Products will be kept in their original containers with the original manufacturer's label. • Substances will not be mixed with one another unless recommended by the manufacturer. • Whenever possible, all of a product will be used up before disposing of the container. • Manufacturer's recommendations for proper use and disposal will be followed. • The Site Superintendent will inspect daily to ensure materials on-site receive proper use and disposal.

HAZARDOUS PRODUCTS:	These practices are used to reduce the risks associated with hazardous materials: • Products will be kept in original containers unless they are not resealable. • Original labels and material safety data will be retained; they contain important product information. • If surplus product must be disposed of, manufacturers or local and state recommended methods for proper disposal will be followed.
PRODUCT SPECIFIC PRACTICES	
The following Product Specific Practices will be followed on-site:	
PETROLEUM PRODUCTS:	All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations.
FERTILIZERS:	Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered area. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
PAINTS:	All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged into the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and local regulations.
CONCRETE TRUCKS:	Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.
SPILL CONTROL PRACTICES	
In addition to the good housekeeping and Material Management Practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup: • Manufacturers' recommended methods for spill cleanup will be clearly posted on site and site personnel will be made aware of the procedures and the location of the information and cleanup supplies. • Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, liquid absorbent (i.e., kitty litter or equal), sand, sawdust, and plastic and metal trash containers specifically for this purpose. • All spills will be cleaned up immediately after discovery. • The spill area will be kept well ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance. • Spill of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size of the spill. • The Spill Prevention Plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. • The Site Superintendent responsible for the day-to-day operations will be the spill prevention and cleanup coordinator. He/she will designate at least one other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and if applicable, in the office trailer on-site	

MAINTENANCE/INSPECTION PROCEDURES	
EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:	The following are the Inspection and Maintenance Practices that will be used to maintain erosion and sediment controls: • No more than 10 acres of the site will be denuded at one time without written permission from the Engineer. • All control measures will be inspected by the Superintendent, the person responsible for the day-to-day site operations or someone appointed by the Superintendent, at least once a week and following any store event of 0.50 inches or greater. • All Turbidity Control Measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report. • Built-up sediment will be removed from silt fence when it has reached one-third the height of the fence. • Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground. • The sediment basins will be inspected for the depth of sediment and built-up sediment will be removed when it reaches 10 percent of the design capacity or at the end of the job, whichever comes first. • Diversion dikes/swales will be inspected, and any breaches promptly repaired. • Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth. • A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the Inspector is attached. The reports will be kept on site during construction and available upon request to the Owner, Engineer, or any federal, state, or local agency approving sediment and erosion plans, or stormwater management plans. The reports shall be made and retained as part of the Stormwater Pollution Prevention Plan for at least three years from the date that the site is finally stabilized, and the notice of termination is submitted the reports shall identify any incidents of non-compliance. • The Site Superintendent will select up to three individuals who will be responsible for inspections, maintenance, and repair activities, and filling out the inspection and maintenance reports. • Personnel selected for inspection and maintenance responsibilities will receive training from the Site Superintendent. They will be trained in all the Inspection and Maintenance Practices necessary for keeping the Erosion and Sediment Controls used on-site in good working order.
NON-STORMWATER DISCHARGES:	It is expected that the following non-stormwater discharges will occur from the site during the construction period: • Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred). • Uncontaminated groundwater (from dewatering excavation). All non-stormwater discharges will be directed to the sediment basin prior to discharge.

POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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 submitted 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.

Signed:

Owner

Date:

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification.

Signature	For	Responsible for
_____ Date: _____ Date: _____ Date:		

PART 4

TECHNICAL SPECIFICATIONS

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.
B. Documentation of changes in Contract Sum and Contract Time.
C. Change procedures.
D. Correlation of Contractor submittals based on changes.
E. Procedures for preparation and submittal of application for final payment.

1.02 SCHEDULE OF VALUES

A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.
B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
C. Forms filled out by hand will not be accepted.
D. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.
E. Include in each line item, the amount of Allowances specified in this section.
F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.
B. Use Form AIA G742 and AIA G743, edition stipulated in the Agreement.
C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
D. Forms filled out by hand will not be accepted.
E. Execute certification by signature of authorized officer.
F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.
G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
H. Submit one electronic of each Application for Payment.
I. Include the following with the application:
    1. Transmittal letter as specified for submittals in Section 01 30 00.
    2. Construction progress schedule, revised and current as specified in Section 01 30 00.
    3. Partial release of liens from major subcontractors and vendors.
J. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.04 MODIFICATION PROCEDURES

A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
    1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
    2. Promptly execute the change.

C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 5 days.
D. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation.
E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
    1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
    2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
    3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.
    4. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.
F. Substantiation of Costs: Provide full information required for evaluation.
    1. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.05 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
B. Application for Final Payment will not be considered until the following have been accomplished:
    1. All closeout procedures specified in Section 01 70 00.

END OF SECTION

SECTION 01 22 00 - UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.
B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

1.02 RELATED REQUIREMENTS

A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.04 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.05 MEASUREMENT OF QUANTITIES

A. Assist by providing necessary equipment, workers, and survey personnel as required.
B. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
C. Perform surveys required to determine quantities, including control surveys to establish measurement reference lines. Notify Architect prior to starting work.

1.06 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.
B. Payment will not be made for any of the following:
    1. Products wasted or disposed of in a manner that is not acceptable.
    2. Products determined as unacceptable before or after placement.
    3. Products not completely unloaded from the transporting vehicle.
    4. Products placed beyond the lines and levels of the required Work.
    5. Products remaining on hand after completion of the Work.
    6. Loading, hauling, and disposing of rejected Products.

1.07 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not complying with specified requirements.
B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct one of the following remedies:
    1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Architect.
    2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new unit price at the discretion of Architect.
C. The authority of Architect to assess the defect and identify payment adjustment is final.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 RELATED REQUIREMENTS

A. Section 01 22 00 - Unit Prices, for additional unit price requirements.
B. Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.
C. Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.03 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.
    1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
        a. Unavailability.
        b. Regulatory changes.
    2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
        a. Substitution requests offering advantages solely to the Contractor will not be considered.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
    1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
    2. Agrees to provide the same warranty for the substitution as for the specified product.
    3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
    4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.
    5. Waives claims for additional costs or time extension that may subsequently become apparent.
B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
    1. No specific form is required. Contractor's Substitution Request documentation must include the following:
        a. Project Information:
            1) Official project name and number, and any additional required identifiers established in Contract Documents.

b. Substitution Request Information:
   1) Discrete and consecutive Substitution Request number, and descriptive subject/title.
   2) Indication of whether the substitution is for cause or convenience.
   3) Issue date.
   4) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
   5) Description of Substitution.
   6) Reason why the specified item cannot be provided.
   7) Differences between proposed substitution and specified item.
   8) Description of how proposed substitution affects other parts of work.

c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
   1) Physical characteristics.
   2) In-service performance.
   3) Expected durability.
   4) Visual effect.
   5) Warranties.
   6) Other salient features and requirements.
   7) Include, as appropriate or requested, the following types of documentation:
      (a) Product Data:
      (b) Samples.
      (c) Certificates, test, reports or similar qualification data.
      (d) Drawings, when required to show impact on adjacent construction elements.

d. Impact of Substitution:
   1) Savings to Owner for accepting substitution.
   2) Change to Contract Time due to accepting substitution.

D. Limit each request to a single proposed substitution item.
   1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Submit request for Substitution for Cause immedately upon discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

B. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
   1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
   2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
   3. Bear the costs engendered by proposed substitution of:
      a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
      b. Other unanticipated project considerations.

C. Substitutions will not be considered under one or more of the following circumstances:
   1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
   2. Without a separate written request.
   3. When acceptance will require revisions to the Contract Documents.

3.03 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.
B. Architect will notify Contractor in writing of decision to accept or reject request.

3.04 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.05 CLOSEOUT ACTIVITIES

A. See Section 01 78 00 - Closeout Submittals, for closeout submittals.
B. Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.
B. Electronic document submittal service.
C. Preconstruction meeting.
D. Site mobilization meeting.
E. Progress meetings.
F. Construction progress schedule.
G. Contractor's daily reports.
H. Progress photographs.
I. Coordination drawings.
J. Submittals for review, information, and project closeout.
K. Number of copies of submittals.
L. Requests for Interpretation (RFI) procedures.
M. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 60 00 - Product Requirements: General product requirements.
B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 REFERENCE STANDARDS

A. AIA G716 - Request for Information 2004.
B. AIA G810 - Transmittal Letter 2001.
C. CSI/CSC Form 12.1A - Submittal Transmittal Current Edition.
D. CSI/CSC Form 13.2A - Request for Information Current Edition.

1.04 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
B. Make the following types of submittals to Architect:
    1. Requests for Interpretation (RFI).
    2. Requests for substitution.
    3. Shop drawings, product data, and samples.
    4. Test and inspection reports.
    5. Design data.
    6. Manufacturer's instructions and field reports.
    7. Applications for payment and change order requests.
    8. Progress schedules.
    9. Coordination drawings.
    10. Correction Punch List and Final Correction Punch List for Substantial Completion.
    11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. Contractor and Architect are required to use this service.
   3. It is Contractor's responsibility to submit documents in allowable format.
   4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
   5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
   6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
   7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Submittal Service: The selected service is:
   1. Newforma Info Exchange, provided by Owner's Representative.

C. Project Closeout: Architect will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Distribution of Contract Documents.
   4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
   5. Submission of initial Submittal schedule.
   6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   7. Scheduling.

D. Architect will record minutes and distribute copies within two days after meeting.

3.03 SITE MOBILIZATION MEETING

A. Architect will schedule meeting at the Project site prior to Contractor occupancy.
B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Contractor's superintendent.
   5. Major subcontractors.
C. Agenda:
   1. Use of premises by Owner and Contractor.
   2. Owner's requirements.
   3. Construction facilities and controls provided by Owner.
   4. Temporary utilities provided by Owner.
   5. Survey and site layout.
   6. Security and housekeeping procedures.
   7. Schedules.
   8. Application for payment procedures.
   9. Procedures for testing.
   10. Procedures for maintaining record documents.
   11. Requirements for start-up of equipment.
   12. Inspection and acceptance of equipment put into service during construction period.
D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 PROGRESS MEETINGS

A. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
B. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Architect.
   4. Special consultants.
   5. Contractor's superintendent.
   6. Major subcontractors.
C. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of RFIs log and status of responses.
   7. Review of off-site fabrication and delivery schedules.
   8. Maintenance of progress schedule.
   9. Corrective measures to regain projected schedules.
   10. Planned progress during succeeding work period.
   11. Coordination of projected progress.

12. Maintenance of quality and work standards.
13. Effect of proposed changes on progress schedule and coordination.
14. Other business relating to work.

D. Architect will record minutes and distribute copies within two days after meeting.

3.05 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date established in Notice to Proceed, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.
B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
    1. Include written certification that major contractors have reviewed and accepted proposed schedule.
D. Within 10 days after joint review, submit complete schedule.
E. Submit updated schedule with each Application for Payment.

3.06 DAILY CONSTRUCTION REPORTS

A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.
B. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
    1. Date.
    2. High and low temperatures, and general weather conditions.
    3. Safety, environmental, or industrial relations incidents.
    4. Meetings and significant decisions.
    5. Unusual events (submit a separate special report).
    6. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
    7. Meter readings and similar recordings.
    8. Testing and/or inspections performed.
    9. Signature of Contractor's authorized representative.

3.07 PROGRESS PHOTOGRAPHS

A. Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.
B. Photography Type: Digital; electronic files.
C. Provide photographs of site and construction throughout progress of work produced by an experienced photographer, acceptable to Architect.
D. In addition to periodic, recurring views, take photographs of each of the following events:
    1. Completion of site clearing.
    2. Excavations in progress.
    3. Foundations in progress and upon completion.
    4. Structural framing in progress and upon completion.
E. Views:
    1. Provide non-aerial photographs from four cardinal views at each specified time, until date of Substantial Completion.

2. Consult with Architect for instructions on views required.
3. Provide factual presentation.
4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

F. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
1. Delivery Medium: Via email.
2. File Naming: Include project identification, date and time of view, and view identification.
3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
4. Hard Copy: Printed hardcopy (grayscale) of PDF file and point of view sketch.

3.08 COORDINATION DRAWINGS

A. Review drawings prior to submission to Architect.

B. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
1) Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
2) Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

C. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
2. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
3. Electrical Work: Show the following:
a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
d. Location of pull boxes and junction boxes, dimensioned from column center lines.
4. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor,

who shall make suitable modifications and resubmit.

D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
   1. File Submittal Format: Submit or post coordination drawing files using PDF format.
   2. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
      a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

3.09 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:
   1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
   2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
   1. Prepare in a format and with content acceptable to Owner.
      a. Use AIA G716 - Request for Information .
      b. Use CSI/CSC Form 13.2A - Request for Interpretation.
   2. Prepare using software provided by the Electronic Document Submittal Service.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
   1. Unacceptable Uses for RFIs: Do not use RFIs to request the following::
      a. Approval of submittals (use procedures specified elsewhere in this section).
      b. Approval of substitutions (see Sections 01 25 00 - Substitution Procedures and 01 60 00 - Product Requirements)
      c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
   2. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response.
   3. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, the Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
      a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
   1. Official Project name and number, and any additional required identifiers established in Contract Documents.
   2. Discrete and consecutive RFI number, and descriptive subject/title.

3. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
4. Annotations: Field dimensions and/or description of conditions which have engendered the request.
5. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 3:00 PM will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

H. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.10 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
1. Coordinate with Contractor's construction schedule and schedule of values.
2. Format schedule to allow tracking of status of submittals throughout duration of construction.
3. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

3.11 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B. Samples will be reviewed for aesthetic, color, or finish selection.

C. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.12 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.
B. Submit Final Correction Punch List for Substantial Completion.
C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 78 00 - Closeout Submittals:
    1. Project record documents.
    2. Operation and maintenance data.
    3. Warranties.
    4. Bonds.
    5. Other types as indicated.
D. Final Property Survey.

3.13 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
    1. After review, produce duplicates.
    2. Retained samples will not be returned to Contractor unless specifically so stated.

3.14 SUBMITTAL PROCEDURES

A. General Requirements:
    1. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
    2. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
    3. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents. Architect will not review submittals unless certifed by Design-Builder.
    4. Schedule submittals to expedite the Project, and coordinate submission of related items.
        a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
    5. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
    6. When revised for resubmission, identify all changes made since previous submission.
    7. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
    8. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
    9. Submittals not requested will not be recognized or processed.
B. Product Data Procedures:
    1. Submit only information required by individual specification sections.
    2. Collect required information into a single submittal.
    3. Submit concurrently with related shop drawing submittal.
    4. Do not submit (Material) Safety Data Sheets for materials or products.
C. Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
2. Do not reproduce the Contract Documents to create shop drawings.
3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

D. Samples Procedures:
1. Transmit related items together as single package.
2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.

3.15 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.
B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.
C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.
D. Architect's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
a. "Approved", or language with same legal meaning.
b. "Approved as Noted, Resubmission not required", or language with same legal meaning.
1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
c. "Approved as Noted, Resubmit for Record", or language with same legal meaning.
2. Not Authorizing fabrication, delivery, and installation:
E. Architect's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
a. "Received" - to notify the Contractor that the submittal has been received for record only.
2. Items for which action was taken:
a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

SECTION 01 32 16 - CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.
B. Construction progress schedule, bar chart type.

1.02 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
C. Submit updated schedule with each Application for Payment.
D. Submit under transmittal letter form specified in Section 01 30 00 - Administrative Requirements.

1.03 SCHEDULE FORMAT

A. Diagram Sheet Size: Maximum 11x17 inches.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
B. Provide sub-schedules to define critical portions of the entire schedule.
C. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
D. Provide separate schedule of submittal dates for shop drawings, product data, and samples, products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
E. Indicate delivery dates for products identified under Allowances.
F. Coordinate content with schedule of values specified in Section 01 20 00 - Price and Payment Procedures.
G. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.
B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.
B. Evaluate project status to determine work behind schedule and work ahead of schedule.
C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
C. Annotate diagrams to graphically depict current status of Work.
D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
E. Indicate changes required to maintain Date of Substantial Completion.
F. Submit reports required to support recommended changes.
G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

3.06 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.
B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.
B. Testing and inspection agencies and services.
C. Control of installation.
D. Tolerances.
E. Manufacturers' field services.
F. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittal procedures.
B. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the contract documents, or for Owner's information.
    1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
    2. Include required product data and shop drawings.
    3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
    4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

1.04 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirements. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numberic values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.05 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Contractor shall employ and pay for services of an independent testing agency to perform code required testing and inspection.
B. Owner may employ and pay for services of an independent testing agency (at its discretion) to perform additional testing and inspection.
C. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents, code and other regulatory requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
B. Comply with manufacturers' instructions, including each step in sequence.
C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
E. Have work performed by persons qualified to produce required and specified quality.
F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. Contractor Responsibilities:
    1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
    2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
    3. Provide incidental labor and facilities:
        a. To provide access to Work to be tested/inspected.
        b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
        c. To facilitate tests/inspections.
        d. To provide storage and curing of test samples.
    4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
B. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.
B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 45 33 - CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Code-required special inspections.
B. Testing services incidental to special inspections.
C. Submittals.
D. Manufacturers' field services.
E. Fabricators' field services.

1.02 RELATED REQUIREMENTS

A. Document 00 31 00 - Available Project Information: Soil investigation data.
B. Document 00 72 00 - General Conditions: Inspections and approvals required by public authorities.
C. Section 01 40 00 - Quality Requirements.
D. Section 01 42 19 - Reference Standards.
E. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 ABBREVIATIONS AND ACRONYMS

A. AHJ: Authority having jurisdiction.
B. IAS: International Accreditation Service, Inc.
C. NIST: National Institute of Standards and Technology.

1.04 DEFINITIONS

A. Code or Building Code: ICC (IBC)-2018, Edition of the International Building Code and specifically, Chapter 17 - Special Inspections and Tests.
B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.
C. Special Inspection:
    1. Special inspections are inspections and testing of materials, installation, fabrication, erection or placement of components and connections mandated by the AHJ that also require special expertise to ensure compliance with the approved Contract Documents and the referenced standards.
    2. Special inspections are separate from and independent of tests and inspections conducted by Owner or Contractor for the purposes of quality assurance and contract administration.

1.05 REFERENCE STANDARDS

A. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
C. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field 2021.
D. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete 2017.
E. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction 2019.

F. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection 2020.
G. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing 2015.
H. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel 2018.
I. IAS AC89 - Accreditation Criteria for Testing Laboratories 2018.
J. IAS AC291 - Accreditation Criteria for Special Inspection Agencies 2017.
K. ICC (IBC)-2018 - International Building Code 2018.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Special Inspection Agency Qualifications: Prior to the start of work, the Special Inspection Agency is required to:
   1. Submit agency name, address, and telephone number, names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Submit certification that Special Inspection Agency is acceptable to AHJ.
C. Testing Agency Qualifications: Prior to the start of work, the Testing Agency is required to:
   1. Submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Submit certification that Testing Agency is acceptable to AHJ.
D. Special Inspection Reports: After each special inspection, Special Inspector is required to promptly submit at least two copies of report; one to Structural Engineer of Record and one to the AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of Special Inspector.
      d. Date and time of special inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of special inspection.
      h. Date of special inspection.
      i. Results of special inspection.
      j. Compliance with Contract Documents.
   2. Final Special Inspection Report: Document special inspections and correction of discrepancies prior to the start of the work.
E. Test Reports: After each test or inspection, promptly submit at least two copies of report; one to Structural Engineer of Record and one to AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.

d. Date and time of sampling or inspection.
e. Identification of product and specifications section.
f. Location in the Project.
g. Type of test or inspection.
h. Date of test or inspection.
i. Results of test or inspection.
j. Compliance with Contract Documents.

F. Certificates: When specified in individual special inspection requirements, Special Inspector shall submit certification by the manufacturer, fabricator, and installation subcontractor to Architect and AHJ, in quantities specified for Product Data.
1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.07 SPECIAL INSPECTION AGENCY

A. Owner or Architect, serving as Owner's Representative, will employ services of a Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by the building code.
B. The Special Inspection Agency may employ and pay for services of an independent testing agency to perform testing and sampling associated with special inspections and required by the building code.
C. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.08 TESTING AND INSPECTION AGENCIES

A. Owner or Architect may employ services of an independent testing agency to perform additional testing and sampling associated with special inspections but not required by the building code.
B. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.09 QUALITY ASSURANCE

A. Special Inspection Agency Qualifications:
1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC291.
B. Testing Agency Qualifications:
1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC89.
C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 STATEMENT AND SCHEDULE OF SPECIAL INSPECTIONS

A. Material testing shall be performed in accordance with schedule of special inspections indicated on Contract Drawings. See specific material-based specifications for additional material testing requirements.

3.02 SCHEDULE OF SPECIAL INSPECTIONS, GENERAL

A. Frequency of Special Inspections: Special Inspections are indicated as continuous or periodic.
   1. Continuous Special Inspection: Special Inspection Agency is required to be present in the area where the work is being performed and observe the work at all times the work is in progress.
   2. Periodic Special Inspection: Special Inspection Agency is required to be present in the area where work is being performed and observe the work part-time or intermittently and at the completion of the work.

3.03 SPECIAL INSPECTIONS FOR CONCRETE CONSTRUCTION

A. Reinforcing Steel, Including Prestressing of Tendons and Placement: Verify compliance with approved Contract Documents and ACI 318, Sections 3.5 and 7.1 through 7.7; periodic.
B. Reinforcing Bar Welding: Verify compliance with AWS D1.4/D1.4M and ACI 318, 26.6.4; periodic.
   1. Verify weldability of reinforcing bars other than those complying with ASTM A706/A706M; periodic.
   2. Inspect single-pass fillet welds, maximum 5/16 inch; periodic.
   3. Inspect all other welds; continuous.
C. Reinforcing Steel Welding: Verify compliance with AWS D1.4/D1.4M and ACI 318, Section 3.5.2; periodic.
D. Anchors Cast in Concrete: Verify compliance with ACI 318, 17.8.2; periodic.
E. Bolts Installed in Concrete: Where allowable loads have been increased or where strength design is used, verify compliance with approved Contract Documents and ACI 318, Sections 8.1.3 and 21.2.8 prior to and during placement of concrete; continuous.
F. Anchors Post-Installed in Hardened Concrete: Verify compliance with ACI 318.
   1. Adhesive Anchors: Verify horizontally or upwardly-inclined orientation installations resisting sustained tension loads - Section 17.8.2.4; continuous.
   2. Other Mechanical and Adhesive Anchors: Verify as per Chapter 17.8.2; periodic.
G. Anchors Installed in Hardened Concrete: Verify compliance with ACI 318, Sections 3.8.6, 8.1.3, and 21.2.8; periodic.
H. Design Mix: Verify plastic concrete complies with the design mix in approved Contract Documents and with ACI 318, Chapter 4 and 5.2; periodic.
I. Concrete Sampling Concurrent with Strength Test Sampling: Each time fresh concrete is sampled for strength tests, verify compliance with ASTM C172/C172M, ASTM C31/C31M and ACI 318, Chapter 26.5, 26.12, and record the following, continuous:
   1. Slump.
   2. Air content.
   3. Temperature of concrete.
J. Specified Curing Temperature and Techniques: Verify compliance with ACI 318, Chapter 26.5.3-26.5.5; periodic.
K. Formwork Shape, Location and Dimensions: Verify compliance with approved Contract Documents and ACI 318, Chapter 26.11.1.2(b); periodic.
L. Materials: If the Contractor cannot provide sufficient data or documentary evidence that concrete materials comply with the quality standards of ACI 318, the AHJ will require testing of materials in accordance with the appropriate standards and criteria in ACI 318, Chapters 19 and 20.

3.04 SPECIAL INSPECTIONS FOR SOILS

A. Materials and Placement: Verify each item below complies with approved construction documents and approved geotechnical report.
   1. Design bearing capacity of material below shallow foundations; periodic.
   2. Design depth of excavations and suitability of material at bottom of excavations; periodic.
   3. Materials, densities, lift thicknesses; placement and compaction of backfill: continuous.
   4. Subgrade, prior to placement of compacted fill verify proper preparation; periodic.

B. Testing: Classify and test excavated material; periodic.

3.05 SPECIAL INSPECTIONS FOR DRIVEN DEEP FOUNDATIONS

A. Materials, Equipment and Final Placement: Verify each item below complies with approved construction documents and approved geotechnical report.
   1. Material types, sizes and lengths; continuous.
   2. Capacities of test elements and additional load tests as required; continuous.
   3. Placement locations and plumbness; continuous.
   4. Type and size of hammer; continuous.

B. Installation: Observe driving operations and maintain complete and accurate records for each element; continuous.
   1. Record number of blows per foot of penetration.
   2. Determine penetration required to achieve design capacity.
   3. Record tip and butt elevations.
   4. Document any damage to foundation element.

3.06 SPECIAL INSPECTION AGENCY DUTIES AND RESPONSIBILITIES

A. Special Inspection Agency shall:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified reference standards.
   3. Ascertain compliance of materials and products with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Attend preconstruction meetings and progress meetings.
   7. Submit reports of all tests or inspections specified.

B. Limits on Special Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the work.

C. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.07 TESTING AGENCY DUTIES AND RESPONSIBILITIES

A. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
5. Perform additional tests and inspections required by Architect.
6. Submit reports of all tests or inspections specified.

B. Limits on Testing or Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the work.

C. On instructions by Architect, perform re-testing required because of non-compliance with specified requirements, using the same agency.

D. Contractor will pay for re-testing required because of non-compliance with specified requirements.

3.08 CONTRACTOR DUTIES AND RESPONSIBILITIES

A. Contractor Responsibilities, General:
1. Deliver to agency at designated location, adequate samples of materials for special inspections that require material verification.
2. Cooperate with agency and laboratory personnel; provide access to approved documents at project site, to the work, to manufacturers' facilities, and to fabricators' facilities.
3. Provide incidental labor and facilities:
   a. To provide access to work to be tested or inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested or inspected.
   c. To facilitate tests or inspections.
   d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing or inspection services.
5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Temporary utilities.
B. Temporary sanitary facilities.
C. Temporary Controls: Barriers, enclosures, and fencing.
D. Security requirements.
E. Vehicular access and parking.
F. Waste removal facilities and services.
G. Project identification sign.
H. Field offices.

1.03 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.
B. Existing facilities may be used.
C. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.04 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
B. Maintain daily in clean and sanitary condition.

1.05 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations.
B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
C. Provide protection for plants designated to remain. Replace damaged plants.
D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FENCING

A. Construction: Commercial grade chain link fence.
B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.07 EXTERIOR ENCLOSURES

A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 SECURITY

A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

1.09 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
B. Coordinate access and haul routes with governing authorities and Owner.
C. Provide and maintain access to fire hydrants, free of obstructions.
D. Provide means of removing mud from vehicle wheels before entering streets.
E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.
F. Existing parking areas located at site may be used for construction parking.
G. Designate one parking space for Owner and Architect use.

1.10 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
B. Provide containers with lids. Remove trash from site periodically.
C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.11 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on drawings.
B. Erect on site at location indicated.
C. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
    1. Provide temporary, directional signs for construction personnel and visitors.
D. Maintain and touch up signs so they are legible at all times.
E. No other signs are allowed without Owner permission except those required by law.

1.12 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.
B. Provide electrical power service and 120v ac duplex receptacles, with no fewer than one receptacle on each wall.
C. Provide space for Project meetings, with table and chairs to accommodate 10 persons.

1.13 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.
B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
C. Clean and repair damage caused by installation or use of temporary work.
D. Restore existing facilities used during construction to original condition.

E. Restore new permanent facilities used during construction to specified condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.02 INSTALLATION, GENERAL

A. Locate facilities where they serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.03 SUPPORT FACILITIES INSTALLATION

A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

B. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegitation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

3.05 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

2. Indicate sequencing work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.
B. Re-use of existing products.
C. Transportation, handling, storage and protection.
D. Product option requirements.
E. Substitution limitations.
F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
B. Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.03 DEFINITIONS

A. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make and model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.04 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
    1. Submit within 15 days after date of Notice to Proceed.
    2. For products specified only by reference standards, list applicable reference standards.
B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
    1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.05 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
    1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 70 00 - Execution and Closeout Requirements.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Where products are accompanied by the term "as selected," Architect will make a selection.
   3. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Use of products having any of the following characteristics is not permitted:
   1. Made outside the United States, its territories, Canada, or Mexico.
   2. Made using or containing CFC's or HCFC's.
   3. Containing lead, cadmium, or asbestos.

C. Where other criteria are met, Contractor shall give preference to products that:
   1. Are extracted, harvested, and/or manufactured closer to the location of the project.
   2. Have longer documented life span under normal use.

2.03 PRODUCT SELECTION PROCEDURES

A. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.

B. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

C. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications

indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

D. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

E. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.04 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
    a. Evidence that proposed product provides specified warranty.
2. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

2.05 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.06 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 01 25 00 - Substitution Procedures.

3.02 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
D. Transport and handle products in accordance with manufacturer's instructions.
E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Provide protection of stored materials and products against theft, casualty, or deterioration.
B. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
C. Store and protect products in accordance with manufacturers' instructions.
D. Store with seals and labels intact and legible.
E. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
F. For exterior storage of fabricated products, place on sloped supports above ground.
G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
H. Comply with manufacturer's warranty conditions, if any.
I. Do not store products directly on the ground.
J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
K. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
L. Prevent contact with material that may cause corrosion, discoloration, or staining.
M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
N. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.
B. Pre-installation meetings.
C. Cutting and patching.
D. Surveying for laying out the work.
E. Cleaning and protection.
F. Starting of systems and equipment.
G. Demonstration and instruction of Owner personnel.
H. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
I. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
B. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.
C. Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.
D. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
E. Section 02 41 00 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2019.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
    1. On request, submit documentation verifying accuracy of survey work.
    2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
    3. Submit surveys and survey logs for the project record.
C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
    1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
    2. Identify demolition firm and submit qualifications.
    3. Include a summary of safety procedures.
D. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
    1. Structural integrity of any element of Project.
    2. Integrity of weather exposed or moisture resistant element.
    3. Efficiency, maintenance, or safety of any operational element.
    4. Visual qualities of sight exposed elements.

5. Work of Owner or separate Contractor.

E. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
   3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
   5. Submit testing, adjusting, and balancing records.

F. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
   1. Submit a final Application for Payment according to Section 01 20 00 - Price and Payment Procedures.
   2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

G. Submittal of Project Warranties
   1. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
   2. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
   3. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
   4. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
   5. Warranties in Paper Form:
      a. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.

H. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

B. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

1. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.07 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
C. Product Substitution: For any proposed change in materials, submit request for substitution described in Sections 01 25 00 - Substitution Procedures and 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Examine and verify specific conditions described in individual specification sections.
D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.
B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
B. Require attendance of parties directly affecting, or affected by, work of the specific section.
C. Notify Architect four days in advance of meeting date.
D. Prepare agenda and preside at meeting:
    1. Review conditions of examination, preparation and installation procedures.
    2. Review coordination with related work.
E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.
B. Promptly notify Architect of any discrepancies discovered.
C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
F. Utilize recognized engineering survey practices.
G. Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
    1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
    2. Grid or axis for structures.
    3. Building foundation, column locations, ground floor elevations.
I. Periodically verify layouts by same means.
J. Maintain a complete and accurate log of control and survey work as it progresses.
K. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.
B. Perform whatever cutting and patching is necessary to:
    1. Complete the work.
    2. Fit products together to integrate with other work.
    3. Provide openings for penetration of mechanical, electrical, and other services.
    4. Match work that has been cut to adjacent work.
    5. Repair areas adjacent to cuts to required condition.
    6. Repair new work damaged by subsequent work.
    7. Remove samples of installed work for testing when requested.
    8. Remove and replace defective and non-complying work.
C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
F. Restore work with new products in accordance with requirements of Contract Documents.
G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
H. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.
B. Provide special protection where specified in individual specification sections.
C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 GENERAL INSPECTION REQUIREMENTS

A. Cooperation by Contractor: Do not perform work or furnish materials without obtaining inspection by the Architect. Furnish the Architect with every reasonable facility for ascertaining whether the work performed and materials used are in accordance with the requirements and intent of the Contract Documents. If the Architect so requests at any time before final acceptance of the work, remove or uncover such portions of the finished work as directed. After examination, restore the uncovered portions of the work to the standard required by the Contract Documents. If the Architect determines that the work so exposed or examined is unacceptable, perform the uncovering or removal, and the replacing of the covering or making good of the parts removed, at no expense to the Owner. However, if the Architect determines that the work thus exposed or examined is acceptable, the Owner will pay for the uncovering or removing, and the replacing of the covering or making good of the parts removed.
B. Failure of Architect to Reject Work During Construction: If, during or prior to construction operations, the Architect fails to reject defective work or materials, whether from lack of discovery of such defect or for any other reason, such initial failure to reject in no way prevents the later rejection when such defect is discovered, or obligates the Owner to final acceptance. The Owner is not responsible for losses suffered due to any necessary removals or repairs of such defects.

C. Failure to Remove and Renew Defective Materials and Work: If the Contractor fails or refuses to remove and renew any defective materials used or work performed, or to make any necessary repairs in an acceptable manner and in accordance with the requirements of the Contract within the time indicated in writing, the Architect has the authority to repair, remove, or renew the unacceptable or defective materials or work as necessary, all at the Contractor's expense. The Owner will obtain payment for any expense it incurs in making these repairs, removals, or renewals, that the Contractor fails or refuses to make, by deducting such expenses from any moneys due or which may become due the Contractor, or by charging such amounts against the Contract bond.

3.10 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
B. Use cleaning materials that are nonhazardous.
C. Clean debris from area drains and drainage systems.
D. Clean site; sweep paved areas, rake clean landscaped surfaces.
E. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 SUBSTANTIAL COMPLETION PROCEDURES

A. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Advise Owner of pending insurance changeover requirements.
   2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   3. Complete startup and testing of systems and equipment.
   4. Perform preventive maintenance on equipment used prior to Substantial Completion.
   5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
   6. Advise Owner of changeover in utility services.
   7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
   8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   9. Complete final cleaning requirements.
   10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
B. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for final completion.

3.13 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and Owner.
B. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
E. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
F. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
G. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.14 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
   1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
   2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
      a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
   3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.15 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.
B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 78 00 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.
B. Operation and Maintenance Data.
C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
C. Individual Product Sections: Specific requirements for operation and maintenance data.
D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
B. Operation and Maintenance Data:
    1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
    2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
    3. Submit two sets of revised final documents in final form within 10 days after final inspection.
C. Warranties and Bonds:
    1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
    2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
    3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
    1. Drawings.
    2. Specifications.
    3. Addenda.
    4. Change Orders and other modifications to the Contract.
    5. Reviewed shop drawings, product data, and samples.
    6. Manufacturer's instruction for assembly, installation, and adjusting.
B. Ensure entries are complete and accurate, enabling future reference by Owner.
C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.
E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.
F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   3. Field changes of dimension and detail.
   4. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
B. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
B. Verify that documents are in proper form, contain full information, and are notarized.
C. Co-execute submittals when required.
D. Retain warranties and bonds until time specified for submittal.
E. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building demolition excluding removal of hazardous materials and toxic substances.
B. Selective demolition of built site elements.
C. Abandonment in place of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

A. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
B. Section 01 60 00 - Product Requirements: Handling and storage of items removed for salvage and relocation.
C. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards current edition.
B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2019.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Site Plan: Showing:
   1. Vegetation to be protected.
   2. Areas for temporary construction and field offices.
   3. Areas for temporary and permanent placement of removed materials.
C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
   2. Identify demolition firm and submit qualifications.
D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: Item P-152 Excavation and Embankment.

PART 3 EXECUTION

3.01 SCOPE

A. Remove the entire building at 23 South Front Street including foundation completely..
B. Remove all other paving and curbs as indicated on drawings.
C. Remove concrete slabs on grade as indicated on drawings.
D. Remove timber boardwalk entirely; deck boards & joists; concrete pads & supports; railings & posts; benches; including electrical conduits, junction boxes, wires & light fixtures as required to prepare for new work. .

E. Remove portion of existing timber dock as required to install remaining timber bulkhead extension and articulated concrete block.
F. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Use of explosives is not permitted.
   4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   5. Provide, erect, and maintain temporary barriers and security devices.
   6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   8. Do not close or obstruct roadways or sidewalks without permit.
   9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
B. Do not begin removal until receipt of notification to proceed from Owner.
C. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.
D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
E. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
F. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
B. Protect existing utilities to remain from damage.
C. Do not disrupt public utilities without permit from authority having jurisdiction.
D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.
F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades

if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

Building Demolition Exterior Photos

PALM TREE TO REMAIN

ALUMINUM POLE WITH TELEMETRY EQUIPMENT (N.I.C.) TO BE RELOCATED BY CITY

GROUND MONUMENT (N.I.C.) TO BE RELOCATED BY CITY

REMOVE ONE STORY BUILDING COMPLETELY INCLUDING FOUNDATION

CONCRETE SIDEWALK TO REMAIN

West Elevation

ALUMINUM POLE WITH TELEMETRY EQUIPMENT (N.I.C.) TO BE RELOCATED BY CITY

REMOVE CONCRETE WALK COMPLETELY AS SHOWN (SAW-CUT AS REQUIRED)

REMOVE ONE STORY BUILDING COMPLETELY INCLUDING FOUNDATION

CONCRETE SIDEWALK TO REMAIN

GROUND MONUMENT (N.I.C.) TO BE RELOCATED BY CITY

North Elevation

Building Demolition Exterior Photos

North Elevation

North Elevation

Building Demolition Exterior Photos

East Elevation

East Elevation

Building Demolition Exterior Photos

East Elevation

South Elevation

Building Demolition Interior Photos

Lounge Looking North

Lounge Looking South

Building Demolition Interior Photos

Porch Looking West

Porch Looking East

Building Demolition Interior Photos

Bathroom

Bathroom

Building Demolition Interior Photos

Bathroom

Bathroom

SECTION 03 10 00 - CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
B. Openings for other work.
C. Form accessories.
D. Form stripping.

1.02 RELATED REQUIREMENTS

A. Section 03 20 00 - Concrete Reinforcing.
B. Section 03 30 00 - Cast-in-Place Concrete for Concrete Surface Finish requirements.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
B. ACI 301 - Specifications for Structural Concrete 2016.
C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
D. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide data on void form materials and installation requirements.
C. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
C. Chamfer outside corners of beams, joists, columns, and walls.
D. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
E. Comply with relevant portions of ACI 347R, ACI 301, and ACI 318.
F. Use the following form types:
    1. Exposed To View: Site fabricated plywood and rough sawn lumber.

2.02 WOOD FORM MATERIALS

A. Form Materials: At the discretion of the Contractor.

2.03 FORMWORK ACCESSORIES

A. Form Ties: Removable type, galvanized metal, fixed length, cone type, with waterproofing washer, [____] inch back break dimension, free of defects that could leave holes larger than 1 inch in concrete surface. Provide [_____] manufactured by [_____] .
B. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete

and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.

1. Composition: Colorless, reactive, water-based or solvent-based compound.
2. Do not use materials containing diesel oil or petroleum-based compounds.

C. Filler Strips for Chamfered Corners: Rigid plastic type; x 3/4 inch size; maximum possible lengths.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 EARTH FORMS

A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

3.03 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
C. Coordinate this section with other sections of work that require attachment of components to formwork.
D. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

3.04 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.
B. Locate and set in place items that will be cast directly into concrete.
C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
E. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement. Heat seal joints so they are watertight.
F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

3.06 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.
B. Clean formed cavities of debris prior to placing concrete.

3.07 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.08 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 40 00 - Quality Requirements.

3.09 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

END OF SECTION

SECTION 03 20 00 - CONCRETE REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.
B. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.
B. Section 03 30 00 - Cast-in-Place Concrete.
C. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Grounding connection to concrete reinforcement.

1.03 REFERENCE STANDARDS

A. ACI 301 - Specifications for Structural Concrete 2016.
B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
C. ACI SP-66 - ACI Detailing Manual 2004.
D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.
E. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement 2016.
F. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars 2017.
G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.
H. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars 2015.
I. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification 2014 (Amended 2015).
J. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel 2018.
K. CRSI (DA4) - Manual of Standard Practice 2009.
L. CRSI (P1) - Placing Reinforcing Bars 2011.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
E. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.
    1. Maintain one copy of each document on project site.
B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.4/D1.4M and no more than 12 months before start of scheduled welding work.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi), deformed steel bars.
   1. Plain billet-steel bars.
   2. Where Indicated: Epoxy coated in accordance with ASTM A775/A775M.
B. Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.
C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
B. Welding of reinforcement is permitted only as indicated on the contract drawings. Perform welding in accordance with AWS D1.4/D1.4M.
C. Fabricate and handle epoxy-coated reinforcing in accordance with ASTM D3963/D3963M.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
B. Do not displace or damage vapor barrier.
C. Accommodate placement of formed openings.
D. Maintain concrete cover around reinforcing as indicated on the contract drawings.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 45 33 - Code-Required Special Inspections, will inspect installed reinforcement for compliance with contract documents before concrete placement.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.
B. Concrete walls.
C. Concrete reinforcement.
D. Joint devices associated with concrete work.
E. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.
F. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories: Forms and accessories for formwork.
B. Section 03 20 00 - Concrete Reinforcing.
C. Section 07 92 00 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete 1991 (Reapproved 2009).
C. ACI 301 - Specifications for Structural Concrete 2016.
D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.
E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
F. ACI 305R - Guide to Hot Weather Concreting 2010.
G. ACI 306R - Guide to Cold Weather Concreting 2016.
H. ACI 308R - Guide to External Curing of Concrete 2016.
I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary 2014 (Errata 2018).
J. ACI 347R - Guide to Formwork for Concrete 2014, with Errata (2017).
K. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.
L. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
M. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021.
N. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
O. ASTM C150/C150M - Standard Specification for Portland Cement 2020.
P. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete 2016.
Q. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019.
R. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2019.
S. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete 2020a.
T. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) 2017.

U. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2012.
V. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) 2018.
W. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars 2015.
X. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.
Y. ASTM E1155M - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers (Metric) 2014.
Z. COE CRD-C 572 - Corps of Engineers Specifications for Polyvinylchloride Waterstop 1974.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
    1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
C. Mix Design: Submit proposed concrete mix design.
    1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
D. Test Reports: Submit report for each test or series of tests specified.
E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
    1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
C. Perform work of this section in accordance with ACI 301 and ACI 318.
D. Follow recommendations of ACI 305R when concreting during hot weather.
E. Follow recommendations of ACI 306R when concreting during cold weather.

1.06 MOCK-UP

A. Construct and erect mock-up panel for architectural concrete surfaces indicated to receive special treatment or finish as result of formwork.
    1. Panel Size: Sufficient to illustrate full range of treatment.
    2. Number of Panels: Two.
B. Accepted mock-up panel is considered basis of quality for the finished work. Keep mock-up exposed to view for duration of concrete work.

1.07 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
    1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each

entity directly concerned with cast-in-place concrete to attend, including the following:
a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete Subcontractor.
e. Special Inspection and Testing Agency
f. Special concrete finish Subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness concrete repair procedures, and concrete protection.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 03 10 00.
B. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
C. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 03 20 00.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
1. Acquire cement for entire project from same source.
B. Fine and Coarse Normal-Weight Aggregates: ASTM C33/C33M.
1. Acquire aggregates for entire project from same source.
2. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
4. Coquina aggregate.
C. Fly Ash: ASTM C618, Class F.
D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
B. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.
C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.

D. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
E. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
F. Accelerating Admixture: ASTM C494/C494M Type C.
G. Retarding Admixture: ASTM C494/C494M Type B.
H. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Grout: Comply with ASTM C1107/C1107M.

2.06 BONDING AND JOINTING PRODUCTS

A. Epoxy Bonding System:
   1. Complying with ASTM C881/C881M and of Type required for specific application.
B. Waterstops: PVC, complying with COE CRD-C 572.
   1. Configuration: As indicated on drawings.
   2. Size: As indicated on drawings.
C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
   1. Material: ASTM D1751, cellulose fiber.
D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.

2.07 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
B. Moisture-Retaining Sheet: ASTM C171.
   1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch.
   2. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
C. Normal Weight Concrete:
   1. All Concrete - Coquina Mix:
      a. Minimum Compressive Strength: 5000 psi at 28 days.
      b. Maximum W/C Ratio: 0.40.
      c. Total Air Content: N/A.
      d. Slump Limit: 4 inches, 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
   2. Fly Ash Content: Maximum 25 percent of cementitious materials by weight.
   3. Maximum Aggregate Size: 3/4 inch.

2.09 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.
B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible

slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
B. Verify that forms are clean and free of rust before applying release agent.
C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
    1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
E. Where new concrete with integral waterproofing is to be bonded to previously placed concrete, prepare surfaces to be treated in accordance with waterproofing manufacturer's instructions. Saturate cold joint surface with clean water, and remove excess water before application of coat of waterproofing admixture slurry. Apply slurry coat uniformly with semi-stiff bristle brush at rate recommended by waterproofing manufacturer.
F. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Fabricate and handle epoxy-coated reinforcing in accordance with ASTM D3963/D3963M.
B. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
C. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
D. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.
B. Place concrete for floor slabs in accordance with ACI 302.1R.
C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.
C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
   1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.
D. Saw Cut Contraction/Control Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
E. Construction Joints: Where not otherwise indicated, use metal combination screed and key form, with removable top section for joint sealant.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. An independent testing agency, as specified in Section 01 40 00, will inspect finished slabs for compliance with specified tolerances.
B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
   1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15, on-grade only.
   2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15, on-grade only.
   3. Under Carpeting: F(F) of 25; F(L) of 20, on-grade only.
   4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25, on-grade only.
C. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M), within 48 hours after slab installation; report both composite overall values and local values for each measured section.
D. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.
E. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/8 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
C. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than seven days.
   2. High early strength concrete: Not less than four days.
C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.
D. Surfaces Not in Contact with Forms:
   1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring

and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.

2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
    a. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
3. Final Curing: Begin after initial curing but before surface is dry.
    a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 40 00 - Quality Requirements.
B. Provide free access to concrete operations at project site and cooperate with appointed firm.
C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure five concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 08 42 39

PRESSURE-RESISTANT ENTRANCES

A. Section Includes:

1. Single flood plank barrier with jambs, planks, sill, and latching hardware.

B. Related Sections:

1. Division 03 – Cast-In-Place Concrete.
2. Division 04 – Concrete Unit Masonry
3. Division 05 – Structural Steel Framing.

1.2 SUBMITTALS

A. Manufacturer's data sheets on each product to be used, including:

1. Storage and handling requirements and recommendations.
2. Installation instructions.

B. Shop Drawings: Provide shop drawings showing layout, profiles, and product components, including anchorage, hardware, and finishes. Include dimensional plans, applicable material specifications, elevations and sections detailing mounting and connections, and load diagrams.

C. Calculations: Upon signed finalization and approval of dimensions, mounting location material and configuration, and load requirements;

1. Submit stamped calculations by a registered professional engineer from within the state or territory where the project will be constructed or substantially improved, to verify the flood barrier’s ability to withstand the design loading.

1.3 CLOSEOUT SUBMITTALS

A. Closeout Submittals: Provide Operation and Maintenance data to include methods for maintaining installed products, precautions against cleaning materials and methods detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer must demonstrate a minimum of five (5) years successful experience in design and manufacture of similar flood related closures. Upon request, provide supporting evidence including list of installations, descriptions, name and method of contact.

B. Minimum Qualifications: Manufacturer must demonstrate compliance and certification of a Quality Management System administered by the International Organization for Standardization (ISO). Documentation of current certification status to be provided upon request.

C. Welder Qualifications: Welders Certified in accordance with American Welding Society Procedures for applicable material used in production of specified product.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging container with identification labels intact until ready for installation.

B. Protect materials from exposure to moisture during storage.

C. Store materials in a dry, warm, ventilated weathertight location. If outdoor storage is required, block materials to store at an incline, to prevent pooling of any moisture and promote runoff. Tarp materials in a tent-like arrangement, elevated above the product with open sides to allow airflow. Store all other hardware in a dry controlled environment.

D. Use caution when unloading and handling product to avoid bending, denting, crushing, or other damage to the product.

E. When using forklifts, use forks of proper length to fully support product being moved. Consult Approved for Construction drawings or consult with factory for proper lift points.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's indicated limits.

1.7 COORDINATION

A. Conduct site survey and provide to flood barrier manufacturer, prior to manufacturers' commencement of shop drawings; the actual site conditions of the mounting location, to include; material type, dimensions and configuration, interferences with mounting surface, or any other condition that may impact the ability of the flood barrier to be properly installed.

A. Coordinate work with other operations and installation of adjacent materials to avoid damage.

1.8 WARRANTY

A. Manufacturer's Standard Warranty: Product to be free from defects in material and workmanship for a period of one (1) year from date of shipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Design watertight flood planks to support, solely or in combinations of, temporary super-imposed live loads as indicated below. All applied types of flood related loadings are transferred from the flood product barriers, solely or in combinations of, by mullion anchorage to structural floor slabs and/or jamb anchorage and direct pressure contact to structural walls or other structural elements.

1. Hydrostatic Loading.
2. Hydrodynamic Loading.
3. Debris Impact Loading.
4. Wave Loading (Dynamic/ Non-Breaking or Broken Wave).
5. Wave Loading (Impact/Breaking Wave – Below & Above DFE).
6. Wind Loading.

B. Engineering Code Practices: Engineer flood products to conform to the design requirements that are based on the latest adopted edition of the Florida Building Code (FBC). LRFD and/or ASD methodologies are applied as appropriate to align with specific project specifications and/or limited published material data.

C. Water Density: 64 pcf, unless otherwise noted on “Approved for Construction” drawings.

1.2 MANUFACTURERS

A. Watertight Flood Plank Barriers:

1. Approved Manufacturer: PS Flood Barriers™, which is located at: 1150 S. 48th Street, Grand Forks, ND 58201; Toll Free Tel: 877.446.1519; Email: 4info@psindustries.com; Web: www.psfloodbarriers.com or www.psindustries.com

a. Basis of Design Product: Model: FP 530/FP 535.

2. Substitutions: Not permitted.

B. Single Source Responsibilities: Obtain all watertight barriers and flood plank assemblies from single manufacturer.

2.3 EQUIPMENT

A. Products Details:

1. Sealing Requirements: Flood Plank and gasket design shall provide an effective barrier against short-term high-water situations, to the protection level indicated on drawings.

2. Latching: Provide with pad-lockable latching to secure deployed barrier from tamper or theft. One (1) latch per jamb.
3. Operation: Flood Planks and latches to be non-handed to allow for reversible installation.
4. Mounting/Load Transfer: Anchor to existing structure. Flood Plank designed for specified hydrostatic pressure (and other loads as specified) and will transfer loads to adjacent structure.
5. Frame to be cast-in-place or anchored utilizing mechanical, chemical or other framing methods as designed. Manufacturer to include all anchors, water-stop, and sealants, as designed, unless otherwise noted.
6. Jamb mounting location:

a. Between wall mounting, (jambs mounted within the wall opening).

1) Provide compression gasket which requires no inflation.

2.4 MATERIALS

A. Flood Plank: Aluminum: 6000 Series alloy.

B. Gaskets: Factory mounted, compressible rubber type, field replaceable. Gasket does not require air inflation.

1. Material: UV resistant EPDM unless otherwise noted.

C. Frame to include jamb and optional sill members for field locating and installation on structure. Jamb members to be designed and fabricated with appropriate material as required for the loading.

1. Aluminum of appropriate size and strength with welded or mechanical fastened construction.

D. Sill:
1. Embedded angle with Nelson studs, Stainless Steel Type 304, mill finish.

E. Frame Mounting Hardware: Provide anchors, sealant, and water stop, as required.

F. Operating Hardware:

1. Provide hardware sized for the size and weight of the flood plank and loads.
2. Hardware to be factory located on jambs and plank panels, as practical.
3. Latching hardware to be as indicated on the "Approved for Construction" Drawings.
4. Flood plank panel to be factory prepared for applicable latching devices.

G. Aluminum: Mill finish, welds ground smooth, not polished.

H. Labeling. Each watertight plank and jamb will be individually identified for matched installation.

I. Instruction Placard: Provide pictorial and written operation instruction placards on flood plank.

2.5 FABRICATION

A. Fit and factory assemble items in largest practical sections, for shipment to site.

B. Fabricate items with joints tightly fitted and secured.

C. Supply components required for anchorage of fabrications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another subcontractor, notify Architect of uncompleted preparation before proceeding.

C. Inspect opening for compliance with flood plank manufacturer requirements. Verify opening conditions are within required tolerances.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's installation instructions, "Approved for Construction" Drawings, shipping, handling, and storage instructions, and product carton instructions for installation.

B. Sills, jambs, and mullions shall be installed level, square, plumb, and rigid.

C. Sealants, water-stop, and grouting to be completed by appropriate personnel, and in accordance with product application directions, manufacturer’s instructions, and "Approved for Construction" Drawings.

D. Tolerances: All dimensional requirements must be in accordance with manufacturer's installation instructions and "Approved for Construction" Drawings.

E. Products to be operated and field verified that sealing surfaces maintain contact at the correct sealing points.

F. Inspect gaskets for damage, wear, and adhesion. Replace compromised gaskets immediately.

G. Verify that latching assemblies operate freely and correctly.

H. Verify all anchorage is in accordance with manufacturer's installation instructions and applicable data sheets.

I. Inspect installation sealants to ensure a watertight juncture.

3.4 FIELD QUALITY CONTROL

A. Field Testing:
   1. Installer to perform visual dry test for gasket alignment, continuity contact and pre-compression.

3.5 CLEANING

A. Touch-up, repair or replace damaged products or components before Substantial Completion.

B. Clean all sealing surfaces.

3.6 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION

ELECTRICAL NOTES

PART 1 – GENERAL

A. REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS
1. ALL EQUIPMENT, MATERIAL AND INSTALLATION SHALL MEET THE REQUIREMENTS OF ONE OR MORE OF THE FOLLOWING:
   a. NATIONAL ELECTRICAL CODE (NEC), NFPA–70
   b. INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
   c. FLORIDA BUILDING CODE
   d. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
   e. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
   f. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
   g. ILLUMINATING ENGINEERING SOCIETY (IES)
   h. UNDERWRITERS LABORATORIES (UL)
   i. STANDARD FOR THE INSTALLATION, MAINTENANCE AND USE OF LOCAL PROTECTIVE SIGNALING SYSTEMS (NFPA–72)
   j. INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)

B. SCOPE OF WORK
1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND REVIEW CONSTRUCTION AND VENDOR DRAWINGS FOR ALL TRADES PRIOR TO BID TO BECOME FAMILIAR WITH THE PROJECT AND INTENT OF THE DRAWINGS.
2. THE CONTRACTOR SHALL OBTAIN A PERMIT FOR WORK TO BE COMPLETED AND INCLUDE COST FOR ALL PERMIT FEES, PERMITS, INSPECTIONS AND TESTING IN THE BID.
3. THE CONTRACTOR SHALL PROVIDE ALL NEW MATERIAL IN ACCORDANCE WITH THESE DOCUMENTS AND APPLICABLE SPECIFICATIONS.
4. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND THOSE OF OTHER DISCIPLINES TO THE ARCHITECT/ENGINEER FOR WRITTEN DIRECTION/INSTRUCTIONS FOR CHANGES NECESSARY IN THE WORK.
5. THE CONTRACTOR SHALL NOT SCALE THE ELECTRICAL DRAWINGS, REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND ELEVATIONS.
6. THE CONTRACTOR IS EXPECTED TO PROVIDE ALL MATERIAL NECESSARY FOR A COMPLETE OPERATING SYSTEM. IT IS NOT THE INTENT OF THESE DOCUMENTS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION.
7. THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL WORK WITH OTHER TRADES AND MAKE PROPER PROVISIONS IN RELATION TO THEIR WORK. ANY CHANGES REQUIRED DUE TO LACK OF COORDINATION, SHALL BE MADE AT THE CONTRACTORS' EXPENSE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF THEIR WORK.
9. THE ELECTRICAL INSTALLATION SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER BY A LICENSED ELECTRICAL CONTRACTOR.
10. THE CONTRACTOR SHALL PROVIDE INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR DURATION OF THE PROJECT.
11. NO COMBUSTIBLE MATERIALS, IE: PVC CONDUIT, NON–PLENUM RATED CABLING, ETC., ARE ALLOWED ABOVE ANY CEILINGS.

C. TERMS
1. "PROVIDE", AS USED IN THE DOCUMENTS AND APPLICABLE SPECIFICATIONS MEANS TO FURNISH AND INSTALL COMPLETE.
2. "WIRING", AS USED IN THE DOCUMENTS MEANS CONDUIT AND WIRES WITHIN THE CONDUIT SYSTEM.
3. "CONCEALED", AS USED IN THE DOCUMENTS AND APPLICABLE SPECIFICATIONS MEANS EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, BEHIND WALLS, INSIDE CABINETRY OR ABOVE SUSPENDED CEILINGS.
4. "NEMA 1", INDICATES THE ENCLOSURE SHALL BE LISTED FOR INDOOR USE ONLY.
5. "NEMA 3R", INDICATES THE ENCLOSURE SHALL BE LISTED FOR EXTERIOR USE.
6. "SETS", AS USED FOR SERVICES, FEEDERS AND BRANCH CIRCUITS MEANS PARALLELED AND EACH SET SHALL BE INSTALLED IN SEPARATE CONDUITS.

D. WARRANTY
1. ALL MATERIAL AND WORK PERFORMED SHALL BE GUARANTEED FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.
2. ANY CORRECTIONS FOR DEFECTIVE MATERIALS AND/OR INSTALLATION SHALL BE MADE AT THE CONTRACTORS EXPENSE DURING THE WARRANTY PERIOD.

PART 2 – PRODUCTS

A. CONDUCTORS
1. MINIMUM SIZE SHALL BE #12 AWG, EXCEPT FOR CONTROL/LOW VOLTAGE WIRING.
2. INSULATION TYPE SHALL BE DUAL RATED THHN/THWN.
3. ALL CONDUCTORS SHALL BE COPPER, UNLESS NOTED OTHERWISE.
4. ALL CONDUCTORS 100 AMPS OR LESS ARE BASED ON LISTED TERMINALS OF 75°. PROVIDE CONDUCTORS SIZED IN ACCORDANCE TO TABLE 310.15(B)(16) 60° COLUMN WHEN LISTING IS UNKNOWN.

B. JUNCTION BOXES
1. INTERIOR LOCATIONS SHALL BE PRESSED STEEL.
2. EXTERIOR LOCATIONS SHALL BE HEAVY DUTY CAST ALUMINUM WITH THREADED HUBS.

C. CONDUIT
1. INTERIOR – EMT SHALL BE GALVANIZED STEEL.
2. EXTERIOR – PVC SHALL BE SCHEDULE 40 WHERE NOT SUBJECT TO PHYSICAL DAMAGE.

D. EQUIPMENT TERMINAL RATING
1. ALL EQUIPMENT SHALL BE PROVIDED WITH 60/75° RATED TERMINALS.

PART 3 – EXECUTION

A. WIRING METHODS
1. CONDUCTORS SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) UNLESS NOTED OTHERWISE. CONNECTORS AND FITTINGS SHALL BE STEEL SET SCREW OR COMPRESSION TYPE.
2. PVC, AS INDICATED IN PART 2–PRODUCTS (F) SHALL BE INSTALLED BELOW SLAB, UNDERGROUND AND EXPOSED WHERE LISTED FOR SUCH USE.

B. MISCELLANEOUS
1. CONDUCTORS FOR BRANCH CIRCUITS SHALL BE INCREASED FROM SIZES INDICATED IN THE PANEL SCHEDULES TO PREVENT VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST DEVICE. LOADS FOR DETERMINING CONDUCTOR SIZE SHALL BE BASED ON ACTUAL CONNECTED LOAD OR 80% OF CIRCUIT BREAKER SIZE, WHICH EVER IS GREATER. CONTACT ENGINEER OF RECORD FOR ALL CIRCUIT RUNS IN EXCESS OF 100 FT. FOR CALCULATION OF WIRE SIZE. FOR BID PURPOSES, INCREASE WIRE SIZE BY ONE FOR CIRCUIT RUNS BETWEEN 100 FT. AND 200 FT. AND TWO WIRE SIZES FOR CIRCUIT RUNS GREATER THAN 200 FT.

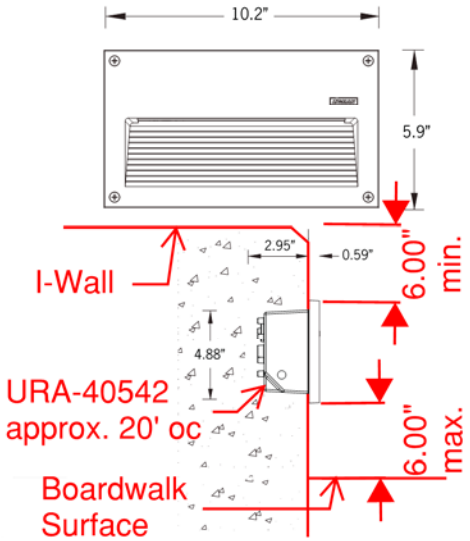
D. GROUNDING
1. THE ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED PER THE LATEST EDITION OF THE NEC AND LOCAL CODES. ALL GROUNDING ELECTRODE CONDUCTORS SHALL BE COPPER.

KEY NOTES

(1) EXTEND NEW WIRING, 2#10 AND 1#10 IN 3/4" TO NEAREST 120V LIGHTING BRANCH CIRCUIT (AS BUILT CIRCUIT) IN THIS AREA. FIELD VERIFY EXACT LOCATION AND CONNECT FOR OPERATION.

TURTLE FRIENDLY

17w LED 620 Lumens
IP65 • Suitable For Wet Locations
IK09 • Impact Resistant (Vandal Resistant)
Weight 2.6 lbs



Construction

Aluminum Casting
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket
Provided with special injection molded "fit for purpose" long life high temperature memory retentive silicon gaskets. Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management
LM6 Aluminum is used for its excellent mechanical strength and thermal dissipation properties in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
B0 - U2 - G1

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C. This process ensures that Ligman products can withstand harsh environments. Rated for use in natatoriums.

Inspired by Nature Finishes
The Inspired by nature Finishing is a unique system of decorative powder coating. Our metal decoration process can easily transform the appearance of metal or aluminum product into a wood grain finish.

This patented technology enables the simulation of wood grain, and even marble or granite finish through the use of decorative powder coating.

The wood grain finish is so realistic that it's almost undistinguishable from real wood, even from a close visual inspection. The system of coating permeates the entire thickness of the coat and as a result, the coating cannot be removed by normal rubbing, chipping, or scratching.

The Coating Process
After pre-treatment the prepared parts are powder coated with a specially formulated polyurethane powder. This powder provides protection against wear, abrasion, impact and corrosion and acts as the relief base color for the finalized metal decoration.

The component is then wrapped with a sheet of non-porous film with the selected decoration pattern printed on it using special high temperature inks.

This printed film transfer is vacuum-sealed to the surface for a complete thermo print and then transferred into a customized oven. The oven transforms the ink into different forms within the paint layer before it becomes solid. Finally, the film is removed, and a vivid timber look on aluminum remains.

Wood grain coating can create beautiful wood-looking products of any sort. There are over 300 combinations of designs currently in use. Wood grains can be made with different colors, designs, etc.

Our powder coatings are certified for indoor and outdoor applications and are backed by a comprehensive warranty. These coatings rise to the highest conceivable standard of performance excellence and design innovation.

Added Benefits
- Resistance to salt-acid room, accelerated aging
- Boiling water, lime and condensed water resistant
- Anti-Graffiti, Anti-Slip, Anti-Microbial, Anti-Scratch
- Super durable (UV resistant)
- TGIC free (non-toxic)

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

Crystal Clear Low Iron Glass Lens
Provided with tempered, impact resistant crystal clear low iron glass ensuring no green glass tinge.

Optics & LED
Precise optic design provides exceptional light control and precise distribution of light. LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

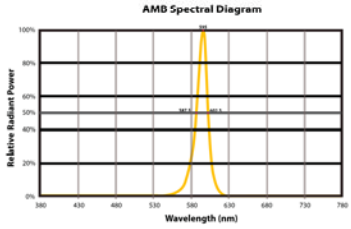
Sturdy classic wall-recessed pathway and stair luminaire. Simple pleasing aesthetic and sturdy construction, perfect for retrofit applications with its multiple sizes offered.

A range of rectangular and square wall recessed luminaires, with an indirect optical system, offering high vandal resistance. Suitable for indoor or outdoor applications. The recessed LED eliminates all discomfort glare as light is directed to the ground providing illumination where it is needed and minimizing light spill.
This luminaire is provided with a powdercoated high pressure die-cast aluminum back box and can be pre shipped to the jobsite for concrete pour or masonry applications.
This fixture is suitable for lighting footpaths, stairs, squares and entrances.

The Rado range has a matching bollard offering to complement the recessed product. See bollard section on the Ligman website.

All Ligman fixtures can be manufactured using a special pre-treatment and coating process that ensures the fixture can be installed in natatoriums as well as environments with high concentrations of chlorine or salt and still maintain the 5 year warranty. For this natatorium rated process please specify NAT in options.

CITY OF FLAGSTAFF & TURTLE FRIENDLY COMPLIANT



Narrow-Spectrum Amber LEDs
Peak wavelength between 585 & 595 nanometers and a full width of 50% power no greater than 15 nanometers.

Amelia River Waterfront Stabilization (Lots C & D)

PROJECT	Amelia River Waterfront Stabilization Parking Lots C & D	DATE	05/10/21
QUANTITY	43	TYPE	
NOTE			

ORDERING EXAMPLE || URA-40542 - 17w - W30 - 02 - 120/277V

URA-40542	17w	W40	05	120/277v
	LAMP	LED COLOR	FINISH COLOR	VOLTAGE

LAMP
- 17w LED
- 620 Lumens

LED COLOR
- W27 - 2700K
- W30 - 3000K
- W35 - 3500K
- W40 - 4000K

FINISH COLOR
- 01 - BLACK RAL 9011
- 02 - DARK GREY RAL 7043
- 03 - WHITE RAL 9003
- 04 - METALLIC SILVER RAL 9006
- 05 - MATTE SILVER RAL 9006
- 06 - LIGMAN BRONZE
- 07 - CUSTOM RAL

INSPIRED BY NATURE FINISHES
- SW01 - OAK FINISH
- SW02 - WALNUT FINISH
- SW03- PINE FINISH
- DF - DOUGLAS FIR FINISH
- CW - CHERRY WOOD FINISH
- NW - NATIONAL WALNUT FINISH
- SU01 - CONCRETE FINISH
- SU02 - SOFTSCAPE FINISH
- SU03 - STONE FINISH
- SU04 - CORTEN FINISH

THERE IS AN ADDITIONAL COST FOR THESE FINISHES

VOLTAGE
- 120/277v
- Other - Specify

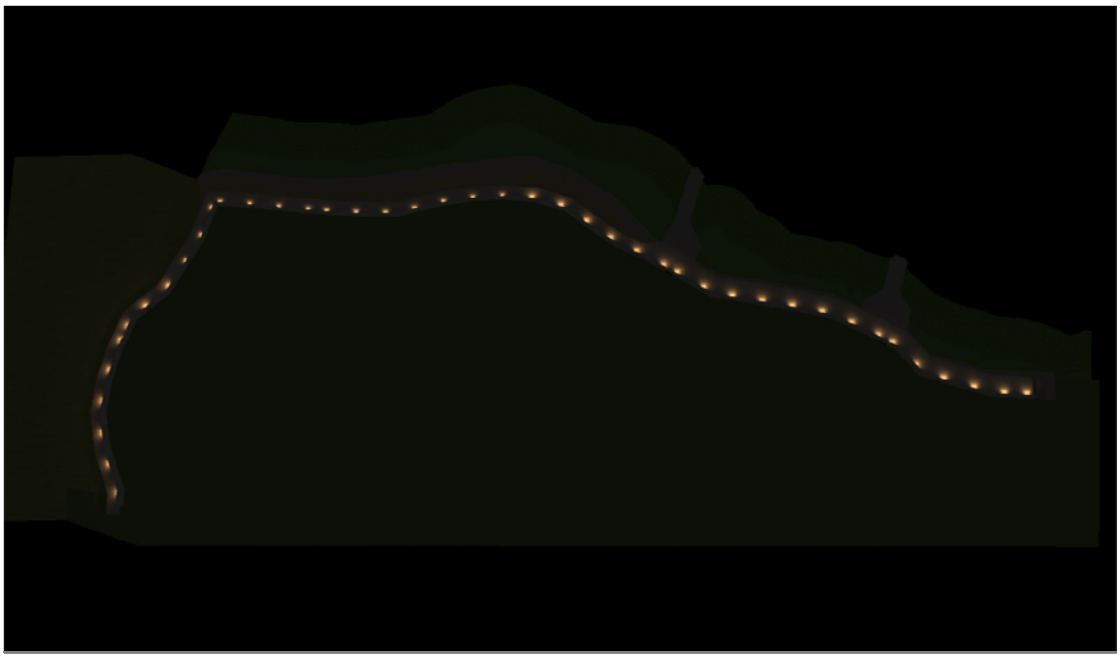
NAT	AMB	
ADDITIONAL OPTIONS		

NAT - Natatorium Rated
AMB - Turtle Friendly Amber LED
DIM - 0-10v Dimming

More Custom Finishes Available Upon Request

Consult factory for pricing and lead times

Example: Inspired by Nature Finish



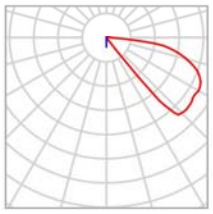
LMUS_21040042_Amelia River Waterfront Stabilization - Parking Lots C & D

DISCLAIMER
Calculations have been performed according to IES and IEC standard and good practice. Some differences between measured values and calculated values may occur due to tolerances in calculation parameters, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectance's, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured and calculated values.

Luminaire list

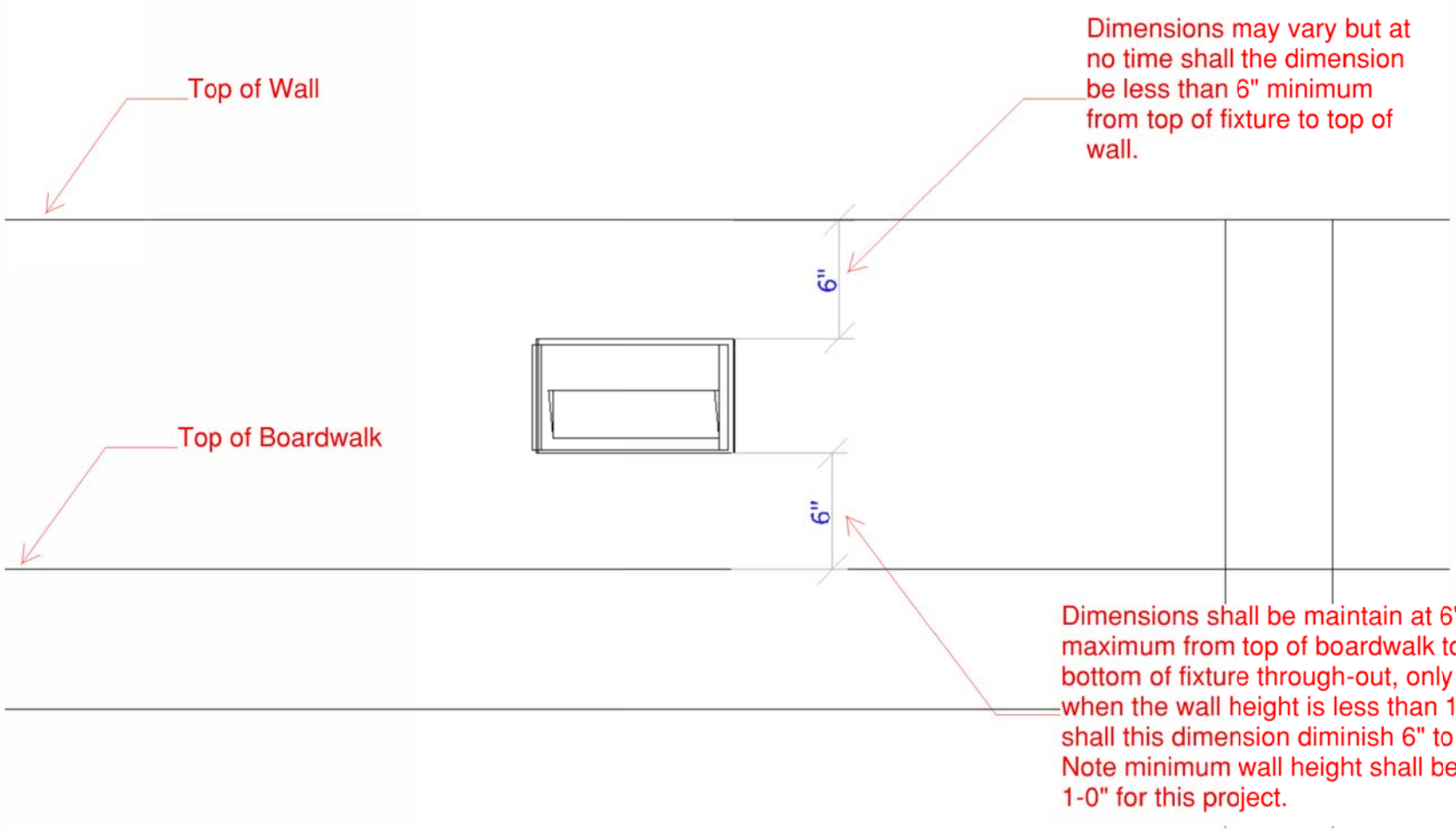
Φ_{total}	P_{total}	Luminous efficacy
18060 lm	735.3 W	24.6 lm/W



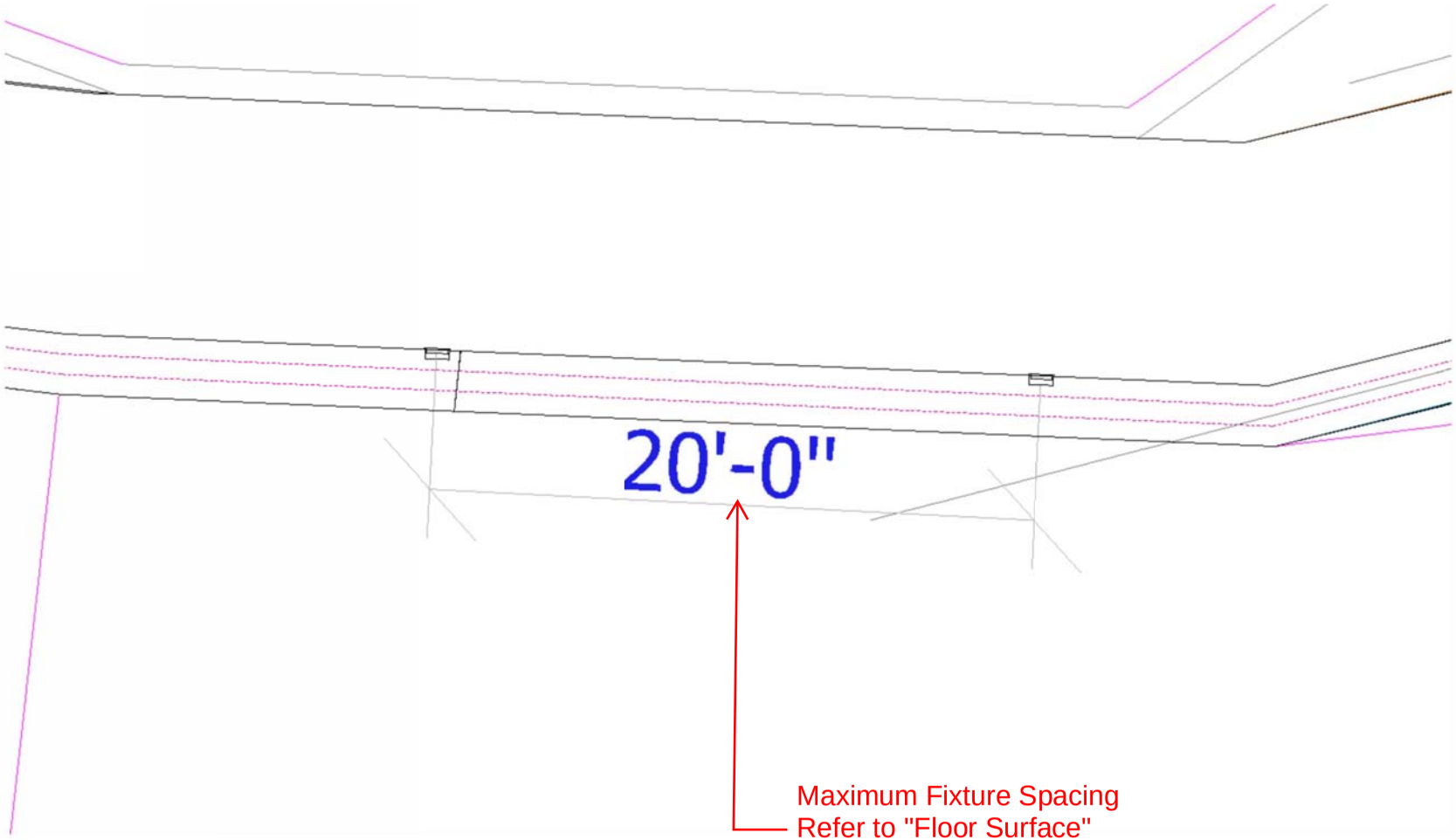


pcs.	43	P	17.1 W
Manufacturer	LIGMAN	$\Phi_{Luminaire}$	420 lm
Article No.	URA-40542-AMB	Luminous efficacy	24.6 lm/W
Article name	Rado 2 Recessed Wall luminaires	CCT	2200 K
Fitting	1x URA-40542-AMB	CRI	84

Images


Top of Wall
Dimensions may vary but at no time shall the dimension be less than 6" minimum from top of fixture to top of wall.
6"
Top of Boardwalk
6"
Dimensions shall be maintain at 6" maximum from top of boardwalk to bottom of fixture through-out, only when the wall height is less than 1'- 6" shall this dimension diminish 6" to 0". Note minimum wall height shall be 1-0" for this project.

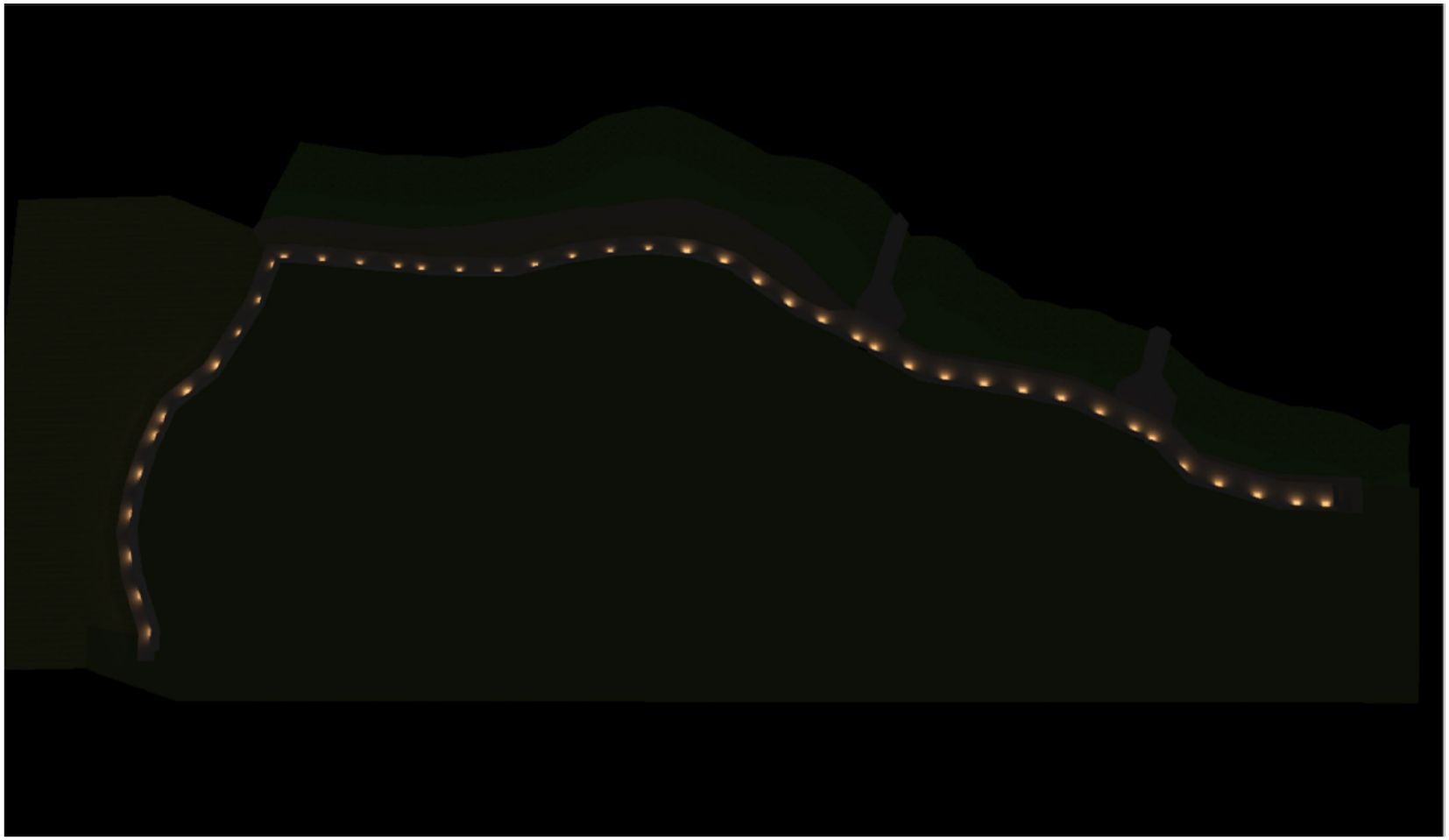
Images


20'-0"
Maximum Fixture Spacing
Refer to "Floor Surface"
page for fixture spacing.

Images

*Wall height of this area 1'

Images



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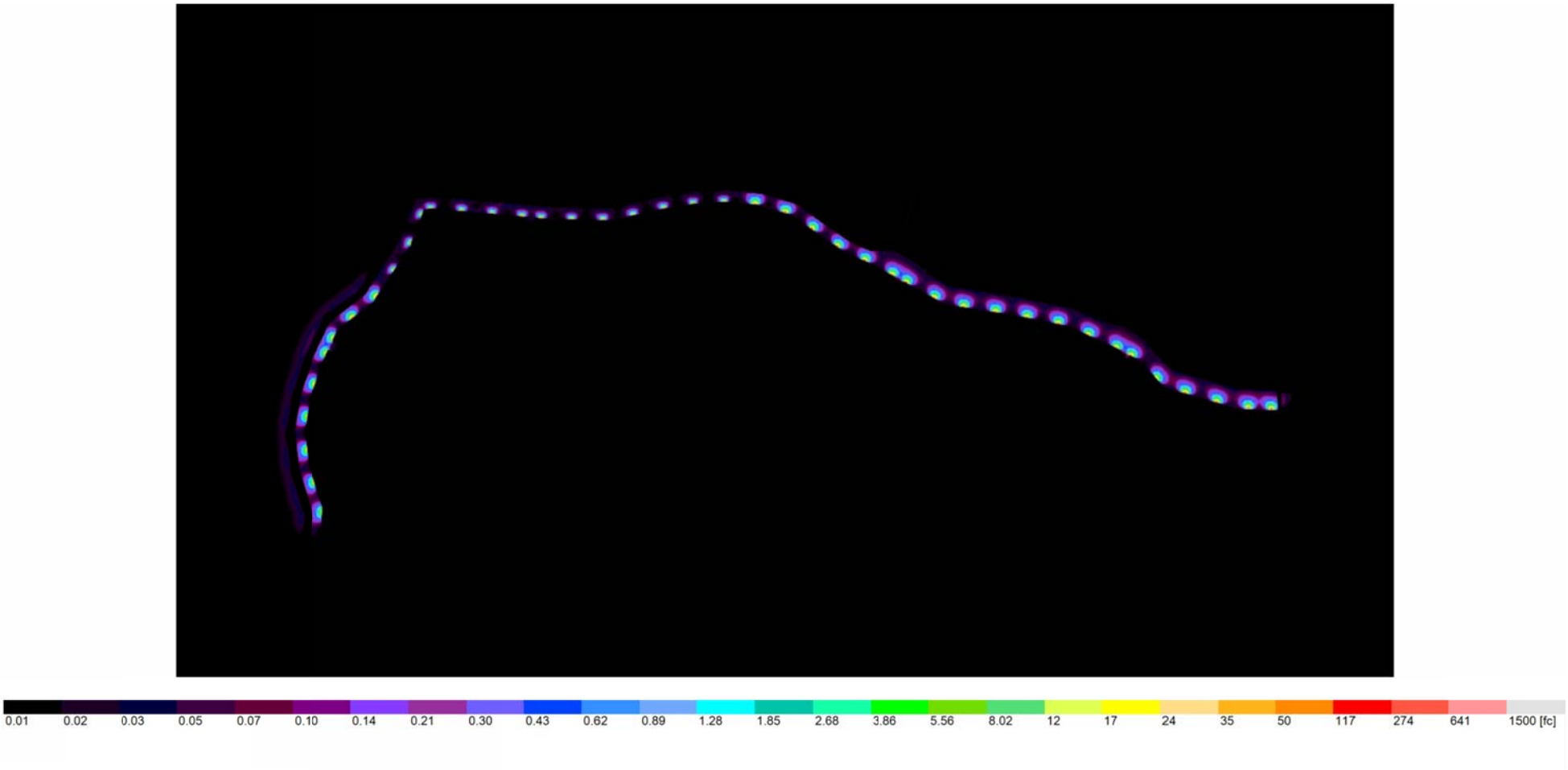
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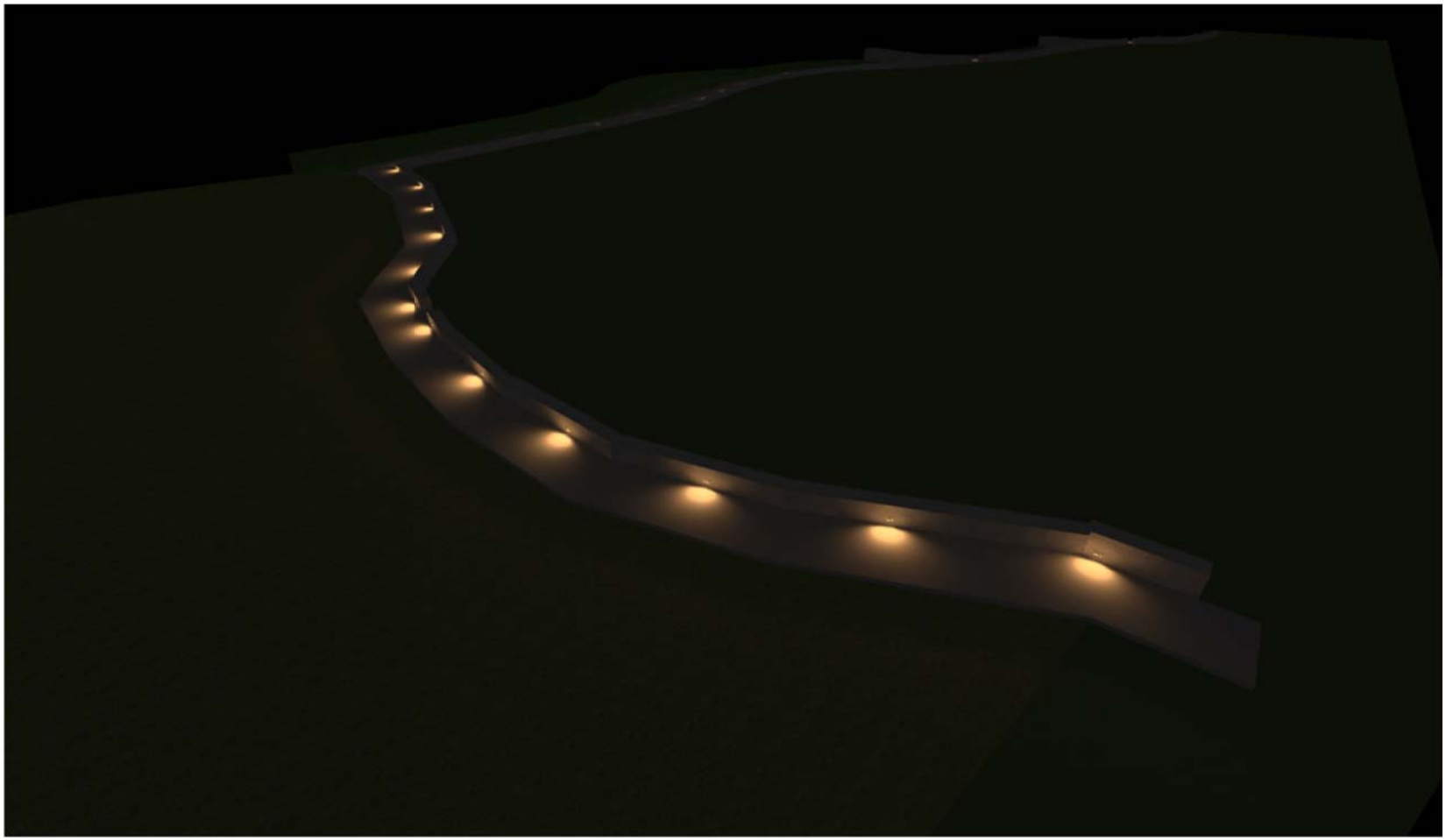

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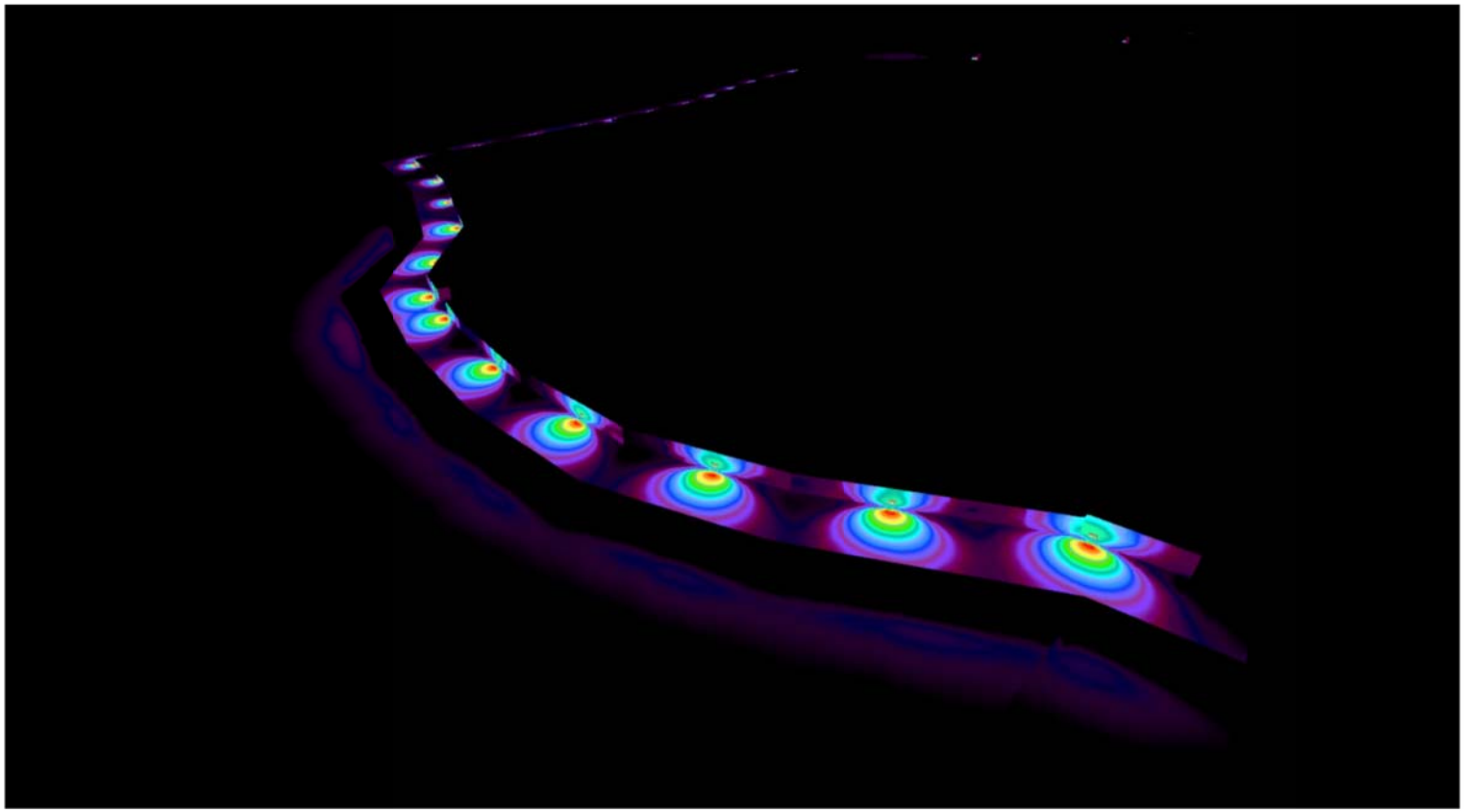
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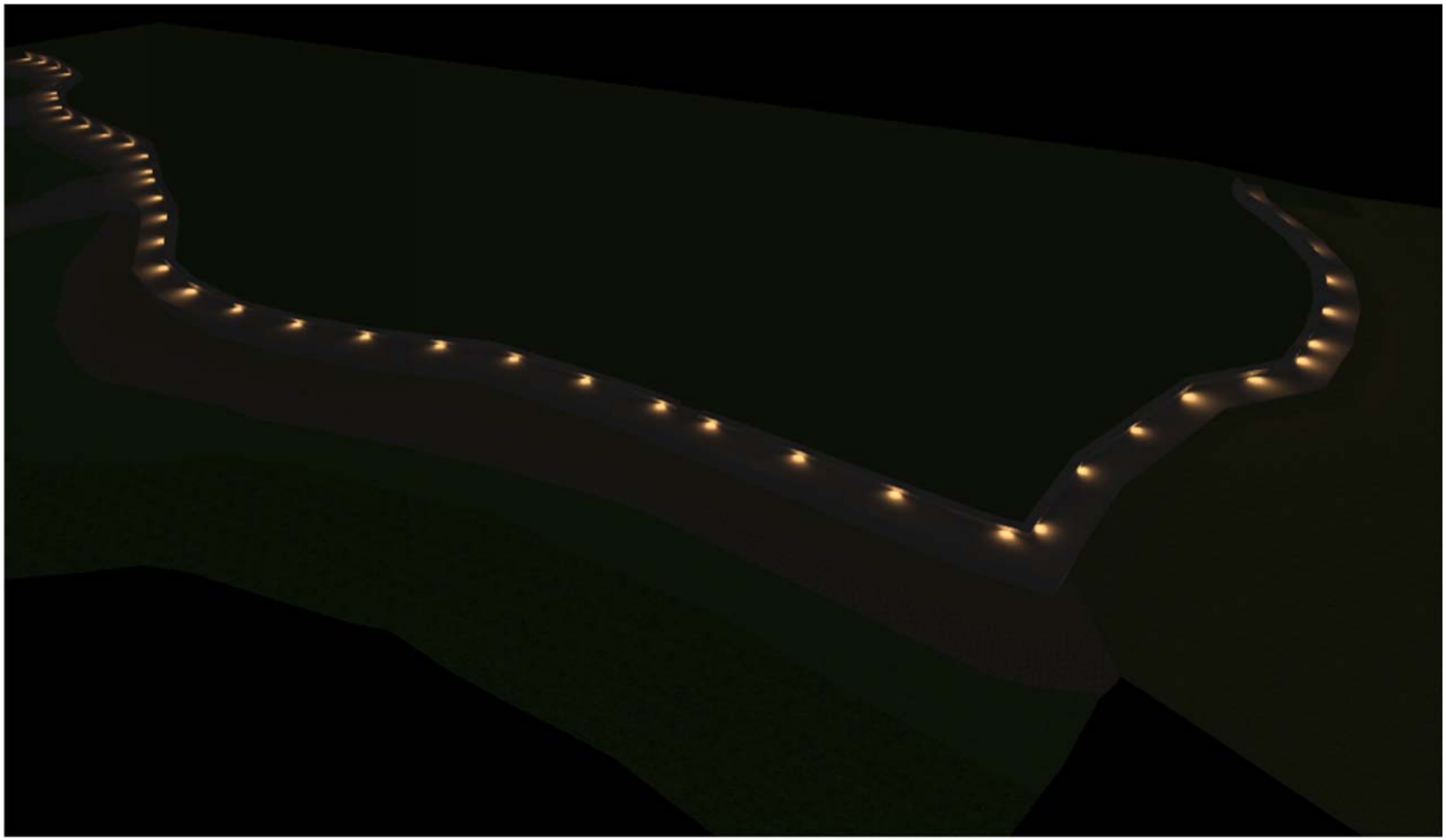

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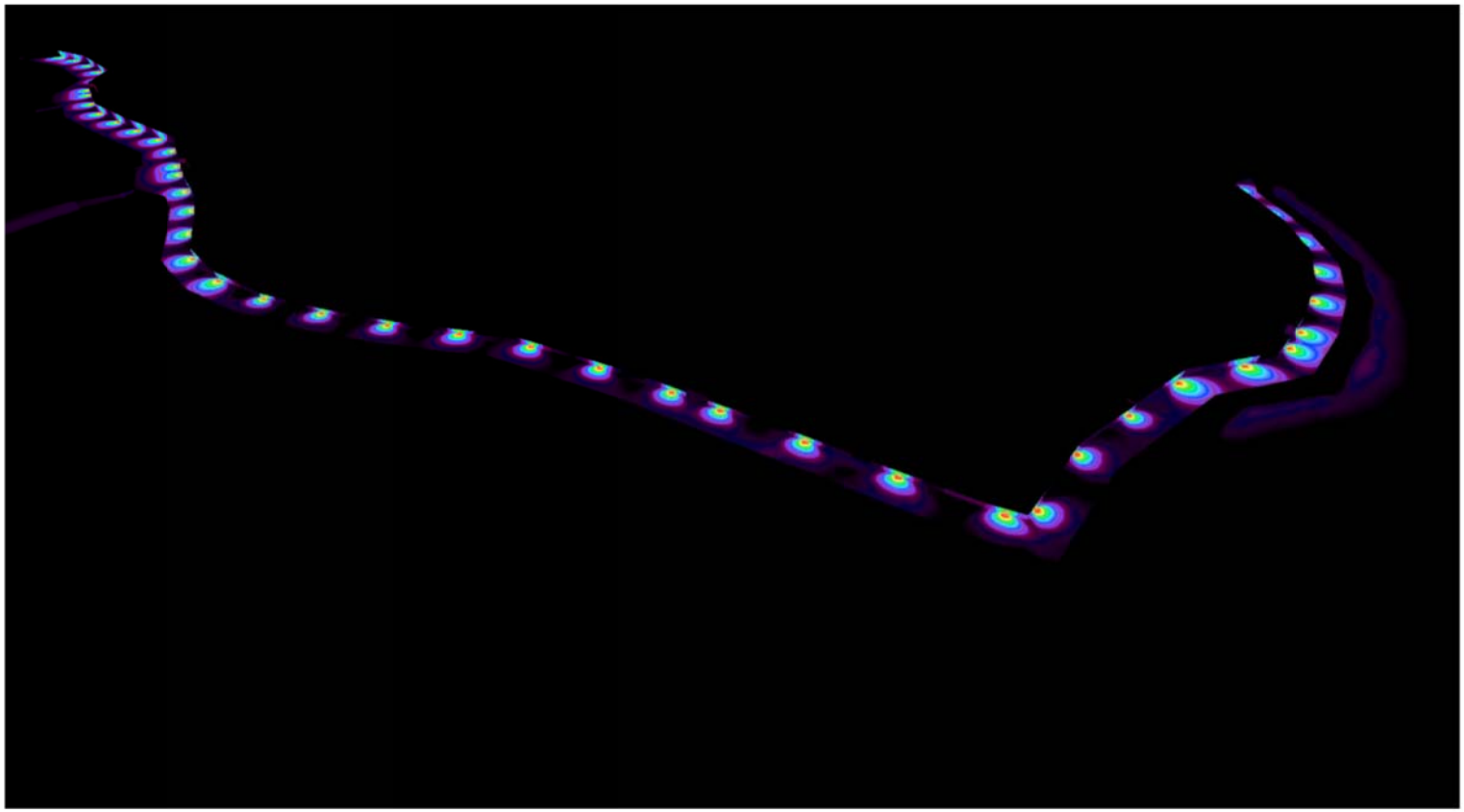
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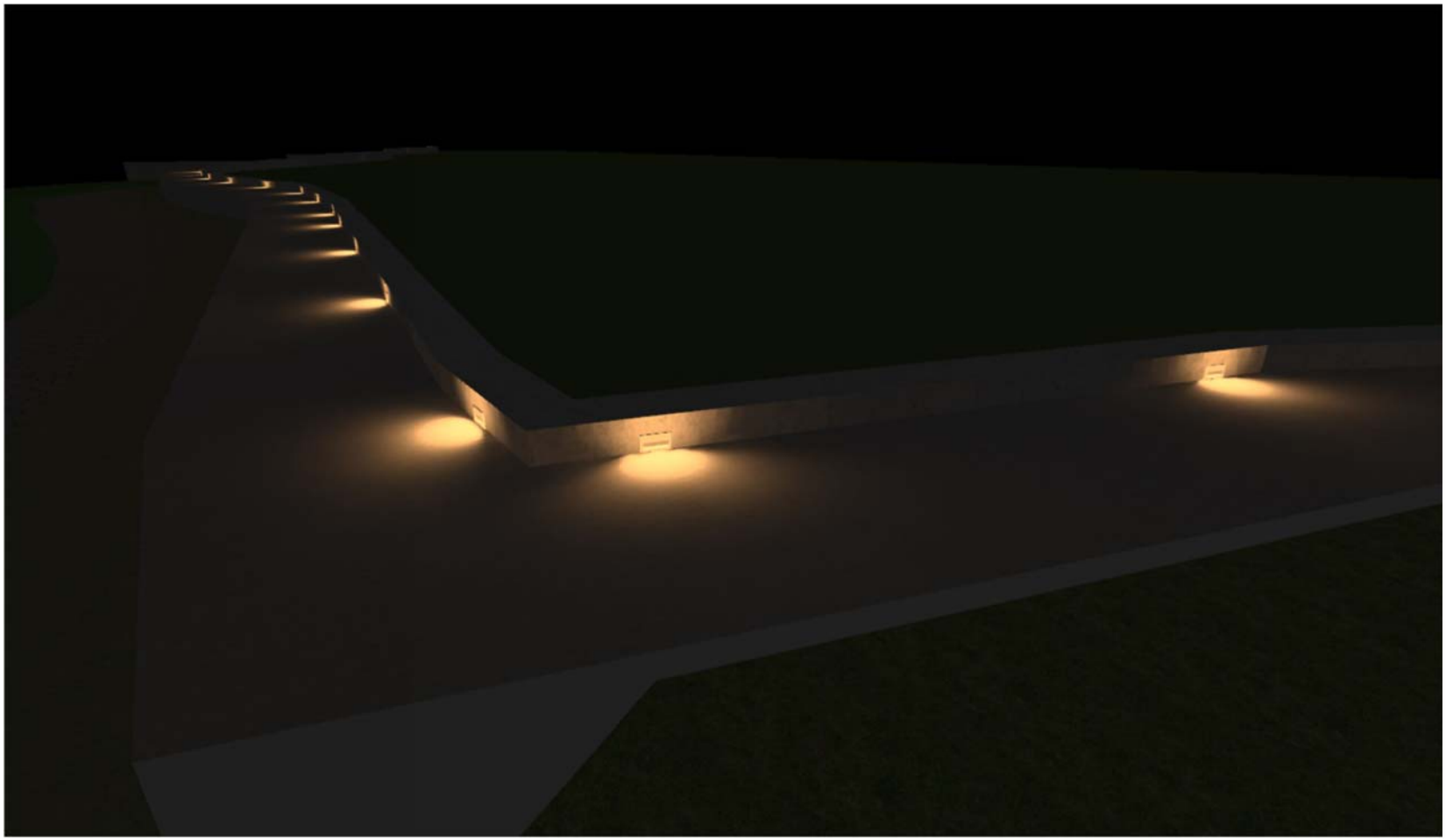

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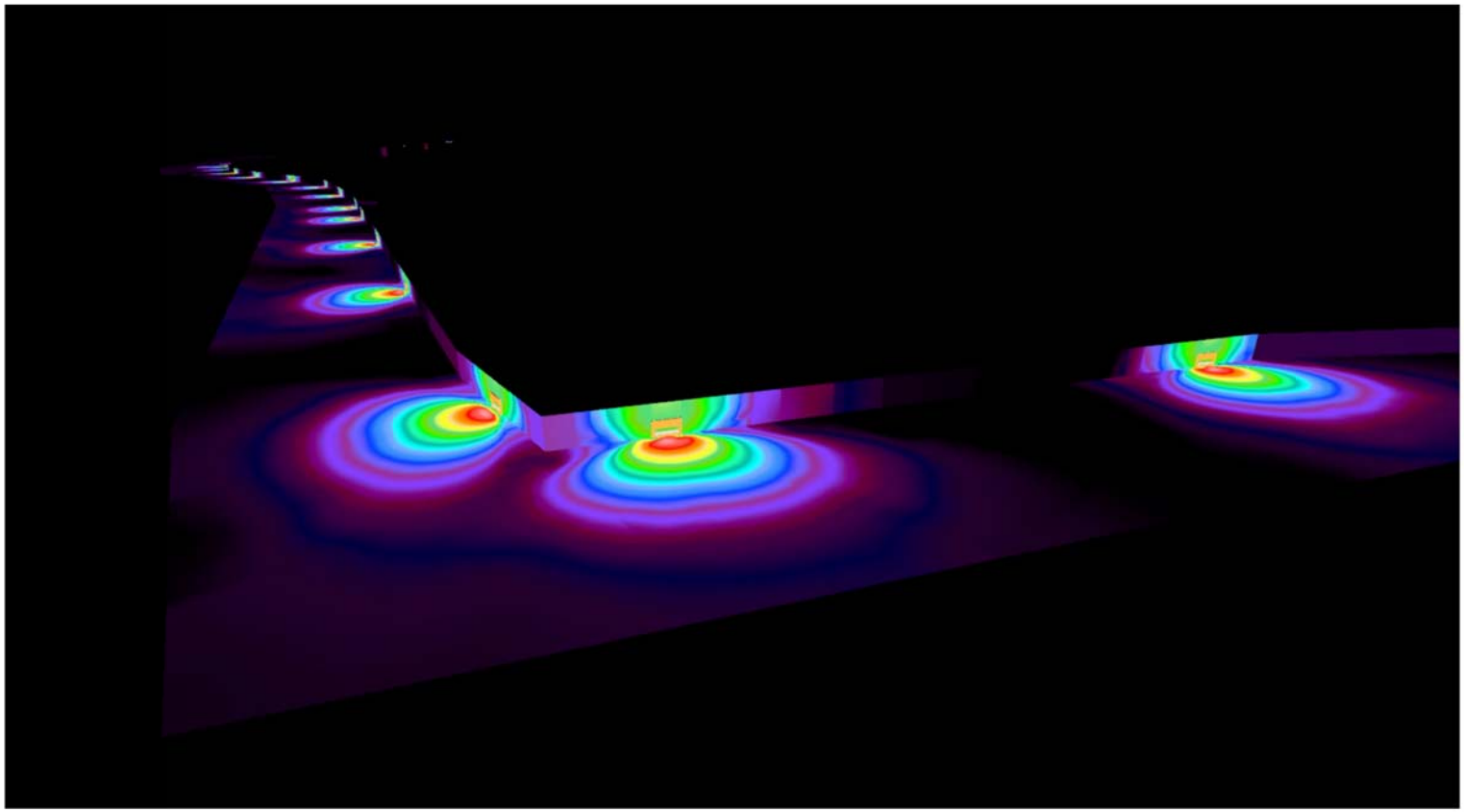


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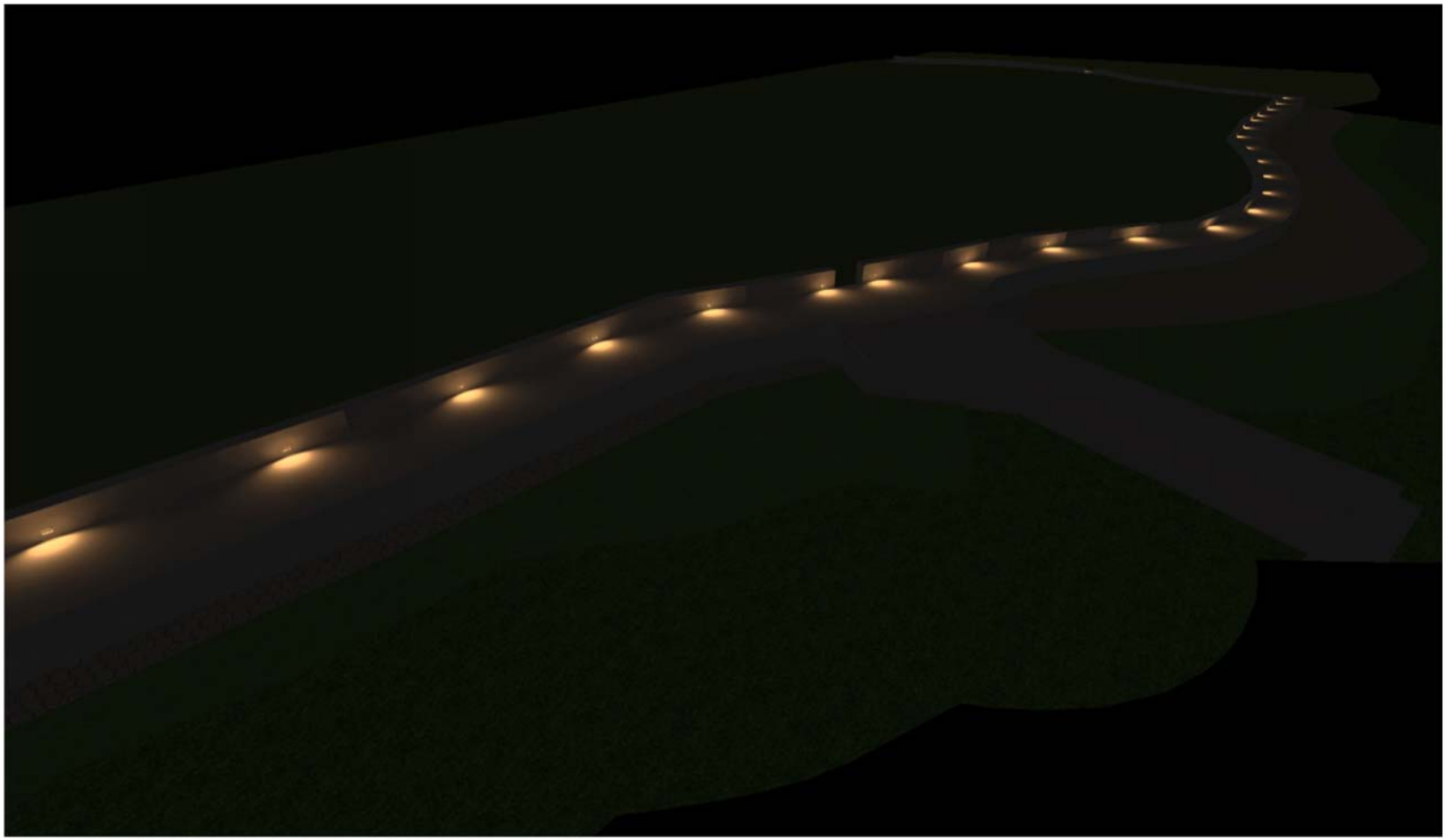

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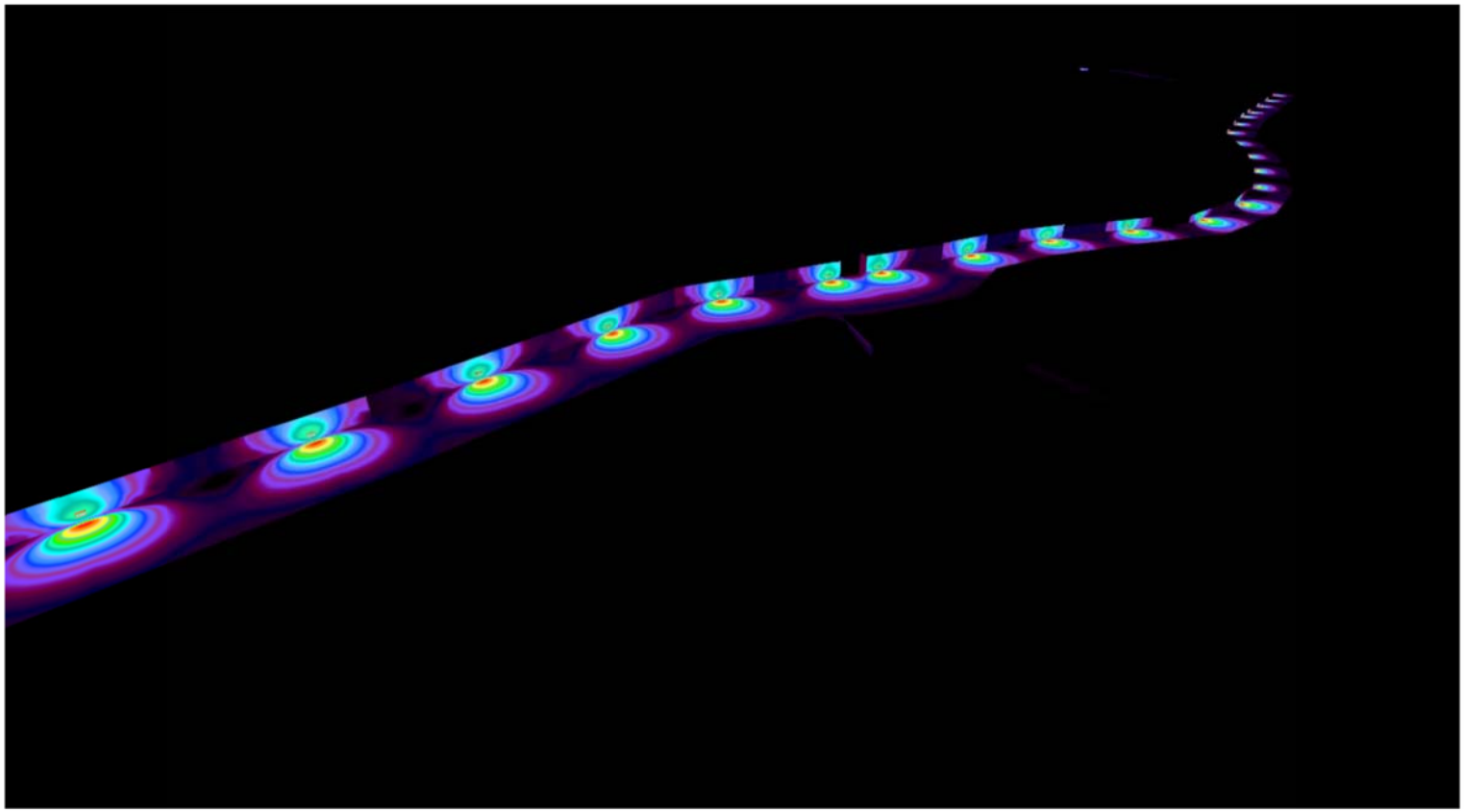
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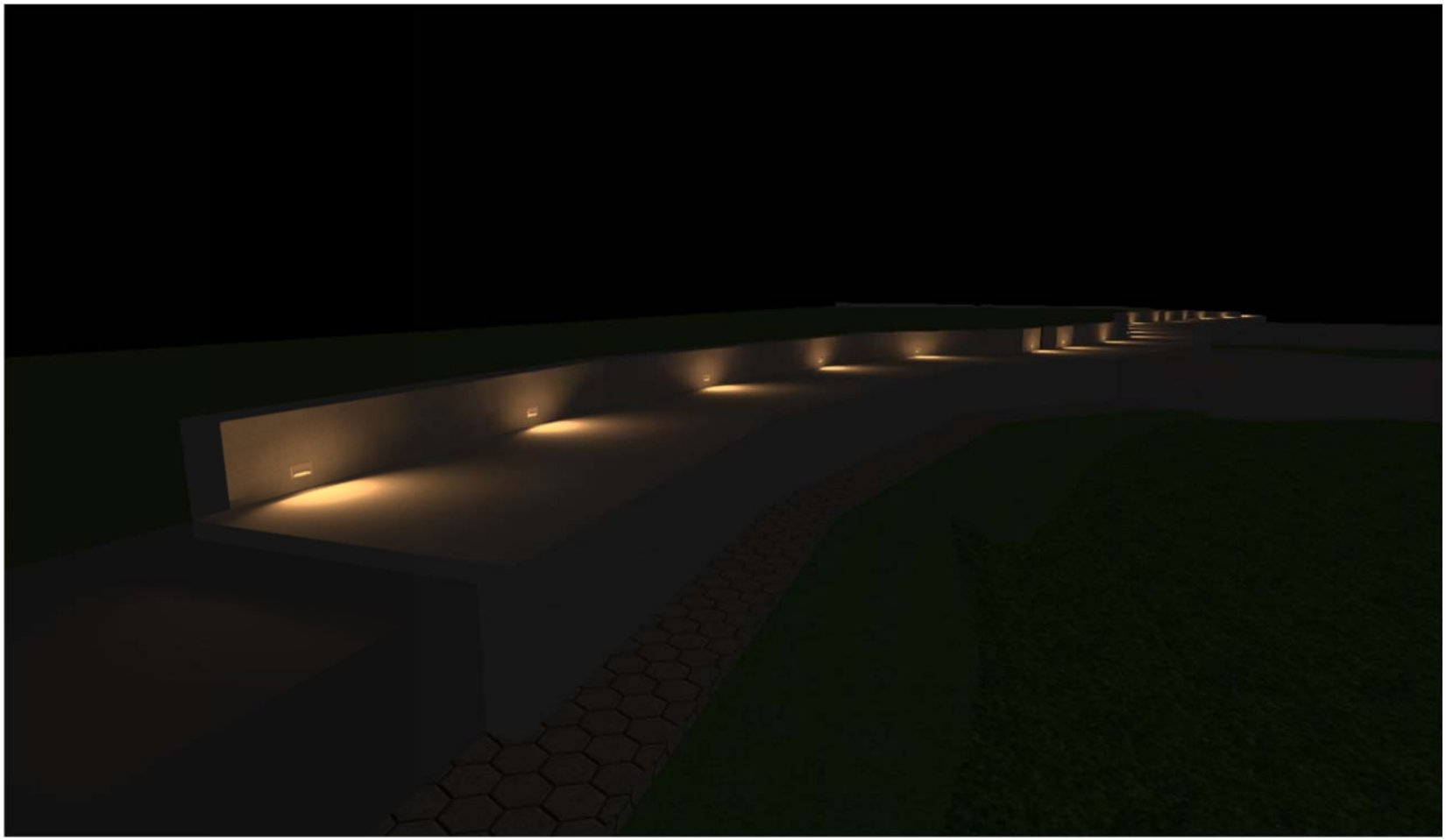

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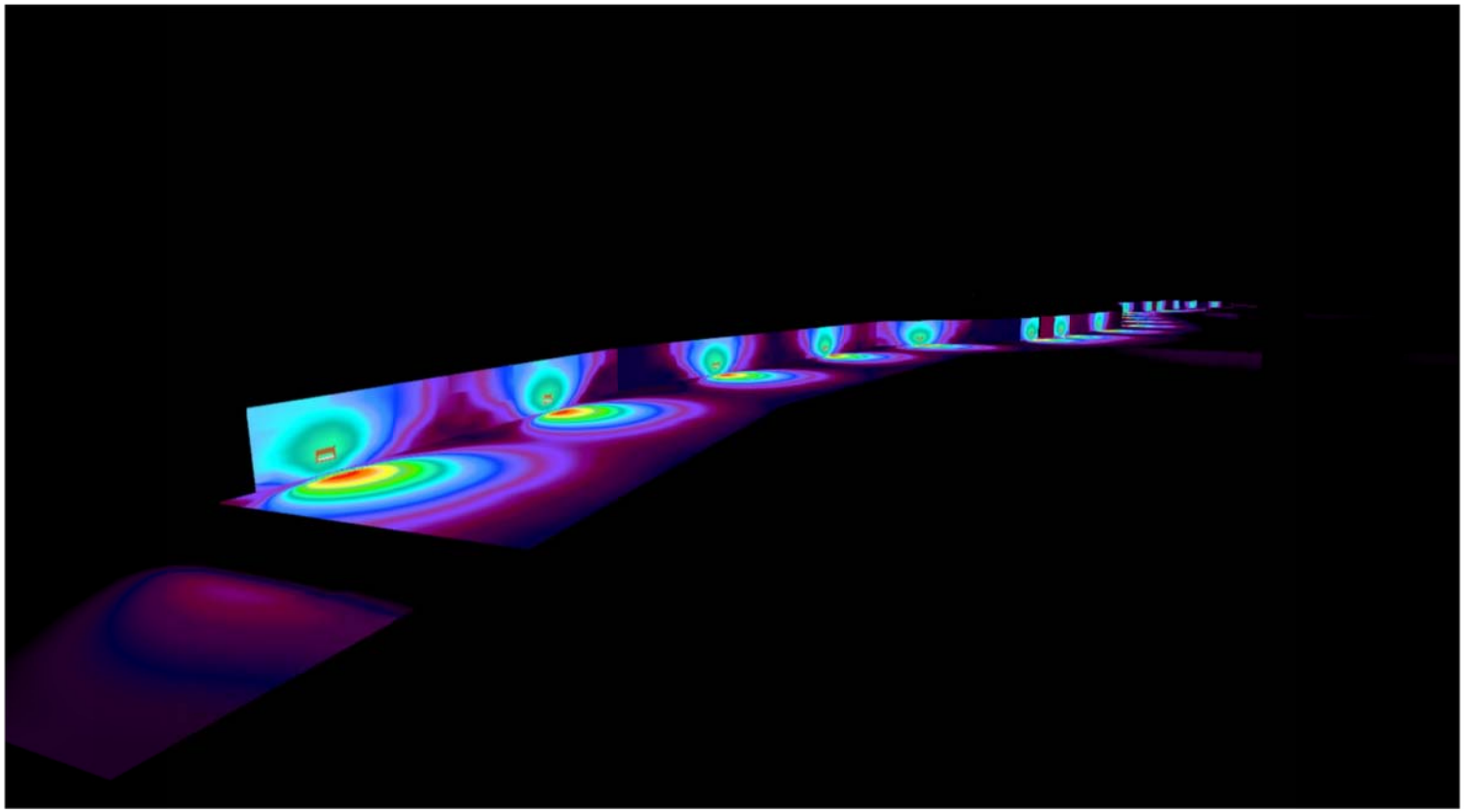
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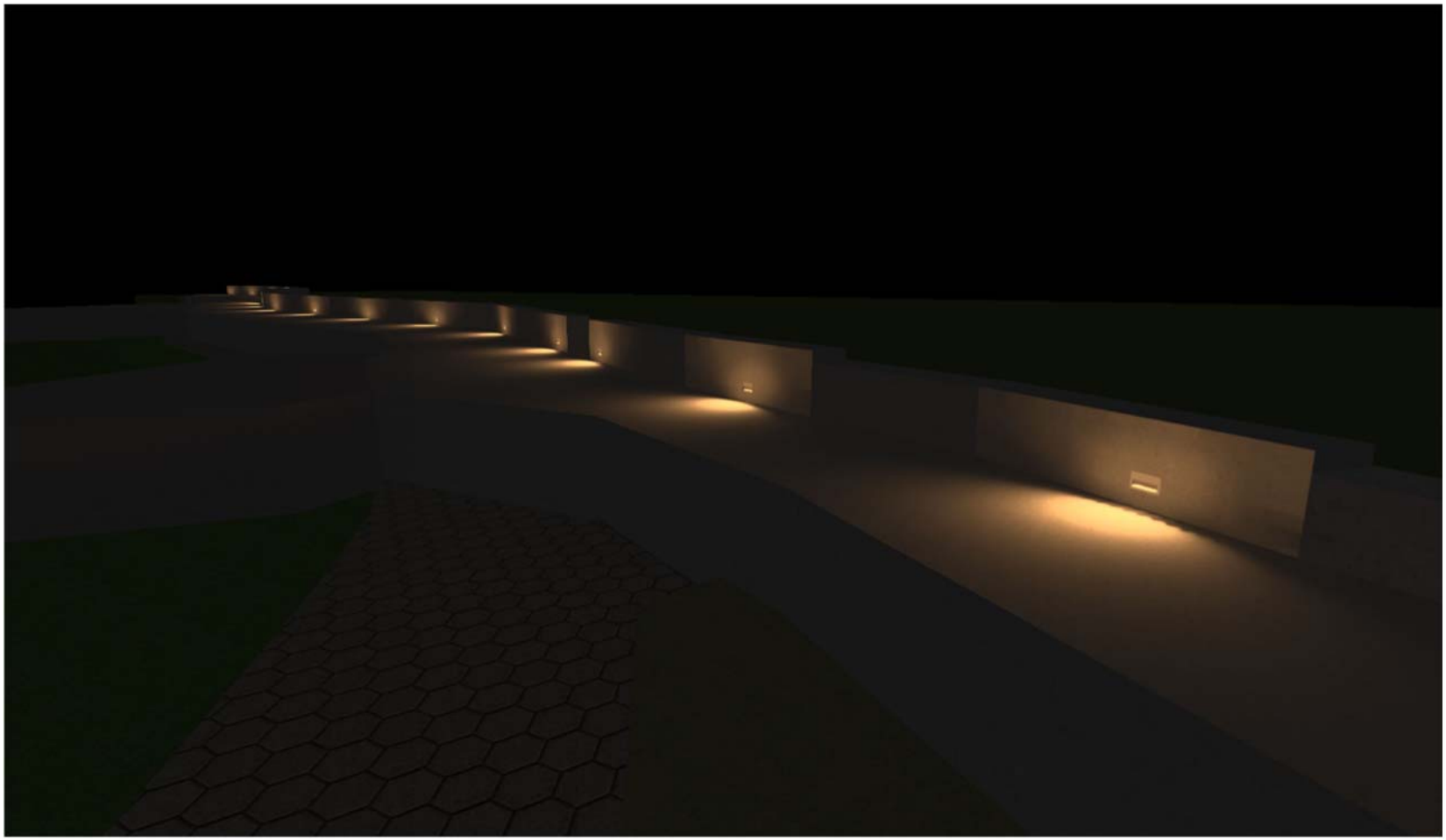

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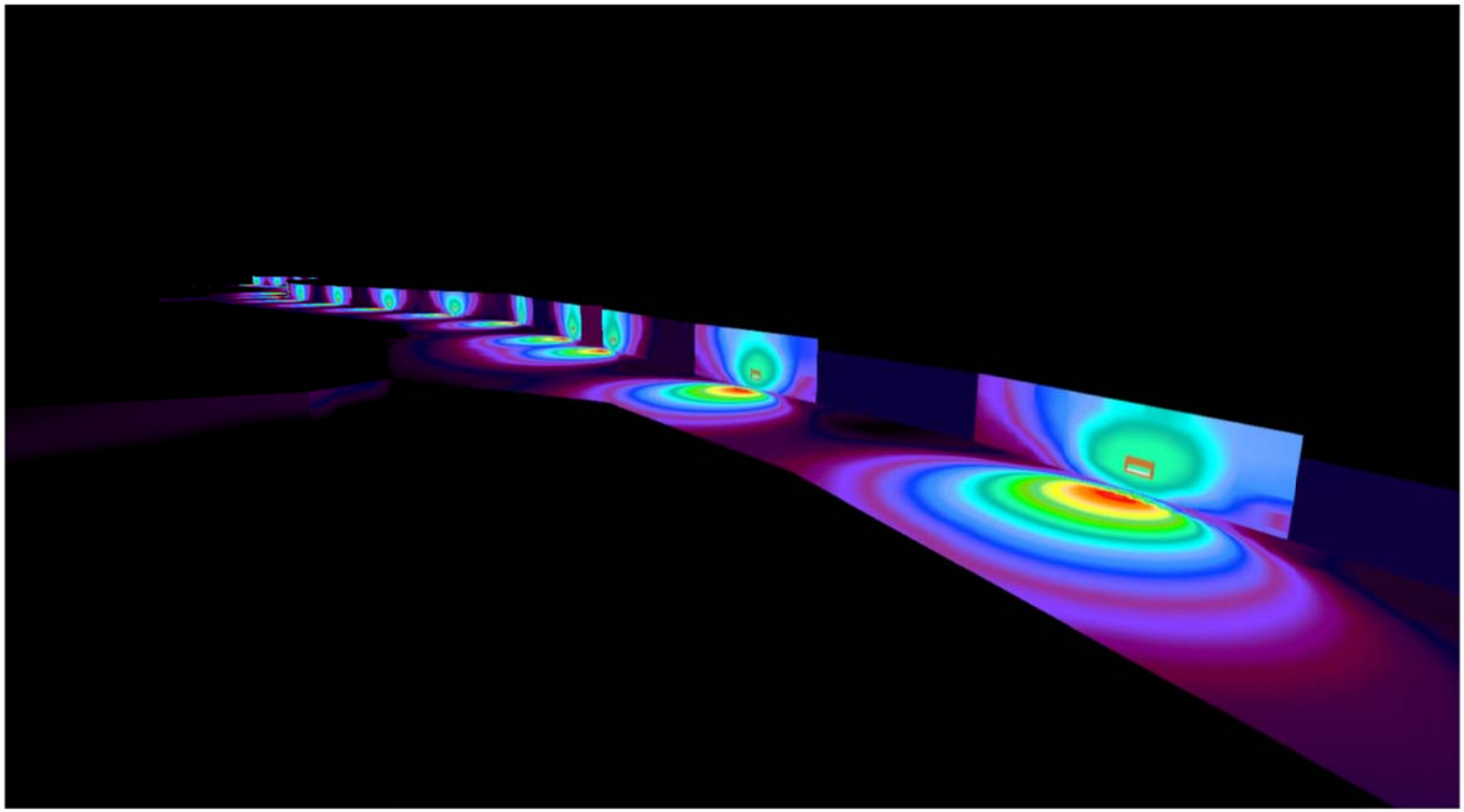
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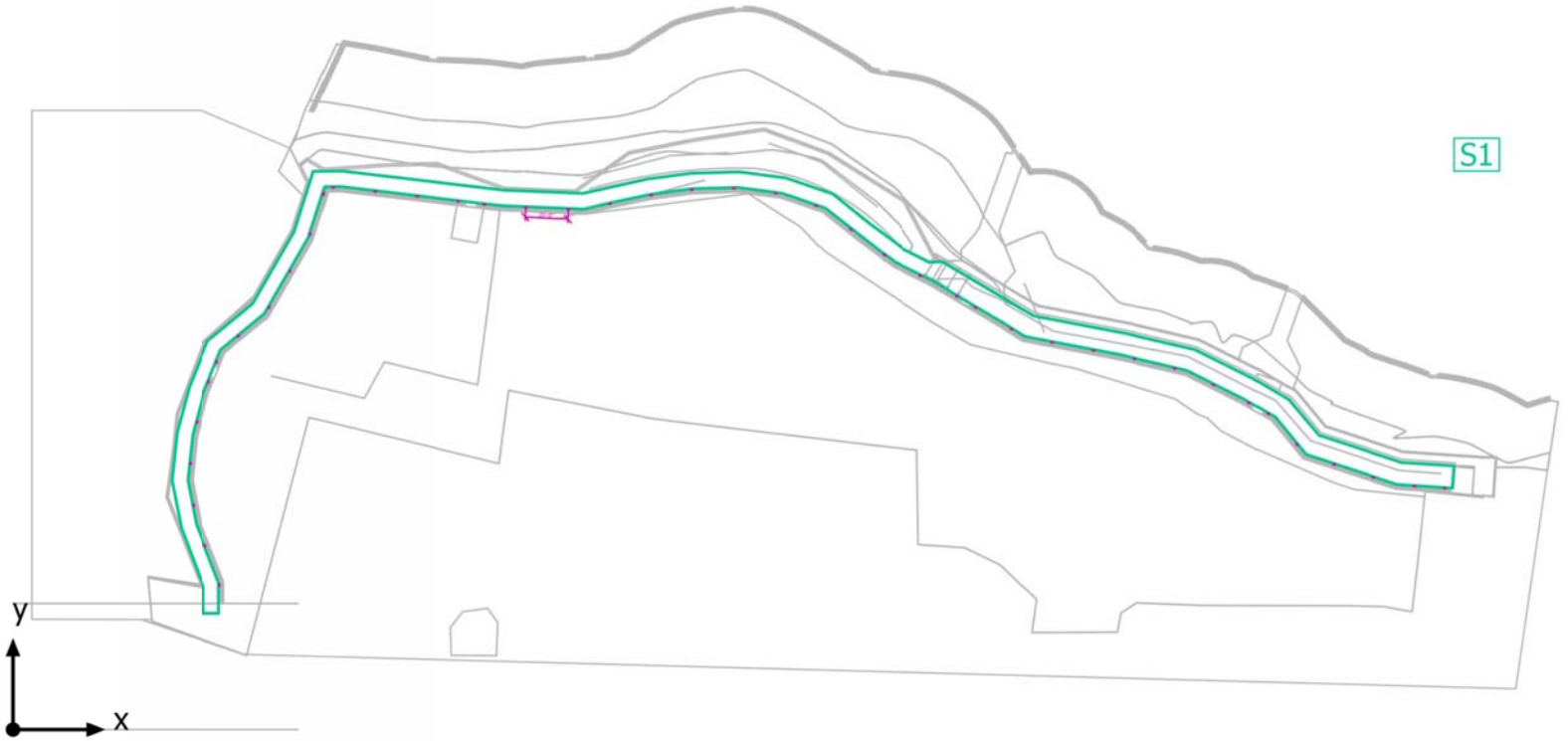
Site 1

Calculation objects



Site 1

Calculation objects

Calculation surfaces

Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
Floor surface Perpendicular illuminance Height: 0.600 ft	3.56 fc	0.001 fc	970 fc	0.000	0.000	S1

Utilisation profile: DIALux presetting, Standard (outdoor transportation area)

Site 1

Floor surface

Properties	Ē	E_{min}	E_{max}	g_1	g_2	Index
Floor surface Perpendicular illuminance Height: 0.600 ft	3.56 fc	0.001 fc	970 fc	0.000	0.000	S1

Utilisation profile: DIALux presetting, Standard (outdoor transportation area)

SECTION 31 62 16.13 - FIBER REINFORCED POLYMER (FRP) SHEET PILES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Driven FRP sheet piling.
B. Barricades, protection, temporary access roadways, maintenance and on-site testing.

1.02 REFERENCE STANDARDS

A. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges 2016.
B. AISC 360 - Specification for Structural Steel Buildings 2016.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.04 DEFINITIONS

A. Fiber Reinforced Polymer (FRP) – A thermoset polymer matrix reinforced with a fiber or other material with a sufficient aspect ratio (length to thickness) to provide a discernable reinforcing function in one or more directions.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
B. The manufacturer shall submit to the contractor three (3) copies of their most recent product brochure for the FRP sheet pile product covered by this specification.
C. The submitted FRP sheet pile shall be manufactured in accordance with the requirements of this specification and shall be a standard commercial product. Additional or better features which are not specifically prohibited by this specification, but which are a part of manufacturer's standard commercial product, shall be included in the FRP sheet pile being furnished. A standard commercial product is one that has been sold or is currently offered for sale on the commercial market through advertisements or manufacturer's catalogs or brochures, and represents the latest production model.
D. Shop Drawings: Submit drawings for approval of FRP sheet piles prior to start of the work or ordering materials. Include details of top protection, special reinforcing tips, tip protection, lagging, splices, fabricated additions to plain piles and driving, cut-off method, and corrosion protection.
    1. Include member locations, plans, elevations, dimensions, and shapes.
    2. Show complete dimensions on drawings, including minimum section properties and details of piling and the driving sequence and location of piling.
    3. Include details and dimensions of templates and other temporary guide structures for installing the piling.
    4. Include reinforcement required for sheet pile at penetrations.
    5. Include relationship of sheet pile units to adjacent materials.
    6. Design Modifications: If design modifications are proposed to meet performance requirements and field conditions, submit design calculations and shop drawings. Do not adversely affect the appearance, durability, or strength of units when modifying details or materials and maintain the general design concept.
E. Certificates: Submit certificates for the following:
    1. Pile pulling method.

2. Material certificates.
3. Pile driving equipment.

F. Project Record Documents: Accurately record the following:
1. Sizes, lengths, and locations of piles.
2. Sequence of driving.
3. Number of blows per foot for entire length of piles and measured set for last 10 blows.
4. Identify piles requiring drilling, and hole diameters.
5. Final base and top elevations.
6. Driving force of each hammer blow.

1.06 QUALITY ASSURANCE

A. The manufacturer shall have in place a Quality Assurance Program that will ensure the FRP sheet pile is in conformance the intent of this specification. Each delivered section of FRP sheet pile shall be examined by an inspector of purchaser's designation for compliance with the appropriate requirements of this specification. This inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more major defects preventing or lessening maximum efficiency shall constitute cause for rejection.

B. Material Certificates: For each shipment, submit certificates identified with specific lots prior to installing piling. Identification data should include piling type, dimensions, chemical composition, mechanical properties, section properties, heat number, and mill identification mark.

C. Pile Driving Equipment: Submit descriptions of pile driving equipment to be employed in the work. Descriptive information includes manufacturer's name, model numbers, capacity, rated energy, hammer details, cushion material, helmet, templates, and jetting equipment.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle piling using handling holes or lifting devices.

B. Handle long length piles with care to prevent damage.

C. Support on level blocks or racks spaced not more than 10 feet apart and not more than 2 feet from the ends. Provide supports between multiple lifts in a vertical plane.

D. Protect piling to prevent damage to coatings and to prevent corrosion prior to installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. FRP Sheet Piles:
1. Everlast Synthetic Products, LLC
2. Or Approved Equal

2.02 MATERIALS

A. Polymer (resin) – The resin for the FRP sheet pile shall be either polyester or vinyl ester. Resin shall contain U.V. stabilizers to provide sufficient resistance to ultra violet light degradation. No other resins will be accepted for use on this project.

B. Reinforcement – The glass reinforcement shall be in the form of continuous roving, woven roving or stitched fabrics, and surface matting. The finished FRP sheet pile product shall meet the minimum section properties shown in Table I.

C. General Configuration – The FRP sheet pile shall be Z-shaped with a ball and socket interlock and meet the dimensional tolerances shown in Table II. The FRP sheet pile shall be gray in color

unless otherwise stated in this specification document.

2.03 MANUFACTURING PROCESS

A. FRP sheet pile shall be manufactured using the pultrusion process. Pultrusion is defined as the continuous processing of raw materials by pulling resin-rich reinforcements through a heated steel die to form profiles of constant cross section of continuous length.

2.04 PROPERTIES

A. As indicated on Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with manufacturer's guidelines as noted in the installation guide.
   1. FRP sheet pile shall be installed using traditional driving methods including vibratory hammers, impact hammers or water jets. Contractor should contact manufacturer for specific hammer recommendations.
   2. Cutting and Drilling – FRP sheet pile can be cut using carbide edged masonary blades and drilled with carbide or cobalt tipped bits.
   3. Repairability – If damaged, the FRP sheet pile may be repaired as per the manufacturer's recommendations.
   4. Bolts, Hardware, Wales, Tiebacks & Caps – As specified by project engineer and shown on plans.
   5. Workmanship, Finish, and Appearance – FRP sheet pile shall be furnished in accordance with this specification shall be an acceptable match to approved samples in color and surface appearance. The product shall be free of defects that adversely affect performance or appearance.

3.02 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Maintain a pile driving record for each sheet pile. Indicate on the installation record installation dates and times, type and size of hammer, rate of operation, total driving time, dimensions of driving helmet and cap used, blows required per foot for each foot of penetration, final driving resistance in blows for final 6 inches, pile locations, tip elevations, ground elevations, cut-off elevations, and any reheading or cutting of piles. Record any unusual pile driving problems during driving. Submit complete records to Architect.

C. Perform continuous inspection during pile driving. Inspect all piles for compliance with tolerance requirements. Bring any unusual problems that may occur to the attention of Architect.

D. Inspection of Driven Piling:
   1. Inspect the interlocks of the portion of driven piles that extend above ground. Remove and replace piles found to be out of interlock.
   2. Pulling and Redriving: Contractor may be required to pull selected piles after driving to determine the condition of the underground portions of piles. The pile pulling method must be approved by Architect. Remove and replace at Contractor's expense any pile pulled and found to be damaged to the extent that its usefulness in the structure is impaired. Redrive piles pulled and found to be in satisfactory condition.

END OF SECTION

DIVISION II

Construction Details

GENERAL CONSTRUCTION OPERATIONS

SECTION 100
CONSTRUCTION EQUIPMENT-GENERAL REQUIREMENTS

100-1 General.

Unless restricted to a specific type by the Contract Documents or the Engineer, the Contractor may perform the work using equipment, tools, machinery, etc., of his own choosing. Provide a unique alphanumeric identification number on all equipment (other than small tools) used on the project. This number shall be a minimum of 2 inches high and appear on both sides of the equipment. Place the number in such a manner so as to contrast sharply in color with the background on which it is placed. Ensure that the number, which may be painted or otherwise permanently affixed to the equipment, is clearly legible at all times. Upon submittal of Notice of Intent to Claim or Preliminary Time Extension Request, submit in accordance with 5-12.2, a list showing all equipment (other than small tools) for which the Contractor may request compensation, it's identification number with serial number, manufacturer, year manufactured, model and description. Update this list to account for equipment moving to or from the project and submit certification weekly, by close of business on Friday, the equipment, its unique number and the dates and hours that the equipment was assigned to this project for the proceeding week. No compensation will be made for any equipment used during any time period when the said equipment is not listed in the weekly certification. Failure to submit this information in the time specified may result in the Engineer withholding all Contract Payments until receipt of such information. Note that facilities to be constructed under the Contract are adequate to support only their design loads in their completed construction stage. If the Contractor's equipment or procedures during construction damage any part of the facility, the Contractor will replace or repair it as directed by the Engineer at no expense to the Department.
100-2 Equipment Condition and Approval.

100-2.1 Approval: Provide on site and in due time prior to its need, in working condition, all equipment to be used in construction of the project, subject to approval or disapproval by the Engineer. Use only factory recommended exhaust mufflers on internal combustion engines. Remove from the job, alter, or repair equipment which is disapproved by the Engineer. Ensure that the number of units, the sizes, etc., of the equipment on hand are adequate to complete the work within the Contract Time.

100-2.2 Maintenance: Consistent with public interest, safety, and good practice, maintain all equipment, tools, and machinery used in a satisfactory working condition throughout the period they are on the job site. Also, provide adequate equipment maintenance procedures to promote continuous satisfactory working condition and minimize noise pollution caused by construction equipment.

100-2.3 Stationary Equipment: Screen all stationary equipment such as pumps, compressors, generators, etc., from noise sensitive receivers if that equipment is to operate beyond normal working hours. If it is feasible, screen this equipment during normal working hours to reduce noise impacts.

100-3 Experimental Equipment.

100-3.1 General: To encourage the development and use of new or improved equipment, the Engineer may grant the Contractor permission to use equipment other than that normally used and currently accepted, upon approval of the Contractor's written request for permission to use such equipment in place of the normally used equipment. The Engineer, before considering or granting such request, may require that the Contractor establish, at his own expense, satisfactory evidence that the proposed equipment will produce work equal in quality to that produced by the specified equipment, and meets any applicable local, state or federal noise abatement laws, by-laws, ordinances and regulation in effect.

100-3.2 Conditions of Approval: When the Engineer grants permission for the use of new or improved equipment, understand that the Engineer gives such permission for the purpose of testing the quality of work this equipment actually produces. The Engineer will maintain the right to retract permission for use of the equipment at any time that, in his opinion, the Contractor does not obtain results that are at least equal to the results obtainable with currently accepted equipment. Upon the Engineer's withdrawal of such permission for the use of the equipment, use the equipment currently accepted and normal for the work, and remove and dispose of, or otherwise remedy, at no expense to the Department, any work which the Engineer considers defective or unsatisfactory as a result of the use of such experimental equipment. If the Engineer approved the use of particular equipment on a particular project, the Engineer's approval does not extend to the use of the particular equipment on any other project. Furthermore, the Contractor is fully responsible for producing finished work of the quality required by the Contract Documents.

SECTION 101
MOBILIZATION

101-1 Description.

Perform preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities.

Include the costs of bonds and any required insurance and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials.

101-2 Basis of Payment.

101-2.1 When a Separate Item is Included in the Proposal: When the proposal includes a separate item of payment for this work, the work and incidental costs specified as being covered under this Section will be paid for at the Contract lump sum price for the item of Mobilization.

Payment will be made under:

Item No. 101- 1- Mobilization -lump sum.

101-2.2 Partial Payments: When the proposal includes a separate pay item for Mobilization and the Notice to Proceed has been issued, partial payments will be made in accordance with the following:

For contracts of 120 contract days duration or less, partial payment will be made at 50% of the bid price per month for the first two months. For contracts in excess of 120 contract days duration, partial payment will be made at 25% of the bid price per month for the first four months. In no event shall more than 50% of the bid price be paid prior to commencing construction on the project site.

Total partial payments for Mobilization will be limited to 10% of the original Contract amount. Any remaining amount will be paid at Final Acceptance.

Retainage, as specified in 9-5, will be applied to all partial payments.

Partial payments made on this item will in no way act to preclude or limit any of the provisions for partial payments otherwise provided for by the Contract.

101-2.3 When No Separate Item is Included in the Proposal: When the proposal does not include a separate item for Mobilization, all work and incidental costs specified as being covered under this Section will be included for payment under the several scheduled items of the overall Contract, and no separate payment will be made therefore.

SECTION 102
MAINTENANCE OF TRAFFIC

102-1 Description.

Maintain traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. Construct and maintain detours. Provide facilities for access to residences, businesses, etc., along the project. Furnish, install and maintain traffic control and safety devices during construction. Furnish and install work zone pavement markings for maintenance of traffic (MOT) in construction areas. Provide any other special requirements for safe and expeditious movement of traffic specified in the Plans. MOT includes all facilities, devices and operations as required for safety and convenience of the public within the work zone.

Do not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work, and repair any damage to existing pavement open to traffic.

102-2 Materials.

Meet the following requirements:

Bituminous Adhesive	Section 970
Temporary Raised Pavement Markers	Section 990
Paint	Section 971
Removable Tape	Section 990
Glass Spheres	Section 971
Temporary Traffic Control Device Materials	Section 990
Retroreflective and Nonreflective Sheeting for Temporary Traffic Control Devices	Section 994

102-2.1 Temporary Traffic Control Devices: Use only the materials meeting the requirements of Section 990, Section 994, Standard Plans and the Manual on Uniform Traffic Control Devices (MUTCD).

102-2.2 Detour: Provide all materials for the construction and maintenance of all detours.

102-2.3 Commercial Materials for Driveway Maintenance: Provide materials of the type typically used for base, including reclaimed asphalt pavement (RAP) material, and having stability and drainage properties that will provide a firm surface under wet conditions.

102-3 Specific Requirements.

102-3.1 Beginning Date of Contractor's Responsibility: Maintain traffic starting the day work begins on the project or on the first day Contract Time is charged, whichever is earlier.

102-3.2 Worksite Traffic Supervisor: Provide a Worksite Traffic Supervisor who is responsible for initiating, installing, and maintaining all temporary traffic control devices as described in this Section and the Contract Documents. Provide all equipment and materials needed to set up, take down, maintain traffic control, and handle traffic-related situations. Use approved alternate Worksite Traffic Supervisors when necessary.

The Worksite Traffic Supervisor must meet the personnel qualifications specified in Section 105.

The Worksite Traffic Supervisor is to perform the following duties:

1. On site direction of all temporary traffic control on the project.
2. Is on site during all set up and take down, and performs a drive through inspection immediately after set up.
3. Is on site during all nighttime operations ensuring proper temporary traffic control.
4. Immediately corrects all safety deficiencies and corrects minor deficiencies that are not immediate safety hazards within 24 hours.
5. Is available on a 24 hour per day basis and present at the site within 45 minutes after notification of an emergency situation and is prepared to respond to maintain temporary traffic control or to provide alternate traffic arrangements.
6. Conducts daily daytime and weekly nighttime inspections of projects with predominately daytime work activities, and daily nighttime and weekly daytime inspections of projects with predominantly nighttime work activities of all traffic control devices, traffic flow, pedestrian, bicyclist, and business accommodations.

Advise the project personnel of the schedule of these inspections and give them the opportunity to join in the inspection as deemed necessary.

The Department may disqualify and remove from the project a Worksite Traffic Supervisor who fails to comply with the provisions of this Section. The Department may temporarily suspend all activities, except traffic, erosion control and such other activities that are necessary for project maintenance and safety, for failure to comply with these provisions.

102-3.3 Lane Closures: Approval for all lane closures, mobile operations, and traffic pacing operations is required. Submit routine requests to the Engineer fourteen calendar days in advance of planned lane closures, mobile operations, and traffic pacing operations. For unforeseen events that require cancelling or rescheduling lane closures, mobile operations, and traffic pacing operations, revise the lane closure request as soon as possible.

102-3.3.1 Traffic Pacing: In addition to dates and locations, include a pacing plan outlining the expected equipment and number of traffic control officers required, the proposed traffic pacing lengths and durations, the available existing egresses in the event of an emergency, and a contingency plan in the event of an equipment failure.

102-3.4 Pedestrian and Bicycle Accommodations: When an existing pedestrian or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided. Pedestrians are to be accommodated with a safe, accessible travel path around work sites separated from mainline traffic in compliance with the Americans with Disabilities Act (ADA) Standards for Transportation Facilities. Maintain existing or detour bicycle facilities satisfactorily throughout the project limits. Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs. Only approved pedestrian longitudinal channelizing devices may be used to delineate temporary traffic control zone pedestrian walkway. Existing businesses in work areas are to be provided with adequate entrances for vehicular and pedestrian traffic during business hours.

102-4 Alternative Traffic Control Plan.

The Contractor may propose an alternative traffic control plan (TCP) to the plan

presented in the Contract Documents. The Contractor's Engineer of Record must sign and seal the alternative plan and submit to the Engineer. Prepare the TCP in conformance with and in the form outlined in the current version of the FDOT Design Manual. Indicate in the plan a TCP foreach phase of activities. Take responsibility for identifying and assessing any potential impacts to a utility that may be caused by the alternate TCP proposed by the Contractor, and notify the Department in writing of any such potential impacts to utilities.

For projects with nighttime lane closure restrictions where paving is expected to extend into the winter months, the Contractor may propose an alternative TCP allowing for daytime lane closures for friction course paving. The alternative TCP must be a lane closure analysis based on actual traffic counts and prepared in accordance with the FDOT Design Manual.

Engineer's approval of the alternate TCP does not relieve the Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those in the original Contract Specifications, Design Plans (including TCPs) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

The Department reserves the right to reject any alternative TCP. Obtain the Engineer's written approval before beginning work using an alternate TCP. The Engineer's written approval is required for all modifications to the TCP. The Engineer will only allow changes to the TCP in an emergency without the proper documentation.

The Contractor may propose to extend lane closure times up to one hour in advance of the lane closure start times shown in the Plans for the following conditions:

1. Limited Access roadways with a traffic count of less than 1,300 vehicles per hour per lane
2. Arterials and Collector roadways with a traffic count of less than 1,550 vehicles per hour per lane.

To determine traffic count, record the number of vehicles in the direction of the closure during a 15-minute period. Multiply the number of vehicles by four and divide by the number of lanes in the direction of the closure.

102-5 Traffic Control.

102-5.1 Standards: FDOT Standard Plans are the minimum standards for the use in the development of all TCPs. The MUTCD, Part VI is the minimum national standard for traffic control for highway construction, maintenance, and utility operations. Follow the basic principles and minimum standards contained in these documents for the design, application, installation, maintenance, and removal of all traffic control devices, warning devices and barriers which are necessary to protect the public and workers from hazards within the project limits.

102-5.2 Maintenance of Roadway Surfaces: Maintain all lanes that are being used for the MOT, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonably free of dust, potholes and rutting. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions.

102-5.3 Number of Traffic Lanes: Maintain one lane of traffic in each direction. Maintain two lanes of traffic in each direction at existing four (or more) lane cross roads, where necessary to avoid undue traffic congestion. Do not allow traffic control and warning devices to encroach on lanes used for MOT.

The Engineer may allow the Contractor to restrict traffic to one-way operation for short periods of time provided that the Contractor employs adequate means of traffic control and does not unreasonably delay traffic. When a construction activity requires restricting traffic to one-way operations, locate the flaggers within view of each other when possible. When visual contact between flaggers is not possible, equip them with 2-way radios, official, or pilot vehicles, or use traffic signals.

102-5.4 Crossings and Intersections: Provide and maintain adequate accommodations for intersecting and crossing traffic. Provide signing for the control of traffic entering and leaving work zones by way of intersecting cross roads to make drivers aware of work zone conditions. Do not block or unduly restrict any median opening, road or street crossing the project unless approved by the Engineer. Before beginning any construction, submit to the Engineer the names and phone numbers of persons that can be contacted when signal operation malfunctions.

102-5.5 Access for Residences and Businesses: Provide continuous access to all residences and all places of business.

102-5.6 Protection of the Work from Injury by Traffic: Where traffic would be injurious to a base, surface course, or structure constructed as a part of the work, maintain all traffic outside the limits of such areas until the potential for injury no longer exists.

102-5.7 Flagger: Provide flaggers to control traffic when traffic in both directions must use a single lane and in other situations as required. All flaggers must meet the personnel qualifications specified in Section 105.

102-5.8 Conflicting Pavement Markings: Remove all existing pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) that conflict with temporary paths of vehicles, bicycles or pedestrians when the conflict will exceed 24 hours. Use any method, other than paint or sprayed asphalt, approved by the Engineer to remove existing pavement markings. Remove conflicting pavement markings using a method that will not damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

Remove all pavement markings that will conflict with “the next phase of operation” for vehicle, bicycle, and pedestrian paths as described above, before opening to vehicle or bicycle traffic or use by pedestrians.

Cost for removing conflicting pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) to be included in Maintenance of Traffic, lump sum.

102-5.9 Vehicle and Equipment Visibility: Equip all pickups and automobiles used on the project with a minimum of one Class 2 warning light that meets the Society of Automotive Engineers Recommended Practice SAE J595, dated November 1, 2008, or SAE J845, dated December 1, 2007, and incorporated herein by reference. Existing lights that meet SAE J845, dated March, 1992, or SAE J1318, dated April, 1986, may be used to their end of service life. The warning lights must be a high intensity amber or white rotating, flashing, oscillating or strobe light. Lights must be unobstructed by ancillary vehicle equipment such as ladders, racks or booms and be visible 360 degrees around the vehicle. If the light is obstructed, additional lights will be required. The lights must be operating when the vehicle is in a work area where a potential hazard exists, when operating at less than the average speed for the facility while performing work activities, making frequent stops or called for in the Plans or Standard Plans.

Equip all other vehicles and equipment with a minimum of 4 square feet of retroreflective sheeting or warning lights.

102-5.10 No Waiver of Liability: Conduct operations in such a manner that no undue hazard results due to the requirements of this Article. The procedures and policies described herein in no way acts as a waiver of any terms of the liability of the Contractor or his surety.

102-5.11 Work Zone Speed: Use the work zone speed in the TTCP. When field conditions warrant work zone speeds different from those in the TTCP, submit signed and sealed documentation to justify reducing the work zone speed limit to the Engineer for approval, or the Engineer may request the District Traffic Operation Engineer to investigate the need.

Sign work zone speed reductions in accordance with Standard Plans, Index 102-600 and the TTCP.

102-5.12 Limited Access Temporary Openings: When required by the Contract Documents, construct temporary openings in accordance with the Standard Plans. Submit a written request identifying the specific locations within the project limits to the Engineer.

Locate temporary openings in areas with adequate sight distance. Do not locate temporary openings with 1.5 miles of interchanges or within 2000 feet of the acceleration-deceleration lanes at rest areas, median openings, other access openings, or other highway service areas. Do not remove existing guardrail or barrier for temporary openings.

Use temporary pavement for the acceleration-deceleration lane surface of the temporary opening. Commercial material may be used for the driveway surface of the temporary opening. Install a gate at the limited access fence and keep the gate locked when the temporary opening is not in use.

Do not use temporary openings to transport materials to or from any other project.

Failure to comply with this Section and the Standard Plans, 102 Series shall be cause for the Engineer to terminate usage of the temporary opening. When the temporary opening is no longer needed, remove immediately and restore the area to pre-construction condition.

102-6 Detours.

102-6.1 General: Construct and maintain detour facilities wherever it becomes necessary to divert traffic, including pedestrians and bicyclists, from any existing facility, or wherever construction operations block the flow of traffic.

102-6.2 Construction: Plan, construct, and maintain detours for the safe passage of traffic in all conditions of weather. Provide the detour with all facilities necessary to meet this requirement.

Where pedestrian facilities are detoured, blocked or closed during the work, provide safe alternate accessible routes through or around the work zone meeting the requirements of the ADA Standards for Transportation Facilities. When temporary walkway surfaces and ramps are required to be constructed, ensure surfaces are stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment and stored materials. Install detectable warnings on temporary ramps in accordance with Section 522.

When the Plans call for the Department to furnish detour bridge components, construct the pile bents in accordance with the Plans, unless otherwise authorized by the Engineer.

Provide two Contractor representatives, who will be directly involved in the erection of Department-owned temporary bridging, to attend a mandatory one-day training session to be conducted at the Department's storage facility. No bridging will be released to the Contractor prior to the completion of this training.

Submit the following: company name, phone number, office address, project contact person, names of the representatives who will attend the training described above, project number, detour bridge type, bridge length, span length, location and usage time frames, to the Engineer at least 30 calendar days before the intended pick-up date, to obtain the storage facility location and list of components for the project. Upon receipt, the Engineer will, within 10 calendar days submit an approved material list to the Contractor and the appropriate Department storage yard.

Submit the name of the representative with authority to pick up components, to the Engineer at least 10 calendar days before the proposed pick-up date. The Department is not obligated to load the bridge components without this notice. Take responsibility and sign for each item loaded at the time of issuance.

Provide timber dunnage, and transport the bridge components from the designated storage facility to the job site. Unload, erect, and maintain the bridge, then dismantle the bridge and load and return the components to the designated storage facility.

Notify the Engineer in writing at least 10 calendar days before returning the components. Include in this notice the name of the Contractor's representative authorized to sign for return of the bridge components. The yard supervisor is not obligated to unload the bridge components without this notice.

The Department will provide equipment and an operator at the Department's storage facility to assist in loading and unloading the bridge components. Furnish all other labor and equipment required for loading and unloading the components.

The Department's representative will record all bridge components issued or returned on the Detour Bridge Issue and Credit Ticket. The tickets must be signed by a Department and a Contractor representative, after loading or unloading each truck to document the quantity and type of bridging issued or returned.

Bind together all bridge components to be returned in accordance with the instructions given by the storage facility. The yard supervisor will repack components that are not packed in compliance with these instructions. Upon request, written packing instructions will be made available to the Contractor, before dismantling of the bridge for return to the Department's storage facility.

Assume responsibility for any shortage or damage to the bridge components. Monies due the Contractor will be reduced at the rate of $35.00 per hour plus materials for repacking, repairs or replacement of bridge components.

The skid resistance of open steel grid decking on the detour bridge may decrease gradually after opening the bridge to traffic. The Department will furnish a pneumatic floor scabbler machine for roughening the roadway surface of the detour bridge decking. Provide an air compressor at the job site with 200 cubic feet per minute capacity, 90 psi air pressure for the power supply of the machine, and an operator. Transport the scabbler machine to and from the Department's structures shop. Repair any damage to the scabbler machine caused by operations at no expense to the Department. Perform scabbling when determined necessary by the Engineer. The Department will pay for the cost of scabbling as Unforeseeable Work in accordance with 4-4.

Return the bridge components to the designated storage facility beginning no later than 10 calendar days after the date the detour bridge is no longer needed, the date the new bridge is placed in service, or the date Contract Time expires, whichever is earliest. Return the detour bridging at an average of not less than 200 feet per week. Upon failure to return the bridge

components to the Department within the time specified, compensate the Department for the bridge components not returned at the rate of $5.00 per 10 feet, per day, per bridge, for single lane; and $10.00 per 10 feet, per day, per bridge, for dual lane until the bridge components are returned to the Department.

102-6.3 Construction Methods: Select and use construction methods and materials that provide a stable and safe detour facility. Construct the detour facility to have sufficient durability to remain in good condition, supplemented by maintenance, for the entire period that the detour is required.

102-6.4 Removal of Detours: Remove detours when they are no longer needed and before the Contract is completed. Take ownership of all materials from the detour and dispose of them, except for the materials on loan from the Department with the stipulation that they are returned.

102-6.5 Detours Over Existing Roads and Streets: When the Department specifies that traffic be detoured over roads or streets outside the project area, do not maintain such roads or streets. However, maintain all signs and other devices placed for the purpose of the detour.

102-6.6 Operation of Existing Movable Bridges: The Department will maintain and operate existing moveable bridges that are to be removed by the Contractor until such time as they are closed to traffic. During this period, make immediate repairs of any damage to such structures caused by use or operations related to the work at no expense to the Department, but do not provide routine repairs or maintenance. In the event that use or operations result in damage to a bridge requiring repairs, give such repairs top priority to any equipment, material, or labor available.

102-6.7 Special Detour: A special detour is defined as a diversion or lane shift for vehicular traffic that requires temporary pavement.

102-6.8 Pedestrian or Bicycle Special Detour: A pedestrian or bicycle special detour is defined as a temporary pedestrian or bicycle way that requires temporary pavement or other stable, firm, slip-resistant surface.

102-7 Traffic Control Officer.

Provide uniformed law enforcement officers, including marked law enforcement vehicles, to assist in controlling and directing traffic in the work zone when the following types of work is necessary on projects:

1. When directing traffic/overriding the signal in a signalized intersection.
2. When Standard Plans, Index 102-607 is used on freeway facilities (interstates, toll roads, and expressways) at nighttime for work within the travel lane.
3. When Standard Plans, Index 102-655 Traffic Pacing is called for in the Plans or approved by the Engineer.
4. When pulling conductor/cable above an open traffic lane on limited access facilities, when called for in the Plans or approved by the Engineer.
5. When Standard Plans, Index 102-625 Temporary Road Closure 5 Minutes or Less is used.
6. When performing lane closures during nighttime operations on roadways with posted speed limits 55 mph or greater.

At no additional cost to the Department, traffic control officers may be used for operations other than those listed above.

The Department will not consider any claim arising from the failure of a traffic control officer to be present or available on the project. A noncompensable time extension may be

granted when a state or local emergency requires all area law enforcement officers to be on-duty and not available for hire.

102-8 Driveway Maintenance.

102-8.1 General: Ensure that each residence and business has safe, stable, and reasonable access.

102-8.2 Construction Methods: Place, level, manipulate, compact, and maintain the material, to the extent appropriate for the intended use.

As permanent driveway construction is accomplished at a particular location, the Contractor may salvage and reuse previously placed materials that are suitable for reuse on other driveways.

102-9 Temporary Traffic Control Devices.

102-9.1 General: Use only devices that are listed on the APL. Immediately remove or cover, using any method of covering approved by the Engineer, any existing or temporary devices that do not apply to current conditions.

The use of NCHRP Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features devices purchased prior to January 1, 2020 is permitted on projects let prior to January 1, 2030. All devices manufactured or purchased on or after January 1, 2020 must be MASH compliant in accordance with Section 990.

The APL number is to be permanently marked on the device at a readily visible location. Sheeting used on devices and pavement markings are exempt from this requirement.

Notify the Engineer in writing of any scheduled operation that will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit review of the plan for the proposed installation of temporary traffic control devices.

Assign an employee the responsibility of maintaining the position and condition of all temporary traffic control devices throughout the duration of the Contract. Keep the Engineer advised at all times of the identification and means of contacting this employee on a 24 hour basis.

Maintain temporary traffic control devices in the correct position, properly oriented, clearly visible and clean, at all times. All applicable temporary traffic control devices must meet the classification category of Acceptable as defined in the American Traffic Safety Services Association (ATSSA) Quality Guidelines for Temporary Traffic Control Devices and Features. Temporary concrete barriers must meet the classification category of Acceptable defined in the Department's Temporary Concrete Barrier Evaluation Guide, which may be viewed at the following URL: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/programmanagement/implemented/urlinspecs/files/docs/default-source/content-docs/programmanagement/implemented/urlinspecs/files/temporaryconcretebarrierguide.pdf.pdf?sfvrsn=343b4c97_10. Pedestrian longitudinal channelizing devices (LCDs) must meet the classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide, which may be viewed at the following URL: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/programmanagement/implemented/urlinspecs/files/lcdevaluationguide.pdf?sfvrsn=166e0f16_2. Immediately repair, replace or clean damaged, defaced or dirty devices. Traffic control devices must not be cleaned while installed/used. Use of warning lights on any temporary traffic control device is prohibited, with the exception of the trailer mounted portable regulatory signs.

Employ an approved independent Channelizing Device Supplier (CDS) to provide and maintain the condition of the following non-fixed channelizing devices: drums, cones, vertical panels, barricades, temporary tubular markers, and pedestrian longitudinal channelizing devices. Cones may be provided and maintained by the Contractor.

The CDS shall not be affiliated with the Contractor and must be approved by the Department. Department approved CDSs are listed on the State Construction Office website. CDSs seeking inclusion on the list must meet the requirements of 102-9.1.1. The CDS shall submit a monthly certification on letterhead that the channelizing devices mentioned above installed/used within the work zone meet classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The CDS shall submit the monthly certification on letterhead for channelizing devices installed/used within the work zone. The CDS certification shall include the following statement, “I certify that I have provided and maintained the following devices <list devices covered under the certification> in accordance with Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features.” If the Contractor chooses to provide and maintain cones, the Contractor must submit a monthly Contractor certification on letterhead that all cones installed/used within the work zone meet acceptable standards as outlined in the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The Contractor certification shall include the following statement, “I certify that I have provided and maintained cones in accordance with the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features.”

102-9.1.1 Approved Independent Channelizing Device Supplier (CDS)

Requirements: Submit the following documents to the State Construction Office for review and approval

1. A letter on company letterhead signed and dated by the owner of the company or company officer with the following information and statements:

a. The company’s owners, stockholders, and officers.

b. A statement declaring that the company will not perform as a CDS on any project where there is common ownership, directly or indirectly, between the company and the Contractor.

c. A statement declaring that the company will furnish and maintain the condition of all channelizing devices with the exception of cones as required in 102-9.1 with its own forces.

d. A statement declaring at least five years of experience in providing channelizing device supplier services, with its own inventory of channelizing devices.

e. On a separate sheet, list a sample project history of the company’s experience as a channelizing device supplier for the five years declared in item 1(d) above including the following information:

1. Project name and number and a brief description of CDS work performed,
2. Beginning and ending date of CDS project activities,
3. Location of project (city, state),
4. Monetary amount of CDS work on project,
5. Owner of project, contact person and phone number with area code,

6. Name of Contractor (client) that the work was performed for and phone number with area code.

2. A maintenance plan for approval by the Department that outlines the frequency and methods for maintaining the condition of all channelizing devices, except cones owned and maintained by the Contractor, installed/used in the work zone.

102-9.2 Work Zone Signs: Furnish, install, maintain, remove and relocate signs in accordance with the Plans and Standard Plans, Index 102-600.

102-9.2.1 Post Mounted Signs: Meet the requirements of 990-8.

102-9.2.2 Portable Signs: Use only approved systems, which includes sign stands and attachment hardware (nuts, bolts, clamps, brackets, braces, etc.), meeting the vendor requirements specified on the APL drawings.

102-9.2.3 Barrier Mounted Signs: If post mounting criteria cannot be achieved in accordance with Standard Plans, Index 102-600 and a barrier or traffic railing exists, use temporary sign criteria provided in Standard Plans, Index 700-012 or Index 700-013. Use Standard Plans, Index 700-012 only when mounting the sign to the top of the barrier or traffic railing places the sign panel closer than two feet from the traveled way.

102-9.3 Business Signs: Provide and place signs in accordance with the Plans and Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of Section 990.

102-9.4 Project Information Signs: Provide and place signs in accordance with the Plans and Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of Section 990.

102-9.5 Channelizing Devices: Furnish, install, maintain, remove and relocate channelizing devices in accordance with the Plans and Standard Plans.

102-9.5.1 Retroreflective Collars for Traffic Cones: Use collars for traffic cones listed on the APL that meet the requirements of Section 990. Use cone collars at night designed to properly fit the taper of the cone when installed. Place the upper 6 inch collar a uniform 3-1/2 inches distance from the top of the cone and the lower 4 inch collar a uniform 2 inches distance below the bottom of the upper 6 inch collar.
Collars must be capable of being removed for temporary use or attached permanently to the cone in accordance with the manufacturer's recommendations. Provide a white sheeting having a smooth outer surface and that has the property of a retroreflector over its entire surface.

102-9.5.2 Pedestrian Longitudinal Channelizing Devices (LCDs): Use LCDs listed on the APL for pedestrian use and meeting the requirements of Section 990 and the Standard Plans. Pedestrian LCDs must be interlocked except for the stand-alone unit placed perpendicular to a sidewalk. For pedestrian LCDs requiring internal ballasting, an indicator that clearly identifies the proper ballast level will be required. For pedestrian LCDs requiring external ballasting, the ballasting methods must be detailed in the APL drawings including ballasting type and minimum weight.

Ensure that joints on the pedestrian LCDs are free of sharp edges and have a maximum offset of 1/2 inch in any plane.

102-9.6 Temporary Barrier: Furnish, install, maintain, remove and relocate temporary barrier in accordance with the Plans and Standard Plans. Obtain and use precast temporary concrete barrier from a manufacturing plant that is on the Department's Production Facility Listing. Temporary concrete barrier must meet the material and construction requirements of

Section 521 unless noted otherwise in the Standard Plans. Proprietary temporary concrete, steel, or water filled barrier used must be listed on the APL.

The maximum allowable height increase between consecutive temporary barrier units in the direction of traffic is 1 inch.

Temporary barrier must comply with Standard Plans, Index 102-100 or 102-120. Install temporary barriers as either anchored or freestanding as shown in the Plans or the Standard Plans. An anchored unit is defined as having at least one stake or bolt into the underlying pavement or bridge deck. All other units, including those with keeper pins, are considered freestanding.

Remove temporary asphalt pads and repair all attachment scars to permanent structures and pavements after barrier removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the Department. Restore barrier damaged by the traveling public within 24 hours after notification as authorized by the Engineer.

Trailer mounted barriers listed on the APL may be used at the option of the Contractor. Trailer mounted barriers listed on the APL must have an FHWA eligibility letter and be successfully crash tested in accordance with MASH TL-3 criteria. All trailer mounted barriers must be equipped with an APL listed truck mounted attenuator, an APL listed vehicle mounted arrow board and vehicle warning lights in accordance with this Section.

102-9.6.2.1 Temporary Barrier Meeting the Requirements of Standard Plans, Index 102-120 and 102-110: Ensure the marking requirements of the respective Index are met.

102-9.6.2.2: Proprietary Precast Temporary Concrete Barrier Fabricated prior to 2005: Submit a certification stating that all unmarked barrier units meet the requirements of the Specifications and the Standard Plans. Certifications will be project specific and non-transferable.

102-9.6.2.3 Proprietary Precast Temporary Concrete Barrier Fabricated in 2005 or later: Ensure each barrier unit has permanent clear markings, showing the manufacture date, serial number, manufacturer's name or symbol, and the APL number. Label the markings on a plate, plaque, or cast in the unit. Proprietary barrier fabricated prior to 2016 and marked with the "INDX 521" in lieu of the APL number will be permitted.

102-9.6.2.4 Temporary Concrete Barrier Repair: Before beginning the repair, remove all laitance, loose material, and any other deleterious matter to sound concrete or a minimum depth of one inch. Additionally, when reinforcing bars, inserts or weldments are exposed, remove the concrete to provide a minimum one inch clearance all around. Fill the repair area with an approved high performance concrete repair material in accordance with 930-5 and the manufacturer's recommendations. Restore surfaces and edges to the original dimensions and shape of the barrier.

Repairs are not allowed on barrier units that have one or more of the following deficiencies: structural cracking or cracks that exist through the entire cross-section; unit-to-unit connection assemblies or anchor slots are broken or no longer in a fixed position.

Do not paint repaired barriers.

102-9.7 Barrier Delineators: Install barrier delineators on top of temporary barrier and vehicular LCDs meeting the requirements of Section 705.

102-9.8 Temporary Glare Screen: Use temporary glare screens listed on the APL that meet the requirements of Section 990. Furnish, install, maintain, remove and relocate glare screen systems in conjunction with temporary barrier at locations identified in the Plans.

The anchorage of the glare screen to the barrier must be capable of safely resisting an equivalent tensile load of 600 pounds per foot of glare screen, with a requirement to use a minimum of three fasteners per barrier section.

When glare screen is utilized on temporary barrier, barrier delineators will not be required.

102-9.9 Temporary Crash Cushion (Redirective or Gating): Furnish, install, maintain and subsequently remove temporary crash cushions in accordance with the details and notes shown in the Plans, Standard Plans, and requirements of the pre-approved alternatives listed on the APL.

Temporary crash cushions can be either new or used functionally sound refurbished devices. Performance of intended function is the only condition for acceptance. All metallic components must be galvanized in accordance with Section 967.

Anchor abutting temporary barrier in accordance the Standard Plans or APL drawings, as required. Bidirectional installations must have a transition panel installed between the crash cushion and the abutting barrier. Delineate the crash cushion in accordance with Section 544. Maintain the crash cushions until their authorized removal. Do not place any materials or equipment within the length of the crash cushion.

Remove temporary asphalt or concrete pads and repair all attachment scars to permanent structures and pavements after crash cushion removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the Department. Restore crash cushions damaged by the traveling public within 24 hours after notification as authorized by the Engineer.

102-9.10 Temporary Guardrail: Furnish temporary guardrail in accordance with the Plans and Standard Plans. Meet the requirements of Section 536.

102-9.11 Arrow Board: Furnish arrow boards that meet the requirements of Section 990 as required by the Plans and Standard Plans to advise approaching traffic of lane closures or shoulder work. Ensure that the arrow board display panel is raised to a fully upright position and is fully visible to motorists. Type B arrow boards may be used on low to intermediate speed (0 mph to 50 mph) facilities or for maintenance or moving operations on any speed facility. Type C arrow boards must be used for all other operations on high-speed (50 mph and greater) facilities and may be substituted for Type B arrow boards on any speed facility.

102-9.12 Portable Changeable Message Sign (PCMS): Use PCMSs or truck mounted changeable message signs that meet the requirements of Section 990 as required by the Plans and Standard Plans to supplement other temporary traffic control devices used in work zones. Ensure that the PCMS display panel is raised to a fully upright position and is fully visible to motorists. Reduce the intensity of the flashers when using PCMS at night. Use PCMS with a minimum letter height of 18 inches. For facilities with posted speed limits of 45 mph or less, PCMS with a minimum letter height of 12 inches may be used.

Messages must have no more than two phases. The display time for each phase must be at least two seconds but no more than three seconds. The sum of the display time must be a maximum of six seconds.

102-9.13 Portable Regulatory Signs (PRS): Furnish PRSs that meet the requirements of Section 990 as required by the Plans and Standard Plans. Ensure that the PRS sign panel is raised to a fully upright position and is fully visible to motorists.

Activate portable regulatory signs only during active work activities and deactivate when no work is being performed.

102-9.14 Radar Speed Display Unit (RSDU): Furnish RSDUs that meet the requirements of Section 990 as required by the Plans and Standard Plans to inform motorists of the posted speed and their actual speed. Ensure that the RSDU display panel is mounted in accordance with the manufacturer's recommendations.

Activate the radar speed display unit only during active work activities and deactivate when no work is being performed.

102-9.15 Temporary Signalization and Maintenance: Provide temporary signals and maintain signalization at existing, temporary, and new intersections including, but not limited to, the following:

1. Installation of temporary poles and span wire assemblies as shown in the Plans,
2. Temporary portable traffic signals as shown in the Plans,
3. Adding or shifting signal heads,
4. Trouble calls,
5. Maintaining intersection and coordination timing and preemption devices. Coordination timing will require maintaining functionality of system communications.

Restore any loss of operation within 12 hours after notification. Provide alternate temporary traffic control until the signalization is restored.

Provide temporary pedestrian signalization in accordance with the TTCP, and maintain pedestrian signalization at existing, temporary, and new intersections.

Provide traffic signal equipment that meets the requirements of the Standard Plans and 603-2. The Engineer may approve used signal equipment if it is in acceptable condition. Replacement components for traffic signal cabinet assemblies will be provided by the maintaining agency. For temporary signals used for lane closure operations on two-lane, two-way roadways meet the requirements in 102-9.21.

102-9.16 Temporary Traffic Detection and Maintenance: Provide temporary traffic detection and maintenance at existing, temporary, and new signalized intersections. Provide temporary traffic detection equipment listed on the APL. Restore any loss of detection within 12 hours. Ensure 90% accuracy per signal phase, measured at the initial installation and after any lane shifts, by comparing sample data collected from the detection system with ground truth data collected by human observation. Collect the sample and ground truth data for a minimum of five minutes during a peak and five minutes during an off-peak period with a minimum three detections for each signal phase. Perform the test in the presence of the Engineer.

102-9.17 Truck Mounted Attenuators and Trailer Mounted Attenuators: Furnish, operate and maintain APL listed truck mounted and trailer mounted attenuators in accordance with the manufacturer's recommendations.

For posted speeds of 50 mph or greater, use either truck mounted attenuators or trailer mounted attenuators that meet TL-3 criteria. For posted speeds of 45 mph or less, use either truck mounted attenuators or trailer mounted attenuators that meet TL-2 or TL-3 criteria.

Attenuators will not be paid for separately. Include the cost of the truck with either a truck mounted attenuator or a trailer mounted attenuator in Maintenance of Traffic, lump sum. Payment includes all costs, including furnishing, operating maintaining and removal when no longer required, and all materials, labor, tools, equipment and incidentals required for attenuator maintenance.

102-9.18 Temporary Raised Rumble Strip Set: Use temporary raised rumble strips per the manufacturer's recommendations and in accordance with Standard Plans, Index 102-603.

The temporary raised rumble strip may be either a removable striping type or a portable type. Use a consistent type and color throughout the work zone.

102-9.19 Automated Flagger Assistance Devices (AFAD): Furnish, install, maintain, remove, and relocate AFADs in accordance with the Plans, Standard Plans, Index 102-603, and APL vendor drawings.

Position AFADs where they are clearly visible to oncoming traffic. AFADs may be placed on the centerline if they have been successfully crash tested in accordance with MASH TL-3 criteria. A gate arm is required in accordance with Section 990 if a single AFAD is used on the shoulder to control one direction of traffic.

The devices may be operated either by a single flagger at one end of the traffic control zone, from a central location, or by a separate flagger near each device location. Use only flaggers trained in accordance with Section 105 and in the operation of the AFAD. When in use, each AFAD must be in view of, and attended at all times by, the flagger operating the device.

Provide two flaggers on-site and use one of the following methods in the deployment of AFADs:

1. Place an AFAD at each end of the temporary traffic control zone, or
2. Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.

A single flagger may simultaneously operate two AFADs as described in (1) or a single AFAD as described in (2) if all of the following conditions are met:

1. The flagger has an unobstructed view of the AFAD(s),
2. The flagger has an unobstructed view of approaching traffic in both directions,
3. In the event of an AFAD malfunction, restore normal flagging operations with flaggers or immediately cease the flagging operation and reopen the roadway.

AFADs may be either a remotely controlled Stop/Slow AFAD mounted on either a trailer or a movable cart system, or a remotely controlled Red/Yellow Lens AFAD.

Illuminate the flagging station when the AFAD is used at night. When the AFAD is not in use, remove or cover signs and move the AFAD device outside the clear zone or shield it with a barrier.

AFADs will not be paid for separately. AFADs may be used as a supplement or an alternate to flaggers in accordance with the Plans, Standard Plans, Index 102-603, and the APL vendor drawings. Include the cost for AFADs in Maintenance of Traffic, Lump Sum.

102-9.20 Temporary Lane Separator: Furnish, install, maintain, remove and relocate temporary lane separator in accordance with the Plans and Standard Plans, Index 102-600. Anchor the portable temporary lane separator with a removable anchor bolt. Use epoxy on bridge decks where anchoring is not allowed. Remove the epoxy from the bridge deck by hydroblasting or other method approved by the Engineer. Repair any damage to the existing pavement caused by the removal of temporary lane separator.

102-9.21 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: Furnish, install, maintain, remove, and relocate temporary signals for lane closure operations on two-lane, two-way roadways at the locations shown in the Plans. Temporary signals may be used, at the Contractor's option, as an alternate to flaggers for lane closure operations on two-lane, two-way roadways in accordance with Standard Plans, Index 102-606. Temporary signals can either be portable signals or span wire signals and must be listed on the APL. Provide two signal faces for each approach.

102-9.22 Type III Barricades: Use type III barricades in accordance with the TTCP and Standard Plans. Ensure stripes are sloping downward in the direction road users are to pass. Mount sign panels in accordance with the manufacturer's instructions. Do not place ballast on any rails, or higher than 13 inches above the driving surface. Do not splice the retroreflective sheeting.

102-10 Work Zone Pavement Marking.

102-10.1 Description: Furnish and install work zone pavement markings for MOT in construction areas and in close conformity with the lines and details shown in the Plans and Standard Plans.

Centerlines, lane lines, edge lines, stop bars, standard crosswalks, and turn arrows will be required in work zones prior to opening the road to traffic.

102.10.2 Painted Pavement Markings:

102-10.2.1 General: Use painted pavement markings meeting the requirements of Section 710. Use standard paint unless otherwise identified in the Plans or approved by the Engineer.

102-10.3 Removable Tape:

102-10.3.1 General: Use removable tape listed on the APL as shown in the Plans and meeting the requirements of 990-4.

102-10.3.2 Application: Apply removable tape with a mechanical applicator to provide pavement lines that are neat, accurate and uniform. Equip the mechanical applicator with a film cut-off device and with measuring devices that automatically and accumulatively measure the length of each line placed within an accuracy tolerance of plus or minus 2%. Ensure removable tape adheres to the road surface. Removable tape may be placed by hand on short sections, 500 feet or less, if it is done in a neat accurate manner.

102-10.3.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 300 mcd/lx·m^2 for white and contrast markings and not less than 250 mcd/lx·m^2 for yellow markings. Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m^2. At the end of the six month service life, the retro reflectance of white and yellow removable tape shall not be less than 150 mcd/lx·m^2.

102-10.3.4 Removability: Provide removable tape capable of being removed from bituminous concrete and portland cement concrete pavement intact or in substantially large strips, either manually or by a mechanical roll-up device, at temperatures above 40ºF, without the use of heat, solvents, grinding or blasting.

102-10.4 Temporary Raised Pavement Markers (RPMs): Use Class B RPMs except for work that consists of ground-in rumble strips at centerline locations. For ground-in rumble strips at centerline locations, use temporary RPMs in accordance with Section 710. Provide only temporary RPMs listed on the APL. Install all markers in accordance with the manufacturer's recommendations, the Standard Plans, and Section 706. After initial installation, replace broken or missing temporary RPMs in locations where more than three consecutive temporary RPMs are broken or missing at no expense to the Department.

102-11 Method of Measurement.

102-11.1 General: Devices installed/used on the project on any calendar day or portion thereof, within the Contract Time, including time extensions which may be granted, will be paid for at the Contract unit price for the applicable pay item. Include the cost of any work that is

necessary to meet the requirements of the Contract Documents for MOT under Maintenance of Traffic, lump sum when separate payment is not provided.

102-11.2 Traffic Control Officers: The quantity to be paid for traffic control officers will be at the Contract unit price per hour (4 hour minimum) for the actual number of officers certified to be on the project site, including any law enforcement vehicles and all other direct and indirect costs. Payment will be made only for those traffic control officers specified in the Plans and authorized by the Engineer.

102-11.3 Special Detours: When a special detour is shown in the Plans, the work of constructing, maintaining, and subsequently removing such detour facilities will be paid for under Special Detour, lump sum. However, traffic control devices, warning devices, barriers, signing, pavement markings, and restoration to final configuration will be paid for under their respective pay items.

102-11.4 Commercial Material for Driveway Maintenance: The quantity to be paid for will be the certified volume, in cubic yards, of all materials authorized by the Engineer, acceptably placed and maintained for driveway maintenance. The volume, which is authorized to be reused, and which is acceptably salvaged, placed, and maintained in other designated driveways will be included again for payment. Commercial Material used for Temporary Openings will not be included for separate payment.

102-11.5 Work Zone Signs: The number of temporary post-mounted signs (temporary regulatory, warning and guide) certified as installed/used on the project will be paid for at the Contract unit price for work zone signs. When multiple signs are located on single or multiple posts, each sign panel will be paid individually. Signs greater than 20 square feet and detailed in the Plans will be paid for under Maintenance of Traffic, lump sum.

Temporary portable signs (excluding mesh signs) and vehicular mounted signs will be included for payment under work zone signs, only if used in accordance with the Standard Plans.

The number of temporary barrier mounted signs (temporary regulatory, warning and guide) certified as installed/used on the project will be paid for at the Contract unit price for barrier mounted work zone signs.

Work zone signs may be installed fourteen days prior to the start of Contract Time with the approval of the Engineer and at no additional cost to the Department.

102-11.6. Business Signs: The number of business signs certified as installed/used on the project will be paid for at the Contract unit price for business signs.

102-11.7 Project Information Signs: No separate payment will be made for project information signs. Payment will be included under Maintenance of Traffic, lump sum.

102-11.8 Channelizing Devices: The number of drums, vertical panels, and Type I, Type II, or direction indicator barricades, certified as installed/used on the project meeting the requirements of Standard Plans, Index 102-600 and have been properly maintained will be paid for at the Contract unit prices for channelizing device.

Payment for drums, vertical panels, and Type I, Type II, and direction indicator barricades will be paid per each per day.

Payment for vehicular LCDs will be paid as the length in feet installed divided by the device spacing for barricades, vertical panels, and drums and certified as installed/used on the project meeting the requirements of Standard Plans, Index 102-600 and have been properly maintained will be paid for at the Contract unit price for channelizing device.

Payment for pedestrian LCDs, certified as installed/used on the project and properly maintained, will be paid per linear foot per day. Placement of pedestrian LCDs at locations not shown in the Plans, or not authorized by the Engineer, will be at the Contractor's expense. Payment for pedestrian LCD mounted signs will be made under Work Zone Signs, per each per day.

Payment will not be made for channelizing devices unsatisfactorily maintained, as determined by the Engineer. Payment will be made for each channelizing device that is used to delineate trailer mounted devices. Payment will be made for channelizing devices delineating portable changeable message signs during the period beginning 14 working days before Contract Time begins as authorized by the Engineer.

102-11.9 Temporary Barrier: The quantity to be paid for will be the length, in feet, of freestanding units or anchored units certified as installed/used on the project. The quantity to be paid for relocating barrier will be based on the relocated installation type. No separate payment will be made for the asphalt pad. For freestanding units transitioned to a crash cushion, the cost of anchoring the transition units will be included in the cost of the temporary crash cushion in accordance with 102-11.12.

102-11.10 Barrier Delineators: No separate payment will be made for barrier delineators installed on top of temporary barrier and vehicular LCDs. Include the cost for barrier delineators in the cost of the barrier or vehicular LCD.

102-11.11 Temporary Glare Screen: The certified quantity to be paid for will be determined by the number of sections times the nominal length of each section.

102-11.12 Temporary Crash Cushions: No separate payment will be made for the concrete or asphalt pad.

102-11.12.1 Redirective: The quantity to be paid for will be the number of temporary crash cushions (redirective) certified as installed/used and maintained on the project, including anchoring of temporary barrier necessary for transition to the crash cushion and delineation.

102-11.12.2 Gating: The quantity to be paid for will be the number of temporary crash cushions (gating) certified as installed/used and maintained on the project, including anchoring of temporary barrier necessary for transition to the crash cushion and delineation.

102-11.13 Temporary Guardrail: The quantity to be paid for will be the length, in feet, of temporary guardrail constructed and certified as installed/used on the project. The length of a run of guardrail will be determined as a multiple of the nominal panel lengths.

102-11.14 Arrow Board: The quantity to be paid at the contract unit price will be for the number of arrow boards certified as installed/used on the project on any calendar day or portion thereof within the Contract Time.

102-11.15 Portable Changeable Message Sign: The quantity to be paid at the Contract unit price will be for the number of PCMSs or truck mounted changeable message signs certified as installed/used on the project on any calendar day or portion thereof within the Contract Time. Payment will be made for each portable changeable message sign that is used during the period beginning fourteen working days before Contract Time begins as authorized by the Engineer.

102-11.16 Portable Regulatory Signs: The quantity to be paid for will be the number of portable regulatory signs certified as installed/used on the project on any calendar day or portion thereof within the Contract Time, will be paid for the Contract unit price for portable regulatory sign.

102-11.17 Radar Speed Display Unit: The quantity to be paid for will be the number of radar speed display units certified as installed/used on the project on any calendar day or portion thereof within the Contract Time, will be paid for the Contract unit price for radar speed display unit.

102-11.18 Temporary Signalization and Maintenance: For existing intersections, the certified quantity to be paid for will be the number of signalized intersections per day for the full duration of the Contract. For temporary intersections, the certified quantity to be paid for will be the number of signalized intersections per day for the duration of the temporary intersection. No separate payment will be made for temporary signalization and maintenance at new intersections.

102-11.19 Temporary Traffic Detection and Maintenance: For existing intersections, the certified quantity to be paid for will be the number of signalized intersections per day beginning the day Contract Time begins and ending the day the permanent detection is operational and the final lane configuration is in place. For temporary and new intersections, the certified quantity to be paid for will be the number of signalized intersections per day beginning the day the temporary detection is functional and ending the day: the permanent detection is operational and the final lane configuration is in place for a new intersection; or, when the detection is removed for a temporary intersection.

102-11.20 Work Zone Pavement Markings: Painted pavement markings will be paid as specified in 710-10. The quantity of removable tape to be paid for solid, 10'-30' skip, 3'-9' dotted, 6'-10' dotted, and 2'-4' dotted lines will be the length, in gross miles, authorized and acceptably applied under this Section and certified as installed/used on the project. The quantity of removable tape to be paid for transverse lines will be the length, in linear feet, authorized and acceptably applied under this Section and certified as installed/used on the project. The quantity of removable tape to be paid for pavement messages, symbols, and arrows will be per each, authorized and acceptably applied under this Section and certified as installed/used on the project. The quantity of temporary RPMs to be paid will be the number of RPMs authorized and acceptably applied.

102-11.21 Temporary Raised Rumble Strips: The quantity to be paid for will be the number of calendar days, or portions thereof, that temporary raised rumble strips are certified as installed/used on the project within the Contract Time. The number of strips used must meet the requirements of Standard Plans, Index 102-603. No adjustment will be made to the per day measurement for the number of strips or sets used, or for the number of times the sets are relocated.

102-11.22 Temporary Lane Separator: The quantity to be paid for will be the field measure, in feet, of temporary lane separator certified as installed/used on the project, including drainage gaps, completed and accepted. The cost of any pavement repairs due to removal is included in the cost of Maintenance of Traffic, lump sum.

102-11.23 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: The quantity to be paid for will be the number of temporary signals per day installed/used at the locations shown in the Plans. Temporary signals installed/used at the Contractor's option as an alternative to flaggers will be included in Maintenance of Traffic, lump sum.

102-11.24 Temporary Highway Lighting: When temporary highway lighting is required by the Plans, the work of constructing, maintaining, and removing the temporary highway lighting, including all materials and any necessary design work, will be paid for under temporary highway lighting, lump sum.

102-11.25 Pedestrian or Bicycle Special Detours: When a pedestrian or bicycle special detour is shown in the Plans, the work of constructing, maintaining, and subsequently removing such detour facilities will be paid for under pedestrian or bicycle special detour, lump sum. However, traffic control devices, warning devices, barriers, signing, pavement markings, and restoration to final configuration will be paid for under their respective pay items.

102-11.26 Type III Barricades: The number of type III barricades certified as installed/used on the project will be paid for at the Contract unit price for type III barricades.

102-11.27 Limited Access Temporary Openings: Include all construction, maintenance, removal, and restoration costs of temporary openings in Maintenance of Traffic, lump sum. No separate payment will be made for commercial material, gates, or fence.

102-12 Submittals.

102-12.1 Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for certified MOT payment items for each project in the Contract. Submit the certification of quantities to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

102-12.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O'clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

2. The basis for arriving at the amount of the progress certification, less payments previously made and less an amount previously retained or withheld. The basis will include a detail breakdown provided on the certification of items of payment in accordance with 102-13. After the initial setup of the MOT items and counts, the interval for recording the counts will be made weekly on the certification sheet unless there is a change. This change will be documented on the day of occurrence. Some items may necessitate a daily interval of recording the counts.

102-13 Basis of Payment.

102-13.1 Maintenance of Traffic (General Work): When an item of work is included in the proposal, price and payment will be full compensation for all work and costs specified under this Section except as may be specifically covered for payment under other items.

102-13.2 Traffic Control Officers: Price and payment will be full compensation for the services of the traffic control officers.

102-13.3 Special Detours: Price and payment will be full compensation for providing all detour facilities shown in the Plans and all costs incurred in carrying out all requirements of this Section for general MOT within the limits of the detour, as shown in the Plans.

102-13.4 Commercial Materials for Driveway Maintenance: Price and payment will be full compensation for all work and materials specified for this item, including specifically all required shaping and maintaining of driveways.

102-13.5 Work Zone Signs: Price and payment will be full compensation for all work and materials for furnishing signs, supports and necessary hardware, installation, relocating, maintaining and removing signs.

102-13.6. Business Signs: Price and payment will be full compensation for all materials and labor required for furnishing, installing, relocating, maintaining, and removing the signs as well as the cost of installing any logos provided by business owners.

102-13.7 Project Information Signs: Price and payment will be full compensation for all materials and labor for furnishing, installing, relocating, maintaining and removing signs.

102-13.8 Channelizing Devices: Prices and payment will be full compensation for furnishing, installing, relocating, maintaining and removing the channelizing devices.

102-13.9 Temporary Barrier: Price and payment will be full compensation for furnishing, installing, maintaining, and removing the barrier and asphalt pad. When called for, temporary barrier (relocate) will be full compensation for relocating the barrier.

102-13.10 Temporary Glare Screen: Price and payment will be full compensation for furnishing, installing, maintaining, and removing the glare screen certified as installed/used on the project. When called for, glare screen (relocate) will be full compensation for relocating the glare screen.

102-13.11 Temporary Crash Cushion (Redirective or Gating): Price and payment will be full compensation for furnishing, installing, maintaining, and removing crash cushions and concrete or asphalt pads.

102-13.12 Temporary Guardrail: Price and payment will be full compensation for furnishing all materials required for a complete installation, including end anchorage assemblies and any end connections to other structures and for installing, maintaining and removing guardrail.

102-13.13 Arrow Board: Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing arrow boards.

102-13.14 Portable Changeable Message Sign: Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing portable changeable message signs.

102-13.15 Portable Regulatory Signs: Price and payment will be full compensation for furnishing, installing, relocating, operating, maintaining and removing a completely functioning system as described in these Specifications.

Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and/or MOT operations.

102-13.16 Radar Speed Display Unit: Price and payment will be made only for a completely functioning system as described in these Specifications. Payment will include all labor, hardware, accessories, signs, and incidental items necessary for a complete system. Payment will include any measurements needed to ensure that the unit conforms to all Specification requirements.

Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and MOT operations. Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing radar speed display unit.

102-13.17 Temporary Signalization and Maintenance: Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing temporary traffic control signals including all equipment and components necessary to provide an operable traffic signal. Payment will be withheld for each day at each intersection where the temporary signalization is not operational within 12 hours after notification.

102-13.18 Temporary Traffic Detection and Maintenance: Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing

temporary traffic detection including all equipment and components necessary to provide an acceptable signalized intersection. Take ownership of all equipment and components. Payment will be withheld for each day at each intersection where the temporary detection is not operational within 12 hours after notification.

102-13.19 Work Zone Pavement Markings: Price and payment will be full compensation for all work specified including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Removable tape or durable paint may be substituted for standard paint at no additional cost to the Department.

Payment for temporary RPMs used to supplement line markings will be paid for under temporary raised pavement markers. Install these RPMs as detailed in the Standard Plans.

102-13.20 Temporary Raised Rumble Strips: Price and payment will be full compensation for all work and materials described in this Section, including all cleaning and preparing of surfaces, disposal of all debris, furnishing of all materials, application, curing, removal, reinstalling and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.

102-13.21 Temporary Lane Separator: Price and payment will be full compensation for all work specified in this Section.

102-13.22 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: Price and payment will be full compensation for furnishing, installing, operating, maintaining and removing temporary traffic signal including all equipment and components necessary to provide an operable portable traffic signal.

102-13.23 Temporary Highway Lighting: Price and payment will be full compensation for providing all temporary highway lighting shown in the Plans.

102-13.24 Pedestrian or Bicycle Special Detours: Price and payment will be full compensation for providing all pedestrian or bicycle special detours shown in the Plans.

102-13.25 Type III Barricades: Prices and payment will be full compensation for furnishing, installing, relocating, maintaining and removing the type III barricades.

102-13.26 Payment Items: Payment will be made under:

Item No. 102- 1-	Maintenance of Traffic - lump sum.
Item No. 102- 2-	Special Detour - lump sum.
Item No. 102- 3-	Commercial Material for Driveway Maintenance - per cubic yard.
Item No. 102- 4-	Pedestrian or Bicycle Special Detour - lump sum.
Item No. 102- 14-	Traffic Control Officer - per hour.
Item No. 102- 30-	Temporary Highway Lighting - lump sum.
Item No. 102- 60-	Work Zone Sign - per each per day.
Item No. 102- 61-	Business Sign - each.
Item No. 102- 62-	Barrier Mounted Work Zone Sign – per each per day
Item No. 102- 71-	Temporary Barrier - per foot.
Item No. 102- 75-	Temporary Lane Separator - per foot
Item No. 102- 73-	Temporary Guardrail - per foot.
Item No. 102- 74-	Channelizing Devices
Item No. 102- 76-	Arrow Board - per each per day.

Item No. 102- 78-	Temporary Raised Pavement Markers - each.
Item No. 102- 81-	Temporary Crash Cushion, Gating - per location.
Item No. 102- 89-	Temporary Crash Cushion, Redirective - per location.
Item No. 102- 94-	Glare Screen - per foot.
Item No. 102- 99-	Portable Changeable Message Sign - per each per day.
Item No. 102-104-	Temporary Signalization and Maintenance - per intersection per day.
Item No. 102-107-	Temporary Traffic Detection and Maintenance - per intersection per day.
Item No. 102-115-	Type III Barricade - per each per day.
Item No. 102-120-	Temporary Signal for Lane Closures on Two-Lane, Two-Way Roadways – per each per day.
Item No. 102-150-	Portable Regulatory Sign - per each per day.
Item No. 102-150-	Radar Speed Display Unit - per each per day.
Item No. 102-909-	Temporary Raised Rumble Strips - per day.
Item No. 102-913-	Removable Tape.
Item No. 710-	Painted Pavement Markings.
Item No. 711-	Thermoplastic Pavement Markings.

SECTION 104
PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION

104-1 Description.

Provide erosion control measures where work is accomplished in conjunction with the project, to prevent erosion, pollution of water, detrimental effects to public or private property adjacent to the project right-of-way and damage to work on the project.

104-2 General.

Coordinate the installation of temporary erosion control devices with the construction of the permanent erosion control devices to ensure economical, effective, and continuous control of erosion and water pollution throughout the life of the Contract.

104-3 Control of Contractor's Operations Which May Result in Water Pollution.

Prevent contaminants, pollutants or hazardous substances, as defined in Section 376.301, Florida Statutes, from migrating from the construction site or from materials and equipment into any surface waters, wetlands, groundwater or property beyond the project limits. Conduct and schedule operations to avoid and minimize pollution or siltation from the project to surface waters, wetlands, groundwater, or property beyond the project limits.

Do not drive in, operate, or place construction equipment or materials in surface waters, wetlands, groundwater, or property beyond the project limits without permitted authority for permanent or temporary impacts. Water crossings or other wetlands impacts must be authorized by permit. Obstructing or impeding the water flow or movement of the water or wildlife must be authorized by permit.

Where pumps are used to remove highly turbid waters from enclosed construction areas such as cofferdams or forms, treat the water by one or more of the following methods prior to discharge from the project: pumping into grassed swales or appropriate upland vegetated areas or constructed sediment basins, or confined by an appropriate enclosure such as turbidity barriers when other methods are not practical. Do not discharge, water that does not meet State water quality standards or does not meet the criteria specified in any applicable permit.

Remove sediment accumulated during construction from all existing or newly constructed stormwater facilities prior to final acceptance. Ensure that all stormwater conveyances and stormwater facilities meet final grade requirements at final acceptance. Remove silt or regrade as necessary to comply with the lines and grades shown in the Plans.

Do not enter onto lands or waters outside the limits of construction as staked, except as authorized by the Engineer. Do not allow water that does not meet state water quality standards or does not meet the permitted criteria to exit the project limits.

Obtain the Engineer's approval for the location and method of operation in borrow pits, material pits, and disposal areas furnished for waste material from the project (other than commercially operated sources) such that erosion during and after completion of the work will not result in detrimental siltation or water pollution.

104-4 Materials for Temporary Erosion Control.

The Engineer will not require testing of materials used in construction of temporary erosion control devices other than as provided for geotextile fabric in 985-3 unless such material

is to be incorporated into the completed project. When no testing is required, the Engineer will base acceptance on visual inspection.

The Contractor may use new or used materials for the construction of temporary silt fence, staked turbidity barriers, and floating turbidity barrier not to be incorporated into the completed project, subject to the approval of the Engineer.

104-5 Preconstruction Requirements.

Prior to the Preconstruction Conference, submit an Erosion and Sediment Control Plan meeting the requirements or special conditions of all permits authorizing project construction. If no permits are required or the approved permits do not contain special conditions or specifically address erosion and water pollution, the project's Erosion and Sediment Control Plan will be governed by 7-1.1, 7-2.2, 7-8.1, 7-8.2, and Section 104.

When a DEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities permit is issued, the Contractor's Erosion and Sediment Control Plan shall be prepared to accompany the Department's Stormwater Pollution Prevention Plan. Ensure the Erosion and Sediment Control Plan includes procedures to control off-site tracking of soil by vehicles and construction equipment and a procedure for cleanup and reporting of non-storm water discharges, such as contaminated groundwater or accidental spills. Do not begin any soil disturbing activities before receiving the Engineer's written approval of the Erosion and Sediment Control Plan, including the required signed certification statements.

Failure to sign and submit any required documents or certification statements will be considered a default of the Contract. Any soil disturbing activities performed without the required signed documents or certification statements is considered a violation of the DEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

Prepare a site-specific Erosion and Sediment Control Plan in accordance with the planned sequence of operations and present it in a format acceptable to the Department. The Erosion and Sediment Control Plan shall describe, but not be limited to, the following items or activities:

1. For each phase of construction operations or activities, supply the following information:
    a. Locations of all erosion control devices
    b. Types of all erosion control devices
    c. Estimated time erosion control devices will be in operation
    d. Monitoring schedules for maintenance of erosion control devices
    e. Methods of maintaining erosion control devices
    f. Dewatering plan
    g. Locations of all stored fuel or other containments, pollutants or hazardous waste
    h. Spill prevention and response measures and disposal and removal methods
    i. Submit any changes to the Erosion and Sediment Control Plan within seven calendar days
2. The name and telephone number of the person responsible for monitoring and maintaining the erosion control devices.
3. Submit for approval the Erosion and Sediment Control Plans meeting paragraphs 3a, 3b, or 3c below:

a. Projects permitted by the Southwest Florida Water Management District (SWFWMD), require the following:

Submit the Erosion and Sediment Control Plan to the Engineer for review and to the appropriate SWFWMD Office for review and approval. Include the SWFWMD permit number on all submitted data or correspondence.

The Contractor may schedule a meeting with the appropriate SWFWMD Office to discuss the Erosion and Sediment Control Plan in detail, to expedite the review and approval process. Advise the Engineer of the time and place of any meetings scheduled with SWFWMD.

Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from both SWFWMD and the Engineer.

b. Projects permitted by the South Florida Water Management District or the St. Johns River Water Management District, require the following:

Obtain the Engineer's approval of the Erosion and Sediment Control Plan.

Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from the Engineer.

c. Projects authorized by permitting agencies other than the Water Management Districts or projects for which no permits are required require the following:

The Engineer will review and approve the Contractor's Erosion and Sediment Erosion Control Plan.

Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from the Engineer.

104-6 Construction Requirements.

104-6.1 Limitation of Exposure of Erodible Earth: Do not allow the surface area of erodible earth that clearing and grubbing operations, excavation and filling operations, or other earth disturbing activities to exceed 750,000 square feet without specific prior written approval by the Engineer. This limitation applies separately to clearing and grubbing operations and excavation and filling operations.

The Engineer may further limit the surface areas of unprotected erodible earth exposed by the construction operation and may direct the Contractor to provide additional erosion or pollution control measures to prevent contamination of any surface waters, wetlands, or groundwater or to prevent detrimental effects on property outside the project limits or damage to the project.

104-6.2 Incorporation of Erosion and Sediment Control Devices: Incorporate permanent erosion and sediment control devices into the project at the earliest practical time. Complete the installation of temporary erosion and sediment control devices prior to the commencement of any earthwork. Use temporary erosion and sediment control devices found in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (E&SC Manual) to control erosion and sediment generated by construction operations, to correct unforeseen conditions during construction, and to control erosion and sediment prior to the incorporation of permanent erosion and sediment control devices. An electronic version of the E&SC Manual can be found at the following URL:

https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/FLErosionSedimentManual.shtm.

104-6.3 Scheduling of Successive Operations: Schedule operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations, and the duration of exposure of uncompleted construction to the elements is as short as practicable.

Schedule and perform clearing and grubbing such that grading operations can be incorporated immediately thereafter. Schedule and perform grading operations so that permanent erosion control devices can follow immediately thereafter if conditions on the project permit.

104-6.4 Details for Temporary Erosion and Sediment Control Devices:

104-6.4.1 General: Use temporary erosion, sediment and water pollution control devices found in the E&SC Manual. These devices consist of, but are not limited to, temporary sod, rolled erosion control products, sediment containment systems, runoff control structures, sediment barriers, inlet protection systems, silt fences, turbidity barriers, and chemical treatment. For design details for some of these devices, refer to the E&SC Manual. Perform installation, inspection, maintenance, and removal of all temporary erosion and sediment control devices in accordance with applicable permits, manufacturer's directions, and the Contract Documents.

104-6.4.2 Temporary Sod: The Engineer may designate certain areas of sod constructed in accordance with Section 570, as a temporary erosion control device. Do not use seed as a temporary erosion control device. The Engineer may waive the turf establishment requirements of Section 570 for areas of temporary sod that will not be a part of the permanent construction.

104-6.4.3 Runoff Control Structures: Construct runoff control structures in accordance with the details shown in the Contract Documents.

104-6.4.4 Sediment Containment Systems: Construct sediment containment systems in accordance with the details shown in the Contract Documents. Clean out sediment containment systems as necessary in accordance with the Contract Documents.

104-6.4.5 Sediment Barriers: Provide and install sediment barriers according to details shown in the Contract Documents or, as directed by the Engineer to protect against downstream accumulation of sediment. Sediment Barriers include, but are not limited to synthetic bales, silt fence, fiber logs and geosynthetic barriers. Reusable barriers that have had sediment deposits removed may be reinstalled on the project as approved by the Engineer.

104-6.4.6 Silt Fence:

104-6.4.6.1 General: Furnish, install, maintain, and remove silt fences, in accordance with the applicable permits, the manufacturer's directions, and the Contract Documents.

104-6.4.6.2 Materials and Installation: Use a geotextile fabric made from woven or nonwoven fabric, meeting the physical requirements of Section 985 according to those applications for erosion control.

Choose the type and size of posts and wire mesh reinforcement (if required). Do not use products which have a separate layer of plastic mesh or netting. Provide a durable and effective silt fence that controls sediment in accordance with the Contract Documents.

Erect silt fence at upland locations and at temporary locations shown in the Contract Documents or where continuous construction activities change the natural contour and drainage runoff. Do not attach silt fence to existing trees unless approved by the Engineer.

104-6.4.6.3 Inspection and Maintenance: Inspect all silt fences in accordance with any applicable permit. If the project does not have a permit, inspect within 24 hours after each rain event and at least daily during prolonged rainfall. Immediately correct any deficiencies. In addition, make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, repair or replace silt fences in accordance with the Contract Documents or as directed by the Engineer.

Remove sediment deposits when the deposit reaches approximately 1/2 the height of the silt fence or as directed by the Engineer. Shape any remaining sediment deposits to conform with the finished grade and prepare the area for turf in accordance with Section 570.

104-6.4.7 Floating Turbidity Barriers and Staked Turbidity Barriers: Furnish, install, maintain, and remove floating turbidity barriers in accordance with the applicable permits, the manufacturer's directions, and the Contract Documents. The Contractor may need to deploy turbidity barriers around isolated areas of concern (such as, seagrass beds, coral communities) both within as well as outside the project limits. The Engineer will identify such areas. Place the barriers prior to the commencement of any work that could impact the area of concern. Ensure that the type of barrier used and the deployment and maintenance of the barrier will minimize dispersion of turbid waters from the project. The Engineer may approve alternate methods or materials.

Install and maintain turbidity barriers to avoid or minimize the degradation of the water quality of the surrounding waters and minimize damage to areas where the floating barriers are installed.

104-6.4.8 Inlet Protection System: Furnish and install inlet protection systems as shown in the Contract Documents.

104-6.4.9 Rolled Erosion Control Products (RECPs):

104-6.4.9.1 General: Install RECPs in locations where temporary protection from erosion is needed. Two common applications are described below.

1. Use RECPs composed of natural or synthetic fiber mats, plastic sheeting, or netting as protection against erosion, when directed by the Engineer, during temporary pauses in construction caused by inclement weather or other circumstances. Remove the material when construction resumes.

2. Use RECPs as erosion control blankets, at locations shown in the Plans, to facilitate plant growth while permanent grassing is being established. For the purpose described, use non-toxic, biodegradable, natural or synthetic woven fiber mats. Install erosion control blankets capable of sustaining a maximum design velocity of 6.5 ft/sec as determined from tests performed by Utah State University, Texas Transportation Institute or an independent testing laboratory approved by the Department. Submit to the Engineer, certified test reports from the manufacturer showing that the erosion control blankets meet the requirements of this Specification. Certification must be attested, by a person having legal authority to bind the manufacturing company. Also, furnish two 4 by 8 inch samples for product identification. The manufacturers test records shall be made available to the Department upon request. Leave the material in place, as installed, to biodegrade.

104-6.4.10 Chemical Treatment: Provide chemical treatment in accordance with the Contract Documents. Chemical treatment may be used to clarify turbid or sediment laden water that does not meet state water quality standards or to supplement other erosion and

sediment control devices to aid in their performance. The contractor must provide the required toxicity testing information in accordance with the Contract Documents to the Engineer for review and acceptance prior to using any chemical treatment on the project site.

104-6.5 Removal of Temporary Erosion Control Devices: In general, remove or incorporate into the soil any temporary erosion control devices upon incorporation of the permanent erosion control devices into the project. The Engineer may direct that temporary devices be left in place.

104-7 Maintenance of Erosion and Sediment Control Devices.

104-7.1 General: Provide routine maintenance of permanent and temporary erosion and sediment control devices, at no expense to the Department, until the project is complete and accepted. If reconstruction or replacement of erosion and sediment control devices is necessary due to the Contractor's negligence or carelessness or, in the case of temporary erosion and sediment control devices, improper installation, lack of maintenance, excessive wear, design-life exceedance or failure by the Contractor to install permanent erosion control devices as scheduled, the Contractor shall repair or replace such erosion control devices at no expense to the Department. If reconstruction of permanent or temporary erosion and sediment control devices is necessary due to factors beyond the control of the Contractor, the Department will pay for replacement under the appropriate Contract pay item or items.

Inspect all erosion and sediment control devices at least once every seven calendar days and within 24 hours of the end of a storm event that is 0.50 inches or greater. Maintain all erosion and sediment control devices as required in the Stormwater Pollution Prevention Plan, the Contractor's Erosion and Sediment Control Plan, and if applicable, as specified in the State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

104-8 Protection During Suspension of Contract Time.

Initiate stabilization measures within seven calendar days upon suspension of construction activities. If it is necessary to suspend the construction operations for any appreciable length of time, shape the disturbed areas to facilitate stormwater runoff and construct earthen berms along the top edges of embankments to intercept stormwater runoff. Provide temporary slope drains in areas that are highly erodible to avoid pollution of surface waters, wetlands, groundwater, or property beyond the project limits. Locate slope drains at intervals of approximately 500 feet and stabilize by paving or covering with waterproof materials. Should such preventive measures fail, immediately take action as necessary to effectively prevent erosion and siltation. During suspension of operations, the Engineer may direct the Contractor to perform additional erosion and sediment control work as necessary.

104-9 Method of Measurement.

When separate items for temporary erosion control devices are included in the Contract, the quantities to be paid for will be:

1. the area, in square yards, of rolled erosion control products;
2. the length, in feet, of runoff control structures, measured along the surface of the work constructed;
3. the number of sediment containment systems constructed and accepted;
4. the number of sediment containment system cleanouts accomplished and accepted;

5. the length, in feet, of sediment barriers;
6. the length, in feet, of floating turbidity barrier;
7. the length, in feet, of staked turbidity barrier;
8. the number of inlet protection systems, for existing inlets;
9. the area, in square yards, of chemical treatment;
10. the number of floc logs or drums of product for chemical treatment;

Upon acceptance by the Engineer, the quantity of floating turbidity barriers, sediment barriers, staked turbidity barriers, and inlet protection devices will be paid for regardless of whether materials are new, used, or relocated from a previous installation on the project. Protection of newly constructed inlets and drainage systems is incidental to their installation. No separate payment will be made for temporary erosion control devices used to protect newly constructed drainage systems.

104-10 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including construction and routine maintenance of temporary erosion control devices.

Any additional costs resulting from compliance with the requirements of this Section, other than construction, routine maintenance, and removal of temporary erosion control devices, will be included in the Contract unit prices for the item or items to which such costs are related. Temporary sod used as a temporary erosion control device in accordance with 104-6.4.2 will be paid for under Section 570.

Separate payment will not be made for the cost of constructing temporary earth berms along the edges of the roadways to prevent erosion during grading and subsequent operations. The Contractor shall include these costs in the Contract prices for grading items.

In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation, the Engineer reserves the right to employ outside assistance or to use the Department's own forces to provide the necessary corrective measures. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made from the monthly progress estimate.

Payment will be made under:

Item No. 104- 1-	Artificial Coverings/ Rolled Erosion Control Products - per square yard.
Item No. 104- 6-	Slope Drains (Temporary)/ Runoff Control Structures - per foot.
Item No. 104- 7-	Sediment Basins/ Containment Systems - each.
Item No. 104- 9-	Sediment Basin/ Containment system Cleanouts - each.
Item No. 104- 10-	Sediment Barriers - per foot
Item No. 104- 11-	Floating Turbidity Barrier - per foot.
Item No. 104- 12-	Staked Turbidity Barrier - per foot.
Item No. 104- 18-	Inlet Protection System - each.
Item No. 104- 19-	Chemical Treatment - per square yard.
Item No. 104- 20-	Chemical Treatment (floc logs, drums of product) - each.

SECTION 105
CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS

105-1 General.

105-1.1 Quality Control Documentation.

105-1.1.1 Submission of Materials Certification and Reporting Test Results: Submit certifications prior to placement of materials. Report test results at completion of the test and meet the requirements of the applicable Specifications.

105-1.1.2 Databases: Obtain access to the Department's databases prior to testing and material placement. Database access information is available through the Department's website. Enter all required and specified documentation and test results into the Department's databases.

105-1.1.3 Worksheets: Make available to the Department, when requested, worksheets used for collecting test information. Ensure the worksheets at a minimum contain the following:

1. Project Identification Number,
2. Time and Date,
3. Laboratory Identification and Name,
4. Training Identification Numbers (TIN) and initials,
5. Record details as specified within the test method.

105-1.2 Inspections to Assure Compliance with Acceptance Criteria.

105-1.2.1 General: The Department is not obligated to make an inspection of materials at the source of supply, manufacture, or fabrication. Provide the Engineer with unrestricted entry at all times to such parts of the facilities that concern the manufacture, fabrication, or production of the ordered materials. Bear all costs incurred in determining whether the material meets the requirements of these Specifications.

105-1.2.2 Quality Control (QC) Inspection: Provide all necessary inspection to assure effective QC of the operations related to materials acceptance. This includes but is not limited to sampling and testing, production, storage, delivery, construction and placement. Ensure that the equipment used in the production and testing of the materials provides accurate and precise measurements in accordance with the applicable Specifications. Maintain a record of all inspections, including but not limited to, date of inspection, results of inspection, and any subsequent corrective actions taken. Make available to the Department the inspection records, when requested.

105-1.2.3 Notification of Placing Order: Order materials sufficiently in advance of their incorporation in the work to allow time for sampling, testing and inspection. Notify the Engineer prior to placing orders for materials.

Submit to the Engineer a fabrication schedule for all items requiring commercial inspection at least 30 days before beginning fabrication. These items include steel bridge components, moveable bridge components, pedestrian bridges, castings, forgings, structures erected either partially or completely over the travelled roadway or mounted on bridges as overhead traffic signs (some of these may be further classified as cantilevered, overhead trusses, or monotubes) or any other item identified as an item requiring commercial inspection in the Contract Documents.

105-2 Additional Requirements for Lump Sum Projects.

Prepare and submit to the Engineer a project-specific list of material items and quantities to be used on the project as a Job Guide Schedule in the same format as the current Sampling, Testing, and Reporting Guide 21 calendar days prior to commencement of construction. Submit up-to-date quantities for the items on the Job Guide Schedule to the Engineer with each monthly progress estimate. The Department may not authorize payment of any progress estimate not accompanied by updated Job Guide Schedule quantities. Maintain the Job Guide Schedule throughout the project including the quantity placed since the previous submittal, and total to date quantity and any additional materials placed. Do not commence work activities that require testing until the Job Guide Schedule has been reviewed and accepted by the Engineer. At final acceptance, submit a final Job Guide Schedule that includes all materials used on the project in the same format as the monthly reports.

105-3 Quality Control Program.

Certain operations require personnel with specific qualifications. Certain materials require production under an approved Quality Control (QC) Plan to ensure that these materials meet the requirements of the Contract Documents. Applicable materials include hot mix asphalt, portland cement concrete (structural), earthwork, cementitious materials, timber, steel and miscellaneous metals, galvanized metal products, prestressed and/or precast concrete products, drainage products, and fiber reinforced polymer products. For all applicable materials included in the Contract, submit a QC Plan prepared in accordance with the requirements of this Section to the Engineer. Do not incorporate any of these materials into the project prior to the Engineer's approval of the QC Plan.

Steel and Miscellaneous Metal products, including aluminum, are defined as the metal components of bridges**,** including pedestrian and moveable bridges, overhead and cantilevered sign supports, ladders and platforms, bearings, end wall grates, roadway gratings, drainage items, expansion joints, roadway decking, shear connectors, handrails, galvanized products, fencing, guardrail, light poles, high mast light poles, standard mast arm assemblies and Monotube assemblies, stay in-place forms, casing pipe, strain poles, fasteners, connectors and other hardware.

105-4 Producer Quality Control Program.

105-4.1 General: When accreditation or certification is required, make supporting documents from the two previous inspections performed by the accrediting or certifying agency available to the Department upon request.

Obtain Department approval prior to beginning production. Meet and maintain the approved Producer Quality Control Program requirements at all times. Production of these products without the Department's prior acceptance of the Producer Quality Control Program may result in rejection of the products. Continued approval will be subject to satisfactory results from Department evaluations, including the Independent Assurance program. In cases of non-compliance with the accepted Producer Quality Control Program, identify all affected material and do not incorporate or supply to the Department projects. The following conditions may result in suspension of a Producer Quality Control Program:

1. Failure to timely supply information required.
2. Repeated failure of material to meet Standard Specification requirements.

3. Failure to take immediate corrective action relative to deficiencies in the performance of the Producer Quality Control Program.

4. Certifying materials that are not produced under an accepted Producer Quality Control Program for use on Department projects.

5. Failure to correct any deficiencies related to any requirement of the Producer Quality Control Program, having received notice from the Department, within the amount of time defined in the notice.

105-4.2 Producer Quality Control Program Requirements:

105-4.2.1 Hot Mix Asphalt, Portland Cement Concrete (Structural), Earthwork, Cementitious Materials, Timber, Steel and Miscellaneous Metals, **Galvanized Metal Products, Prestressed and/or Precast Concrete Products, Drainage Products, and Fiber Reinforced Polymer Products Quality Control Program:** Have an accepted Producer Quality Control Program, developed in accordance with this Section, during the production of materials to be used on Department projects.

105-4.2.2 Prestressed Concrete Quality Control Program: Have a current certification from a Department approved precast prestressed concrete plant certification agency and a Department accepted Producer Quality Control Plan, meeting the requirements of this Section. The list of Department approved certification agencies is available on the website of the State Materials Office (SMO).

105-4.2.3 Steel and Miscellaneous Metals Quality Control Program: Have an accepted Producer Quality Control Plan, developed in accordance with this Section and a current American Institute for Steel Construction (AISC) certification, provided that AISC certification program is available for the category of the fabrication products.

105-4.3 Submittal: Depending on the type of products, producers shall submit their proposed Producer Quality Control Programs to the SMO or to the District Materials Office, as described below:

105-4.3.1 State Materials Office (SMO): Producers of cementitious materials, steel and miscellaneous metals, galvanized metal products, aggregates, and fiber reinforced polymer products must submit their proposed Producer Quality Control Program to the SMO for review and acceptance.

105-4.3.2 District Materials Office: Producers of hot mix asphalt, portland cement concrete (structural), earthwork, timber, prestressed and/or precast concrete products and drainage products must submit their proposed Producer Quality Control Program to the local District Materials Office for acceptance. Producers located outside the State must contact the SMO for address information of the District Materials Office responsible for the review of the proposed Quality Control Program.

105-4.4 Compliance with the Materials Manual.

Producers of Flexible Pipe shall meet the requirements of Section 6.1, Volume II of the Department's Materials Manual, which may be viewed at the following URL: https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section61V2.shtm.

Producers of Precast Concrete Pipe shall meet the requirements of Section 6.2, Volume II of the Department's Materials Manual, which may be viewed at the following URL: https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section62V2.shtm.

Producers of Precast Concrete Drainage Structures shall meet the requirements of Section 6.3, Volume II of the Department's Materials Manual, which may be viewed at the

following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section63V2.shtm.

Producers of Precast Prestressed Concrete Products shall meet the requirements of Sections 8.1 and 8.3, Volume II of the Department's Materials Manual, which may be viewed at the following URLs:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section81V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section83V2.shtm.

Producers of Precast Prestressed Concrete Products using Self Consolidating Concrete shall meet the requirements of Section 8.4, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section84V2.shtm.

Producers of Precast/Prestressed Concrete Products using Flowing Concrete shall meet the requirements of Section 8.6, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section86V2.shtm.

Producers of Incidental Precast/Prestressed Concrete Products shall meet the requirements of Section 8.2, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section82V2.shtm.

Producers of Portland Cement Concrete shall meet the requirements of Section 9.2, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section92V2.shtm.

Producers of Paving Concrete produced by Central Mix Plants shall meet the requirements of Section 9.3, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section93V2.shtm.

Producers of Structural Steel and Miscellaneous Metal Components shall meet the requirements of Sections 11.1, 11.2, 11.3, 11.4, 11.5 and 11.6 of the Department's Materials Manual, which may be viewed at the following URLs:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section111V1.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section112V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section113V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section114V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section115V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section116V2.shtm.

Producers of Fiber Reinforced Polymer Composites shall meet the requirements of Section 12-1, Volume II of the Department's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section121V2.shtm.

105-4.5 Producer Quality Control (QC) Plan Review and Acceptance: The Department will respond to the producer within 21 calendar days of receipt of the proposed Producer Quality Control Program. The Department may perform evaluation activities to verify compliance with submitted documents prior to acceptance.

If the Producer Quality Control Program must be revised for any reason, including non-compliance, submit the revision to the Department. The Department will respond

to the producer within seven calendar days of receipt of the revised Producer Quality Control Program.

105-4.6 Producer's Quality Control (QC) Plan: Submit detailed policies, methods and procedures to ensure the specified quality of all applicable materials and related production operations. Include other items in addition to these guidelines as necessary.

105-4.6.1 Personnel:

105-4.6.1.1 Qualifications: Submit the Training Identification Numbers (TINs) or any other information which will be traceable to the certification agency's training location and dates for all technicians performing sampling, testing and inspection for both field and laboratory tests. Submit the names of the Construction Training and Qualification Program (CTQP) certifications and other pertinent certifications held and the expiration dates for each certification for each technician. Include employed and subcontracted technicians.

105-4.6.1.2 Level of Responsibility: Identify the primary contact for the Department. Identify roles and responsibilities of various personnel involved in the QC process.

105-4.6.2 Raw Materials:

105-4.6.2.1 Source: Identify the sources of raw materials. Submit locations and plant or mine numbers when applicable.

105-4.6.2.2 Certification: Submit methods of verifying compliance of certification with the Specifications.

105-4.6.2.3 Disposition of Failing Materials: Describe the system for controlling non-conforming materials, including procedures for identification, isolation and disposition.

105-4.6.3 Storage Facilities for Raw Materials: Describe measures and methods, including bedding details, for preventing segregation, contamination and degradation.

Describe methods of identifying individual materials. Where applicable, submit a site plan showing the locations of various materials.

105-4.6.4 Production Equipment: Describe calibration frequencies, maintenance schedule and procedures for production equipment.

105-4.6.5 Plant Requirements:

105-4.6.5.1 Plant Identification: For those facilities producing materials listed in 105-3, submit the mailing address, physical address including county and X,Y (latitude and longitude) coordinates of the plant, telephone and fax numbers, email address, primary contact at the plant, responsible person in charge, facility number provided by the Department, owner information including parent company, vendor number, designed production capacity, and other information as required.

105-4.6.5.2 Process Control System: Describe the methods and measures established to ensure Contract compliance for the produced materials that are supplemental to the QC sampling and testing program described in the Contract Documents. These methods and measures will include, but are not limited to, inspection schedule, additional sampling and testing, maintenance schedule, etc.

105-4.6.5.3 Loading and Shipping Control: Describe the methods and measures for preventing segregation, contamination and degradation during loading and shipping operations. Describe the methods established for materials to be in compliance with the Specifications at the point of use.

105-4.6.5.4 Types of Products Generated: Describe the products the plant is approved to produce under Department guidelines.

105-4.7 Other Requirements:

105-4.7.1 Submittal of Certification: Submit certifications issued by the plant/Contractor for the applicable products approved by the Department.

105-4.7.2 Statement of Compliance: Include a statement of compliance with all quality requirements set forth by the Department in the Contract Documents and Department manuals.

105-4.7.3 Documentation Storage: Identify location of document storage to enable Department review. Include QC charts, qualification and accreditation records, inspection reports, and other pertinent supporting documents.

105-4.8 Final Manufactured Product - Plant Operations: Describe inspection schedule and methods for identifying defects and non-compliance with the Specifications. Describe corrective actions and methods to resolve them.

105-4.8.1 Storage: When storage of the produced materials is required and it is not defined in the Contract Documents, describe the methods and duration for storage. Include measures and methods for preventing segregation, contamination and degradation during storage.

105-4.8.2 Disposition of Failing Materials: When not described in the Specifications, describe the methods and measures for identifying and controlling the failing materials. Include preventive and corrective measures. Describe disposition of failing materials.

105-4.9 Testing Laboratories: Identify the laboratories performing testing. Ensure that the testing laboratories comply with the Laboratory Qualification Program requirements of this Section or other applicable requirements.

105-4.10 Department Inspection Access: Include a statement in the Quality Control Plan allowing the Department inspectors access to the production facility to perform the inspections of the production process and the products produced for the Department.

105-5 Contractor Quality Control (QC) Plan.

105-5.1 General: Submit the Contractor QC Plan in the Department's database seven days prior to beginning work on any QC material as defined in this Section. The QC Plan may be submitted as a whole or in portions for the work related to the Contract.

Update the QC Plan at least five working days prior to the implementation of any changes.

If at any time the Work is not in compliance with the Contract Documents, the Engineer may suspend operations in accordance with 8-6.1.

105-5.2 Personnel Qualification: Submit the Training Identification Numbers for all technicians performing sampling, testing and inspection for field tests. Include employed and subcontracted technicians.

105-5.3 Production Facilities: Identify the producers of materials listed in 105-4.4 for the project. Include the Department's facility ID number as part of the identification. All producers must have accepted Producer's Quality Control Program and be listed on the Department's Production Facility Listing**.**

105-5.3.1 Structural Concrete Mix Designs: Identify the approved structural concrete mix designs for each structural concrete production facility for review and approval by the Engineer. Do not begin work on the material without the Engineer's approval. The Engineer will review and respond within five calendar days of submittal.

105-5.4 Testing Laboratories: Identify the laboratories performing testing. Ensure that the testing laboratories comply with the Laboratory Qualification Program requirements of this Section.

105-6 Contractor Certification of Compliance.

Provide the Engineer with a notarized monthly certification of compliance with the Contract Documents, to accompany each progress estimate, on a form provided by the Engineer. The Department may not authorize payment of any progress estimate not accompanied by an executed certification document.

Final payment in accordance with 9-8 will not be made until a final notarized certification summarizing all QC exceptions has been submitted.

105-7 Lab Qualification Program.

Testing laboratories participating in the Department's Acceptance Program must have current Department qualification when testing materials that are used on Department projects. In addition, they must have one of the following:

1. Current AASHTO (AAP) accreditation.
2. Inspected on a regular basis per ASTM D 3740 for earthwork, ASTM D 3666 for asphalt and ASTM C 1077 for concrete for test methods used in the Acceptance Program, with all deficiencies corrected, and under the supervision of a Specialty Engineer.
3. Current Construction Materials Engineering Council (CMEC) program accreditation or other independent inspection program accreditation acceptable to the Engineer and equivalent to (1) or (2) above.

After meeting the criteria described above, submit a Laboratory Qualification Application to the Department. The application is available from the Department's website: https://www.fdot.gov/materials/quality/programs/laboratoryqualification/index.shtm. Obtain the Department's qualification prior to beginning testing. The Department may inspect the laboratory for compliance with the accreditation requirements prior to issuing qualification.

Meet and maintain the qualification requirements at all times. Testing without Department's qualification may result in a rejection of the test results. Continued qualifications are subject to satisfactory results from Department evaluations, including Independent Assurance evaluations. In case of suspension or disqualification, prior to resumption of testing, resolve the issues to the Department's satisfaction and obtain reinstatement of qualification. The following conditions may result in suspension of a laboratory's qualified status:

1. Failure to timely supply required information.
2. Loss of accredited status.
3. Failure to correct deficiencies in a timely manner.
4. Unsatisfactory performance.
5. Changing the laboratory's physical location without notification to the accrediting agency and the Engineer.
6. Delays in reporting the test data in the Department's database.
7. Incomplete or inaccurate reporting.
8. Using unqualified technicians performing testing.

Should any qualified laboratory falsify records, the laboratory qualification will be subject to revocation by the Engineer. Falsification of project-related documentation will be subject to further investigation and penalty under State and Federal laws.

It is prohibited for any contract laboratory or staff to perform Contractor QC testing and any other Acceptance Program testing on the same contract.

105-8 Personnel Qualifications.

105-8.1 General: Provide qualified personnel for sampling, testing and inspection of materials and construction activities. Ensure that qualifications are maintained during the course of sampling, testing and inspection.

Construction operations that require a qualified technician must not begin until the Department verifies that the technician is on the CTQP list of qualified technicians. The CTQP lists are subject to satisfactory results from periodic Independent Assurance evaluations.

105-8.2 Quality Control (QC) Manager: Designate a QC Manager who has full authority to act as the Contractor's agent to institute any and all actions necessary to administer, implement, monitor, and as necessary, adjust quality control processes to ensure compliance with the Contract Documents. The QC Manager must speak and understand English. The QC Manager must be on-site at the project on a daily basis or always available upon four hours' notice. Ensure that the QC Manager is qualified as such through the Construction Training and Qualification Program. The QC Manager and the Superintendent must not be the same individual.

Under the direction of the QC Manager, ensure that the QC test data is entered into the Department's database on a daily basis. Use Department approved programs to generate the plots for the Earthwork Records System (ERS). Maintain all QC related reports and documentation for a period of three years from final acceptance of the project. Make copies available for review by the Department upon request.

105-8.3 Temporary Traffic Control (Maintenance of Traffic) Personnel: Worksite Traffic Supervisors, flaggers, and other personnel responsible for work zone related transportation management and traffic control must obtain training and certification in accordance with the Department's Temporary Traffic Control (Maintenance of Traffic) Training Handbook located at the following URL address: https://www.fdot.gov/roadway/TTC/Default.shtm.

105-8.4 Earthwork Quality Control (QC) Personnel:

105-8.4.1 Earthwork Level I: Ensure the technician who samples the soil and earthwork materials from the roadway project, takes earthwork moisture and density readings, and records those data into the ERS section of the Department's database, holds a CTQP Earthwork Construction Inspection Level I qualification.

105-8.4.2 Earthwork Level II: Ensure the technician responsible for determining the disposition of soil and earthwork materials on the roadway, and for interpreting and meeting Contract Document requirements holds a CTQP Earthwork Construction Inspection Level II qualification.

105-8.5 Asphalt Quality Control (QC) Personnel:

105-8.5.1 Plant Technicians: For asphalt plant operations, provide a QC technician, qualified as a CTQP Asphalt Plant Level II Technician, available at the asphalt plant at all times when producing mix for the Department. Perform all asphalt plant related testing with a CTQP Asphalt Plant Level I Technician. As an exception, measurements of temperature may be performed by someone under the supervision of a CTQP Plant Level II technician.

105-8.5.2 Paving Technicians: For paving operations (with the exception of miscellaneous or temporary asphalt), keep a qualified CTQP Asphalt Paving Level II Technician on the roadway at all times when placing asphalt mix for the Department, and perform all testing with a CTQP Asphalt Paving Level I Technician. As an exception, measurements of cross-slope,

temperature, and yield (spread rate) can be performed by someone under the supervision of a CTQP Paving Level II Technician at the roadway.

105-8.5.3 Mix Designer: Ensure all mix designs are developed by individuals who are CTQP qualified as an Asphalt Hot Mix Designer.

105-8.5.4 Documentation: Document all QC procedures, inspection, and all test results and make them available for review by the Engineer throughout the life of the Contract. Identify in the asphalt producer's QC Plan the QC Managers and Asphalt Plant Level II technicians responsible for the decision to resume production after a quality control failure.

105-8.6 Concrete QC Personnel:

105-8.6.1 Concrete Field Technician - Level 1: Ensure technicians performing plastic property testing on concrete for materials acceptance are qualified CTQP Concrete Field Technicians Level 1. Plastic property testing will include but not be limited to slump, temperature, air content, water-to-cementitious materials ratio calculation, and making and curing concrete cylinders. Duties will include initial sampling and testing to confirm specification compliance prior to beginning concrete placements, ensuring timely placement of initial cure and providing for the transport of compressive strength samples to the designated laboratories. Ensure that personnel performing plastic property testing on self-consolidating concrete (SCC) possess an ACI Self-Consolidating Concrete Testing Technician Certification.

105-8.6.2 Concrete Field Inspector - Level 2: Ensure field inspectors responsible for the quality of concrete being placed on the following structure types are qualified CTQP Concrete Field Inspectors Level 2:

1. Moveable bridges
2. Bridges over a water opening of 1,000 feet or more
3. Bridges with a span of 190 feet or more
4. Cable supported or cable stayed bridges
5. Post-tensioned bridges
6. Steel girder or steel truss bridges
7. Multi-level roadways

With the exception of concrete traffic railing and bridge approach slab placements, a Level 2 Inspector must be present on the jobsite during all concrete placements. Prior to the placement of concrete, the inspector will inspect the element to be cast to ensure compliance with Contract Documents. A Level 2 Inspector's duties may include ensuring that concrete testing, inspection, and curing in the field are performed in accordance with the Contract Documents. The QC Inspector will inform the Verification Inspector of anticipated concrete placements and LOT sizes.

105-8.6.3 Concrete Laboratory Technician – Level 1: Ensure technicians testing cylinders and recording concrete strength for material acceptance are qualified CTQP Concrete Laboratory Technicians Level 1. Duties include final curing, compressive strength testing, and the recording/reporting of all test data.

105-8.7 Structural Concrete Production Facility Quality Control (QC) Personnel:

Ensure that each portland cement structural concrete production facility (plant), has designated personnel including plant manager of QC, concrete mix designer, concrete batch plant operator, and testing technicians to provide QC inspections and testing.

Upon Department approval, the functions of the above positions may be performed by the same person when it can be demonstrated that the plant's operation and quality of concrete will not be detrimentally affected and personnel have the qualifications required

herein.

105-8.7.1 Plant Manager of QC: Ensure that the plant manager of QC has at least three years of concrete related experience and the following training certifications:

1. CTQP Concrete Laboratory Technician - Level 1 certificate.
2. CTQP Concrete Field Technician - Level 1 certificate.
3. Concrete Batch Plant Operator certification in accordance with 105-8.7.4.

As alternatives to these certifications, the Department will accept, one of the following:

a. Prestressed Concrete Institute (PCI) QC Personnel Certification Level III.

b. Precast Concrete Pipe, Box Culverts, Drainage Structures or Incidental Precast Concrete Plants Level II QC Inspector Certifications.

c. National Ready Mixed Concrete Association (NRMCA) Certified Concrete Technologist Level 2.

105-8.7.2 Concrete Mix Designer: Ensure that the concrete mix designer has the CTQP Concrete Laboratory Technician Level 2 certification. As an alternative, the Department will accept any of the following qualifications:

1. PCI QC Personnel Level III Certification, for concrete mix designs of prestressed concrete products.
2. National Ready Mix Concrete Association (NRMCA) Certified Concrete Technologist Level 3.
3. Any of the Level II QC certifications in accordance with 105-8.9.2.2.

105-8.7.3 Qualified Testing Technicians: Ensure that the testing technicians have the following certifications:

1. ACI Concrete Field Testing Technician Grade I, for personnel performing concrete plastic property tests and ACI Self-Consolidating Concrete Testing Technician if testing self-consolidating concrete (SCC).
2. ACI Concrete Strength Testing Technician, for personnel performing tests on hardened properties of concrete.

105-8.7.4 Concrete Batch Plant Operator: Ensure that the concrete batch plant operator has a CTQP Concrete Batch Plant Operator Certification. As an alternative, the Department will accept the following certifications:

a. Precast Concrete Structures Association (PCSA) Batch Plant Operator,

b. NRMCA Certified Concrete Technologist Level 3, or

c. NRMCA Plant Manager Certification.

For dry cast concrete pipe and dry cast drainage structures, the Department will accept American Concrete Pipe Association (ACPA) Quality School Certification.

105-8.8 Prestressed Concrete Plant Quality Control (QC) Personnel: Obtain personnel certifications from Department accredited training providers. The list of Department approved courses and their accredited providers is available on the SMO website at the following URL:https://www.fdot.gov/materials/administration/resources/training/structural/concrete-prestressed.shtm.

Ensure each prestressed concrete plant has an onsite production manager, an onsite plant QC manager, a plant engineer, and adequate onsite QC inspectors/technicians to provide complete QC inspections and testing.

Ensure the plant manager for QC has at least five years of related experience and the following certifications:

1. ACI Concrete Field Testing Technician Grade I certification.
2. PCI QC Personnel Certification Level III.
3. Certificate of completion of Section 450 Specification examination.

Ensure that the QC inspector/technician has the following certifications:

1. ACI Concrete Field Testing Technician Grade I certification.
2. Certificate of completion of Section 450 Specification examination.

105-8.8.1 Additional Requirements for Quality Control (QC) Personnel of Prestressed Manufacturing Facilities:

105-8.8.1.1 Testing Personnel: Ensure that testing technicians meet the requirement of 105-8.7.3.

105-8.8.1.2 Batch Plant Operator: Ensure that the batch plant operator meets the requirement of 105-8.7.4.

105-8.9 Pipe and Precast Concrete Products Manufacturing Facilities Quality Control (QC) Personnel:

105-8.9.1 General: Obtain personnel certifications from Department accredited training providers. The list of Department approved courses and their accredited providers is available on the SMO website at the following URL: https://www.fdot.gov/materials/administration/resources/training/structural/index.shtm.

105-8.9.2 Precast Concrete Drainage Structures, Precast Concrete Box Culvert, Precast Concrete Pipe, and Incidental Precast Concrete Manufacturing Facilities Quality Control (QC) Personnel:

105-8.9.2.1 Level I Quality Control Inspectors: Ensure that the Level I Inspectors have the following certifications:

105-8.9.2.1.1 Precast Concrete Drainage Technician Level I: PCI Quality Control Technician Level I certification. As an alternative, a current Precast Concrete Quality Control Technician Level I certification in the respective work area will be accepted.

105-8.9.2.1.2 Incidental Precast Concrete Technician Level I: PCI Quality Control Technician Level I certification. As an alternative, a current Precast Concrete Quality Control Technician Level I certification in the respective work area will be accepted.

105-8.9.2.1.3 Precast Concrete Pipe Technician Level I: Precast Concrete Pipe Technician Level I certification.

105-8.9.2.2 Level II Quality Control Inspectors: Ensure that Level II Inspectors have the following certifications:

105-8.9.2.2.1 Precast Concrete Drainage Technician Level II:

1. Precast Concrete Drainage Technician Level I, in accordance with 105-8.9.2.1.1.
2. PCI Quality Control Technician Level II certification. As an alternative, a current Precast Concrete Quality Control Technician Level II certification in the respective work area will be accepted.

3. CTQP Concrete Field Technician Level 1, if the plant produces structural concrete in accordance with Section 346.

105-8.9.2.2.2 Incidental Precast Concrete Technician Level II:

1. Incidental Precast Concrete Technician Level I, in accordance with 105-8.9.2.1.2.

2. PCI Quality Control Technician Level II certification. As an alternative, a current Precast Concrete Quality Control Technician Level II in the respective work area will be accepted.

3. CTQP Concrete Field Technician Level 1.

4. Level II technicians who will perform quality control of incidental prestressed products must have a current certificate of completion of Section 450 Specification examination.

105-8.9.2.2.3 Precast Concrete Pipe Technician Level II:

1. Precast Concrete Pipe Technician Level I, in accordance with 105-8.9.2.1.3.

2. Precast Concrete Pipe Technician Certification Level II.

105-8.9.2.3 Plant Quality Control Manager: Ensure that the QC manager has a minimum of two years construction related experience in the specific work area and has the following certifications:

105-8.9.2.3.1 Precast Concrete Drainage Facilities:

Precast Concrete Drainage Technician Level II in accordance with 105-8.9.2.2.1.

105-8.9.2.3.2 Incidental Precast Concrete Facilities:

1. Incidental Precast Concrete Technician Level II in accordance with 105-8.9.2.2.2.

2. Section 450 Specification Certification if the plant produces incidental prestressed products.

105-8.9.2.3.3 Precast Concrete Pipe Facilities:

Precast Concrete Pipe Technician Level II in accordance with 105-8.9.2.2.3.

105-8.9.2.4 Additional Requirements for Quality Control (QC) Personnel of Precast Concrete Drainage Structures and Box Culverts, Precast Concrete Pipe, and Incidental Precast Concrete Manufacturing Facilities:

105-8.9.2.4.1 Testing Personnel: Ensure testing technicians meet the requirement of 105-8.7.3.

105-8.9.2.4.2 Batch Plant Operator: Ensure the batch plant operator meets the requirement of 105-8.7.4.

105-8.10 Supervisory Personnel – Post-Tensioned and Movable Bridge Structures:

105-8.10.1 General: Provide supervisory personnel meeting the qualification requirements only for the post-tensioned and movable bridge types detailed in this Article. Submit qualifications to the Engineer at the pre-construction conference. Do not begin construction until the qualifications of supervisory personnel have been approved by the Engineer.

105-8.10.2 Proof of License or Certification: Submit a copy of the Professional Engineer license current and in force issued by the state in which registration is held. The license

must be for the field of engineering that the construction work involves such as Civil, Electrical or Mechanical. Under certain circumstances Florida registration may be required.

Submit a copy of the license issued by the State of Florida for tradesmen that require a license indicating that the license is in force and is current. Submit a copy of the certification issued by the International Society of Automation for each Certified Control Systems Technician.

105-8.10.3 Experience Record: Submit the following information for supervisory personnel to substantiate their experience record. The supervisor (project engineer, superintendent/manager or foreman) seeking approval must provide a notarized certification statement attesting to the completeness and accuracy of the information submitted. Submit the following experience information for each individual seeking approval as a supervisor:

Project owner's name and telephone number of an owner's representative, project identification number, state, city, county, highway number and feature intersected.

Detailed descriptions of each bridge construction experience and the level of supervisory authority during that experience. Report the duration in weeks, as well as begin and end dates, for each experience period.

The name, address and telephone number of an individual that can verify that the experience being reported is accurate. This individual should have been an immediate supervisor unless the supervisor cannot be contacted in which case another individual with direct knowledge of the experience is acceptable.

105-8.10.4 Concrete Post-Tensioned Segmental Box Girder Construction: Ensure the individuals filling the following positions meet the minimum requirements as follows:

105-8.10.4.1 Project Engineer-New Construction: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure a minimum of three years of experience is in segmental box girder construction engineering and includes a minimum of one year in segmental casting yard operations and related surveying, one year in segment erection and related surveying, including post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project engineer in responsible charge of segmental box girder construction engineering. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.2 Project Engineer-Repair and Rehabilitation: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure a minimum of three years of experience is in segmental box girder construction engineering and includes one year of post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project engineer in responsible charge of segmental box girder rehabilitation engineering or segmental box girder new construction engineering.

105-8.10.4.3 Project Superintendent/Manager-New Construction: Ensure the project superintendent/manager has a minimum of ten years of bridge construction experience or is a registered Professional Engineer with five years of bridge construction experience. Ensure that a minimum of three years of experience is in segmental box girder construction operations and includes a minimum of one year in the casting yard operations and related surveying, one year in segment erection and related surveying including post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project superintendent/manager in responsible charge of segmental box girder construction operations.

Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.4 Project Superintendent/Manager-Repair and Rehabilitation: Ensure the project superintendent/manager has a minimum of five years of bridge construction experience or is a registered Professional Engineer with three years of bridge construction experience. Ensure that a minimum of two years of experience is in segmental box girder construction operations and includes a minimum of one year of experience performing post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project superintendent/manager in responsible charge of segmental box girder rehabilitation operations or segmental box girder new construction operations.

105-8.10.4.5 Foreman-New Construction: Ensure that the foreman has a minimum of five years of bridge construction experience with two years of experience in segmental box girder operations and a minimum of one year as the foreman in responsible charge of segmental box girder new construction operations. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.6 Foreman-Repair and Rehabilitation: Ensure the foremen has a minimum of five years of bridge construction experience with two years of experience in segmental box girder operations and a minimum of one year as the foreman in responsible charge of segmental box girder rehabilitation operations or segmental box girder new construction operations.

105-8.10.4.7 Geometry Control Engineer/Manager: Ensure that the geometry control engineer/manager for construction of cast-in-place box segments is a registered Professional Engineer with one year of experience, a non-registered Engineer with three years of experience or a registered Professional Land Surveyor with three years of experience in geometry control for casting and erection of cast-in-place box segments. Credit for experience in cast-in-place box girder geometry control will be given for experience in precast box girder geometry control but not vice versa.

Ensure that the geometry control engineer/manager for precast box segments is a registered Professional Engineer with one year of experience or non-registered with three years of experience in casting yard geometry control of concrete box segments.

The geometry control engineer/manager must be responsible for and experienced at implementing the method for establishing and maintaining geometry control for segment casting yard operations and segment erection operations and must be experienced with the use of computer programs for monitoring and adjusting theoretical segment casting curves and geometry. This individual must be experienced at establishing procedures for assuring accurate segment form setup, post-tensioning duct and rebar alignment and effective concrete placement and curing operations as well as for verifying that casting and erection field survey data has been properly gathered and recorded. Ensure this individual is present at the site of construction, at all times while cast-in-place segmental box girder construction is in progress or until casting yard operations and segment erection is complete.

105-8.10.4.8 Surveyor: Ensure that the surveyor in charge of geometry control surveying for box segment casting and/or box segment erection has a minimum of one year of bridge construction surveying experience. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.5 Movable Bridge Construction: Ensure the individual filling the following positions meet the minimum requirements as follows:

105-8.10.5.1 Electrical Journeyman: Ensure the electrical journeyman holds, an active journeyman electrician's license and has at least five years' experience in industrial electrical work, or is a certified control systems technician. A certified control systems technician will not be permitted to perform electrical power work including, but not limited to, conduit and wire-way installation or power conductor connection. Ensure the electrical journeyman has successfully completed the installation of one similar movable bridge electrical system during the last three years.

105-8.10.5.2 Control Systems Engineer and Mechanical Systems Engineer: Ensure the control systems engineer and mechanical systems engineer are both registered Professional Engineers with a minimum of 10 years supervisory experience each in movable bridge construction. Ensure the engineers have working knowledge of the movable bridge leaf motion control techniques, mechanical equipment and arrangements specified for this project. Ensure that each engineer has been in responsible control of the design and implementation of at least three movable bridge electrical control and machinery systems within the past 10 years of which, at least one of the three bridges was within the last three years. Ensure that a minimum of one of the three bridge designs incorporated the same type of leaf motion control and machinery systems specified for this project.

105-8.10.6 Concrete Post-Tensioned Other Than Segmental Box Girder Construction: Ensure the individual filling the following positions meet the minimum requirements as follows:

105-8.10.6.1 Project Engineer: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure that a minimum of three years of experience is in concrete post-tensioned construction. Ensure that the three years of experience includes experience in girder erection, safe use of cranes, stabilization of girders; design of false work for temporary girder support, post-tensioning and grouting operations, and a minimum of one year as the project engineer in responsible charge of post-tensioning related engineering responsibilities.

105-8.10.6.2 Project Superintendent/Manager: Ensure the project superintendent/manager has a minimum of ten years of bridge construction experience or is a registered Professional Engineer with five years of bridge construction experience and has a minimum of three years of supervisory experience in girder erection, safe use of cranes, stabilization of girders; design of falsework for temporary girder support post-tensioning, grouting operations and a minimum of one year as the project superintendent/manager in responsible charge of post-tensioning related operations.

105-8.10.6.3 Foreman: Ensure the foremen has a minimum of five years of bridge construction experience with two years of experience in post-tensioning related operations and a minimum of one year as the foreman in responsible charge of post-tensioning related operations.

105-8.10.7 Post-Tensioning (PT) and Filler Injection Personnel Qualifications: Perform all stressing and filler injection operations in the presence of the Engineer and with personnel meeting the qualifications of this article. Coordinate and schedule all PT and filler injection activities to facilitate inspection by the Engineer.

105-8.10.7.1 Post-Tensioning: Perform all PT field operations under the direct supervision of a Level II CTQP Qualified PT Technician who must be present at the site of

the post-tensioning work during the entire duration of the operation. For the superstructures of bridges having concrete post-tensioned box or I girder construction, provide at least two CTQP Qualified PT Technicians, Level I or II, on the work crew. The supervisor of the work crew, who must be a Level II CTQP Qualified PT Technician, may also be a work crew member, in which case, the supervisor shall count as one of the two CTQP qualified work crew members. For PT operations other than the superstructures of post-tensioned box or I girder construction, perform all PT operations under the direct supervision of a Level II CTQP Qualified PT Technician who must be present at the site of the PT work during the entire duration of the operation. Work crew members are not required to be CTQP qualified.

105-8.10.7.2 Grouting: Perform all grouting field operations under the direct supervision of a Level II CTQP Qualified Grouting Technician who must be present at the site of the grouting work during the entire duration of the operation. For the superstructures of bridges having concrete post-tensioned box or I girder construction, provide at least two CTQP Qualified Grouting Technicians, Level I or II, on the work crew. The supervisor of the work crew, who must be a Level II CTQP Qualified Grouting Technician, may also be a work crew member, in which case, the supervisor shall count as one of two CTQP qualified work crew members. For grouting operations other than the superstructures of post-tensioned box or I girder construction, perform all grouting operations under the direct supervision of a Level II CTQP Qualified Grouting Technician who must be present at the site of the grouting work during the entire duration of the operation. Work crew members are not required to be CTQP qualified.

Perform all vacuum grouting operations under the direct supervision of a crew foreman who has been trained and has experience in the use of vacuum grouting equipment and procedures. Submit the crew foreman's training and experience records to the Engineer for approval prior to performing any vacuum grouting operation.

105-8.10.7.3 Flexible Filler Injection: Perform all filler injection operations under the direct supervision of a filler injection foreman who has American Segmental Bridge Institute (ASBI) certification in the flexible filler process. Provide at least two CTQP Qualified Grouting Technicians with ASBI certification in the flexible filler process, one of whom must be a Level II CTQP Qualified Grouting Technician. Both technicians must be present at the site of the flexible filler injection work during the entire duration of the operation.

Provide a filler injection quality control (QC) inspector who has ASBI certification in the flexible filler process. The filler injection QC inspector must be present at the site of the flexible filler injection work during the entire duration of the operation.

Verifiable experience performing injection of similar flexible filler on at least two projects is acceptable in lieu of ASBI certification in the flexible filler process.

Perform all flexible filler repair operations under the direct supervision of a crew foreman who has been trained and has verifiable experience in the use of vacuum flexible filler repair equipment and procedures. Submit the crew foreman's training and experience records to the Engineer prior to performing any flexible filler operation.

105-8.10.8 Failure to Comply with Bridge Qualification Requirements: Make an immediate effort to reestablish compliance. If an immediate effort is not put forth as determined by the Engineer, payment for the bridge construction operations requiring supervisors to be qualified under this Specification will be withheld up to 60 days. Cease all bridge construction and related activities (casting yard, etc.) if compliance is not met within 60 days, regardless of how much effort is put forth. Resume bridge construction operations only after written approval from the Engineer stating that compliance is reestablished.

105-8.11 Signal Installation Inspector: Provide an inspector trained and certified by the International Municipal Signal Association (IMSA) as a traffic signal inspector to perform all signal installation inspections. Use only Department approved signal inspection report forms during the signal inspection activities. Ensure all equipment, materials, and hardware is in compliance with Department Specifications and verify that all equipment requiring certification is listed on the Department's Approved Product List (APL). Submit the completed signal inspection report forms, certified by the IMSA traffic signal inspector to the Engineer.

The Department's approved inspection report forms are available at the following URL: http://www.fdot.gov/traffic/.

105-8.12 Structural Steel and Miscellaneous Metals Fabrication Facility Quality Control Personnel: Ensure each fabrication facility has an onsite production manager, an onsite facility manager for QC, a plant engineer, and onsite QC inspectors/technicians to provide complete QC inspections and testing.

Ensure that the facility manager for QC and QC inspectors/technicians meet the certification requirements set forth in the latest version of AASHTO/NSBA Steel Bridge Collaboration S 4.1, Steel Bridge Fabrication QC/QA Guide Specification, including the years of experience required in Table 105-1 below. The facility manager for QC must meet the requirements of Table 105-1 for every structural steel member type produced by a plant with QC being managed by the facility manager for QC. The facility manager for QC will report directly to the plant manager or plant engineer and must not be the plant production manager nor report to or be the subordinate of the plant production manager. QC inspectors/technicians must be the employees of, and must report directly to the facility manager for QC.

Table 105-1
Experience Requirements for QC Inspectors/Technicians
And Facility Manager for Quality Control

Structural Steel Member Type	Minimum Years of Experience Required	
	QC Inspector/Technician	Facility Manager for QC
Rolled beam bridges	1 year	3 years
Welded plate girders (I sections, box sections, etc.)	2 years	4 years
Complex structures, such as trusses, arches, cable stayed bridges, and moveable bridges	3 years	5 years
Fracture critical (FC) members	3 years	5 years

SECTION 107
LITTER REMOVAL AND MOWING

107-1 Description.

Provide pickup, removal and disposal of litter within the project limits from the outside edge of travel way to the right of way line. Include the median on divided highways, from the inside edge of travel way to the inside edge of travel way. Litter includes but is not limited to, bottles, cans, paper, tires, tire pieces, lumber, vehicle parts, metal junk, and brush debris.

Mow turf or vegetation within the project limits. Turf consists of grasses planted in accordance with Section 570. Vegetation consists of planted and natural grasses, weeds, and other natural vegetation that have been previously mowed.

107-2 Operation.

107-2.1 Frequency: Begin litter removal and mowing when directed by the Engineer and continue every 30 days, unless otherwise directed by the Engineer. Continue litter removal and mowing until final acceptance in accordance with 5-11. Mow all areas to obtain a uniform height of 6 inches.

After final acceptance, perform litter removal and mowing until new turf is established in accordance with 570-4 at no cost to the Department. Maintain turf and vegetation height between 6 inches and 12 inches. Do not include seed stalk or wildflowers when measuring height.

Perform litter removal prior to and in conjunction with mowing; however, the Engineer may direct litter pickups in addition to those performed in conjunction with mowing.

Do not mow new turf until a healthy root system is established. In designated wildflower areas, avoid cutting wildflowers when in bloom and when re-seeding.

107-2.2 General: Mow shoulders and medians concurrently so that not more than one mile will be left partially mowed at the conclusion of the working day. Mow turf and vegetation on slopes or around appurtenances concurrent with the mowing operation.

In areas saturated with standing water, mow or cut to the surface of the water using hand labor or other specialized equipment when standard equipment will cause damage.

Do not remove turf or other vegetation cuttings from the right-of-way, or rake or pick up the cuttings unless the cuttings are in the traveled ways, bike lanes, or sidewalk; are obstructing drainage structures; or are the result of cleaning the equipment.

107-2.3 Limitations: Maintain traffic in accordance with Section 102. When mowing within four feet of a travel lane, operate the equipment in the same direction of traffic, unless the adjacent lane is closed to traffic due to construction operations.

Perform all work during daylight hours.

107-2.4 Disposal of Litter and Debris: During each litter removal cycle, bag and remove all litter or piles at the end of each working day. Dispose of litter in accordance with applicable local and state laws. Do not store or stockpile litter within the project limits.

107-3 Method of Measurement.

The quantity to be paid will be the project area shown in the Contract Documents, in acres, for each litter removal or mowing cycle completed and accepted. No adjustments will be made to the project area quantity.

107-4 Basis of Payment.

Price and payment will be full compensation for all work specified in this section.

No separate payment will be made for litter removal and mowing after final acceptance.

Payment will be made under:

Item No. 107 - 1- Litter Removal - per acre.

Item No. 107 - 2- Mowing - per acre

CLEARING CONSTRUCTION SITE

SECTION 110
CLEARING AND GRUBBING

110-1 Description.

Clear and grub within the areas shown in the Plans. Remove and dispose of all trees, stumps, roots and other such protruding objects, buildings, structures, appurtenances, existing flexible asphalt pavement, and other facilities necessary to prepare the area for the proposed construction. Remove and dispose of all product and debris not required to be salvaged or not required to complete the construction.

Perform miscellaneous work necessary for the complete preparation of the overall project site as specified in 110-10.

110-2 Standard Clearing and Grubbing.

110-2.1 Work Included: Completely remove and dispose of all buildings, timber, brush, trees, stumps, roots, rubbish, debris, existing flexible pavement and base, drainage structures, culverts, and pipes. Remove all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas.

Perform standard clearing and grubbing within the following areas:

1. All areas where excavation is to be done, including borrow pits, lateral ditches, right-of-way ditches, etc.
2. All areas where roadway embankments will be constructed, unless constructing over an existing road. If constructing over an existing road, remove asphalt and base in accordance with 120-4.2 and the Plans.
3. All areas where structures will be constructed, including pipe culverts and other pipe lines.

110-2.2 Depths of Removal of Roots, Stumps, and Other Debris: In all areas where excavation is to be performed, or roadway embankments are to be constructed, remove roots and other debris to a depth of 12 inches below the ground surface. Remove roots and other debris from all excavated material to be used in the construction of roadway embankment or roadway base. Plow the surface to a depth of at least 6 inches, and remove all roots thereby exposed to a depth of at least 12 inches. Completely remove and dispose of all stumps within the roadway right-of-way.

Remove all roots, etc., protruding through or appearing on the surface of the completed excavation within the roadway area and for structures, to a depth of at least 12 inches below the finished excavation surface.

Remove or cut off all stumps, roots, etc., below the surface of the completed excavation in borrow pits, material pits, and lateral ditches.

In borrow and material pits, do not perform any clearing or grubbing within 3 feet inside the right-of-way line.

Within all other areas where standard clearing and grubbing is to be performed, remove roots and other debris projecting through or appearing on the surface of the original ground to a depth of 12 inches below the surface, but do not plow or harrow these areas.

110-2.3 Boulders: Remove any boulders encountered in the roadway excavation (other than as permitted under the provisions of 120-7.2) or found on the surface of the ground. When approved by the Engineer place boulders in neat piles inside the right of way. The Contractor may stockpile boulders encountered in Department-furnished borrow areas, which are not suitable for use in the embankment construction, within the borrow area.

110-2.4 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer, in accordance with 110-6.5.

110-3 Selective Clearing and Grubbing.

110-3.1 General: Remove and dispose of vegetation, obstructions, etc., as shown in the Plans. Provide acceptable fill material, and grade and compact holes or voids created by the removal of the stumps. Perform all selective clearing and grubbing in accordance with ANSI A300.

No staging, storing, stockpiling, parking or dumping will be allowed in selective clearing and grubbing areas. Only mechanical equipment related to selective clearing and grubbing activities will be allowed in selective clearing and grubbing areas. Protect trees to remain from trunk, branch and root damage.

110-3.2 Protection of Plant Preservation Areas: Areas to remain natural may be designated in the Plans. No clearing and grubbing, staging, storage, stockpiling, parking or dumping is allowed in these areas. Do not bring equipment into these areas.

110-3.3 Tree Protection Barrier: Construct a tree protection barrier in accordance with Standard Plans Index 110-100 and the Plans. Maintain barrier for duration of the Contract.

110-3.4 Tree Root and Branch Pruning: When pruning cuts or root pruning to existing trees are shown in the Plans, work is to be supervised on site by an International Society of Arboriculture (ISA) Certified Arborist and performed in accordance with ANSI A300.

110-3.5 Tree Removal: Remove trees as shown in the Plans.

110-4 Protection of Property Remaining in Place.

Protect property to remain in place in accordance with 7-11.

110-5 Removal of Buildings.

110-5.1 Parts to be Removed: Completely remove all parts of the buildings, including utilities, plumbing, foundations, floors, basements, steps, connecting concrete sidewalks or other pavement, septic tanks, and any other appurtenances, by any practical manner which is not detrimental to other property and improvements.

Remove utilities to the point of connection to the utility authority’s cut-in. After removing the sewer connections to the point of cut-in, construct a concrete plug at the cut-in point, as directed by the Engineer, except where the utility owners may elect to perform their own plugging. Contact the appropriate utility companies prior to removal of any part of the building to ensure disconnection of services.

Submit demolition schedule 15 working days before beginning any demolition or renovation of a building.

110-5.2 Removal by Others: Where buildings within the area to be cleared and grubbed are so specified to be removed by others, remove and dispose of any foundations, curtain walls, concrete floors, basements or other foundation parts which might be left in place after such removal of buildings by others.

110-6 Removal of Existing Bridges.

110-6.1 General: The work under this Article includes bridges, as defined in 1-3.

Remove and dispose of the materials from existing bridges. Remove

1. those bridges and approach slabs, or portions of bridges, shown in the Plans to be removed,

2. those bridges and approach slabs, or portions of bridges, found within the limits of the area to be cleared and grubbed, and directed by the Engineer to be removed,

3. those bridges and approach slabs, or portion of bridges, which are necessary to be removed in order to complete the work, and

4. other appurtenances or obstructions which may be designated in the Contract Documents to be included as an item of payment for the work under this Article.

Submit schedule information and demolition plan for approval 15 working days before beginning any demolition or renovation of any structures.

110-6.2 Method of Removal:

110-6.2.1 General: Remove the structures in such a way so as to leave no obstructions to any proposed new bridge or to any waterways. Pull, cut off, or break off pilings to the requirements of the permit or other Contract Documents, or if not specified, not less than 2 feet below the finish ground line. In the event that the Plans indicate channel excavation to be done by others, consider the finish ground line as the limits of such excavation. For materials which are to remain the property of the Department or are to be salvaged for use in temporary bridges, avoid damage to such materials, and entirely remove all bolts, nails, etc. from timbers to be so salvaged. Mark structural steel members for identification as directed.

110-6.2.2 Removal of Steel Members with Hazardous Coatings: Submit to the Engineer for approval the “Contractor’s Lead in Construction Compliance Program”, QP2 certification from the Society for Protective Coatings (SSPC) from the firm actually removing and disposing of these steel members before any members are disturbed.

Vacuum power tool clean any coated steel member to bare metal as defined by SSPC-SP11 a minimum of 4 inches either side of any area to be heated (e.g. torch cutting, sawing, grinding, etc.) in accordance with 29 CFR 1926.354. Abrasive blasting is prohibited.

110-6.3 Partial Removal of Bridges: On concrete bridges to be partially removed and widened, remove concrete by manually or mechanically operated pavement breakers, by concrete saws, by chipping hammers, or by hydro-demolition methods. Do not use explosives. Where concrete is to be removed to neat lines, use concrete saws or hydro-demolition methods capable of providing a reasonably uniform cleavage face. If the equipment used will not provide a uniform cut without surface spalling, first score the outlines of the work with small trenches or grooves. For all demolition methods, submit for review and approval of the Engineer, a demolition plan that describes the method of removal, equipment to be used, types of rebar splices or couplers, and method of straightening or cutting rebar. In addition, for hydro-demolition, describe the method for control of water or slurry runoff and measures for safe containment of concrete fragments that are thrown out by the hydro-demolition machine.

110-6.4 Authority of U.S. Coast Guard: For bridges in navigable waters, when constructing the project under authority of a U.S. Coast Guard permit, the U.S. Coast Guard may inspect and approve the work to remove any existing bridges involved therein, prior to acceptance by the Department.

110-6.5 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer.

Make every effort to minimize the disturbance of the ACM. Immediately provide provisions for the health and safety of all jobsite personnel and the public that may be exposed to any ACM. Provisions shall meet all applicable Federal, State, and Local Rules and Regulations regarding potentially hazardous conditions due to ACM.

The Engineer will notify the District Contamination Impact Coordinator (DCIC) who will engage the services of the Department's Contamination Assessment/Remediation Contractor (CAR). Provide access to the potential contamination area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary to resolve the contamination issue.

The CAR Contractor will perform an asbestos survey to delineate the asbestos areas, and identify any staging or holding areas that will be needed for assessment or abatement of the asbestos material.

The CAR Contractor will maintain jurisdiction over activities within areas contaminated with ACM including staging and holding areas. The CAR Contractor will be responsible for the health and safety of workers within these delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Coordinate with the CAR Contractor and Engineer to develop a work plan with projected completion dates for the final resolution of the contamination, in coordination with any regulatory agencies as appropriate. Use the work plan and schedule as a basis for planning the completion of all work efforts. The Engineer may grant Contract Time extensions according to the provisions of 8-7.3.2.

Cooperate with the CAR Contractor to expedite integration of the CAR Contractor's operations into the construction project. Adjustments to quantities or to Contract unit prices will be made according to work additions or reductions on the part of the Prime Contractor in accordance with 4-3.

The Engineer will inform the Prime Contractor when operations may resume in the affected area.

110-7 Removal of Existing Concrete.

Remove and dispose of existing rigid portland cement concrete pavement, sidewalk, slope pavement, ditch pavement, curb, and curb and gutter, etc., where shown in the Plans.

Remove all gravity walls, noise/sound walls, retaining walls, MSE walls, perimeter walls, and roadway concrete barriers, where shown in the Plans. All ancillary elements of these concrete features being removed including, but not limited to, leveling pads, copings, reinforcing steel or straps, footings, etc, are incidental and included in the cost of the removal.

110-8 Ownership of Materials.

Except as may be otherwise specified in the Contract Documents, take ownership of all buildings, structures, appurtenances, and other materials removed and dispose of them in accordance with 110-9.

110-9 Disposal of Materials.

110-9.1 General: Either stack materials designated to remain the property of the Department in neat piles within the right-of-way, load onto the Department's vehicles, or deliver to location designated in the Plans.

Dispose of timber, stumps, brush, roots, rubbish, and other material resulting from clearing and grubbing in areas and by methods meeting the applicable requirements of all Federal, State and Local Rules and Regulations. Do not block waterways by the disposal of debris.

With the approval of the Engineer, wood chips may be evenly distributed to a depth of no more than one inch in designated areas in the Department's right-of-way.

110-9.2 Burning Debris: Where burning of such materials is permitted, perform all such burning in accordance with the applicable Federal, State and Local rules and regulations. Perform all burning at locations where trees and shrubs adjacent to the cleared area will not be harmed.

110-9.3 Timber and Crops: The Contractor may sell any merchantable timber, fruit trees, and crops that are cleared under the operations of clearing and grubbing for his own benefit, subject to the provisions of 7-1.2, which may require that the timber, fruit trees, or crops be burned at or near the site of their removal, as directed by the Engineer. The Contractor is liable for any claims which may arise pursuant to the provisions of this Subarticle.

110-9.4 Disposal of Treated Wood: Treated wood must be handled and disposed of properly during removal. Treated wood should not be cut or otherwise mechanically altered in a manner that would generate dust or particles without proper respiratory and dermal protection. The treated wood must be disposed of in at least a lined solid waste facility or through recycling/reuse. Treated wood shall not be disposed by burning or placement in a construction and demolition (C&D) debris landfill.

110-9.5 Hazardous Materials/Waste: Handle, transport, and dispose of hazardous materials/waste in accordance with all Federal, State, and Local Rules and Regulations including, but not limited to, the following:

1. SSPC Guide 7
2. Federal Water Pollution Control Act, and
3. Resource Conservation and Recover Act (RCRA).

Accept responsibility for the collection, sampling, classification, packaging, labeling, accumulation time, storage, manifesting, transportation, treatment and disposal of hazardous materials/waste, both solid and liquid. Separate all solid and liquid waste and collect all liquids used at hygiene stations and handle as hazardous materials/waste. Obtain written approval from the Engineer for all hazardous materials/waste stabilization methods before implementation.

Obtain an EPA/FDEP Hazardous Waste Identification Number (EPA/FDEP ID Number) before transporting and/or disposal of any hazardous materials/waste.

List the Department as the generator for hazardous materials/waste resulting from removal or demolition of Department materials.

Submit the following for the Engineers' approval before transporting, treatment or disposal of any hazardous materials/waste:

1. Name, address and qualifications of the transporter,
2. Name, address and qualifications of the treatment facility,

3. Proposed treatment and/or disposal of all Hazardous Materials/Waste.
4. EPA/FDEP Hazardous Waste Identification Number Application Form.
5. Manifest forms.

Transport all hazardous materials/waste in accordance with applicable Federal, State, and Local Rules and Regulations including, but not limited to, the 40 CFR 263 Standards. Submit all final Hazardous Materials/Waste manifest/bills of lading and certificates of disposal to the Engineer within 21 days of each shipment.

110-9.5.1 Steel Members with Hazardous Coating: Dispose of steel members with hazardous coating in one of the following manners:

1. Deliver the steel members and other hazardous waste to a licensed recycling or treatment facility capable of processing steel members with hazardous coating.
2. Deliver the steel members with hazardous coating to a site designated by the Engineer for use as an offshore artificial reef. Deliver any other hazardous materials/waste to a licensed hazardous materials/waste recycling treatment facility.

Dismantle and/or cut steel members to meet the required dimensions of the recycling facility, treatment facility or offshore artificial reef agency.

All compensation for the cost of removal and disposal of hazardous materials/waste will be included in the Cost of Removal of Existing Structures.

110-9.5.2 Certification of Compliance: Submit certification of Compliance from the firm actually removing and disposing of the hazardous materials/waste stipulating, the hazardous materials/waste has been handled, transported and disposed of in accordance with this Specification. The Certification of Compliance shall be attested to by a person having legal authority to bind the company.

Maintain all records required by this Specification and ensure these records are available to the Department upon request.

110-10 Miscellaneous Operations.

110-10.1 Water Wells Required to be Plugged: Fill or plug all water wells within the right-of-way, including areas of borrow pits and lateral ditches, that are not to remain in service, in accordance with applicable Federal, State, and Local Rules and Regulations.

Cut off the casing of cased wells at least 12 inches below the ground line or 12 inches below the elevation of the finished excavation surface, whichever is lower. Water wells, as referred to herein, are defined either as artesian or non-artesian, as follows:

1. An artesian well is an artificial hole in the ground from which water supplies may be obtained and which penetrates any water-bearing rock, the water in which is raised to the surface by natural flow or which rises to an elevation above the top of the water-bearing bed. Artesian wells are further defined to include all holes drilled as a source of water that penetrate any water-bearing beds that are a part of the artesian water system of Florida, as determined by representatives of the applicable Water Management District.
2. A non-artesian (water-table) well is a well in which the source of water is an unconfined aquifer. The water in a non-artesian well does not rise above the source bed.

110-10.2 Leveling Terrain: Within the areas between the limits of construction and the outer limits of clearing and grubbing, fill all holes and other depressions, and cut down all mounds and ridges. Make the area of a sufficient uniform contour so that the Department's subsequent mowing and cutting operations are not hindered by irregularity of terrain. Perform

this work regardless of whether the irregularities were the result of construction operations or existed originally.

110-10.3 Mailboxes: When the Contract Documents require furnishing and installing mailboxes, permit each owner to remove the existing mailbox. Work with the Local Postmaster to develop a method of temporary mail service for the period between removal and installation of the new mailboxes. Install the mailboxes in accordance with the Standard Plans.

110-11 Method of Measurement.

110-11.1 Clearing and Grubbing: The quantity to be paid for will be the lump sum quantity.

110-11.2 Selective Clearing and Grubbing: The quantity to be paid will be the plan quantity area in acres designated for Selective Clearing and Grubbing. The quantity to be paid for Tree Protection Barrier will be the linear foot measurement as shown in the Plans. Tree Root, Branch Pruning, and Tree Removal will be paid per each tree. Tree Removal per each will not be used where Clearing and Grubbing or Selective Clearing and Grubbing per acre is used.

110-11.3 Removal of Existing Bridges: The quantity to be paid for will be the lump sum quantity or quantities for the specific structures, or portions of structures to be removed.

110-11.4 Removal of Existing Concrete:

The quantity to be paid for will be the number of square yards of existing concrete elements, acceptably removed and disposed of, as specified. The quantity will be determined by actual measurement along the surface of the element before its removal. Measurements for appurtenances which have irregular surface configurations, such as curb and gutter, steps, and ditch pavement, will be the area as projected to an approximate horizontal plane. Where the removal of pavement areas is necessary only for the construction of box culverts, pipe culverts, storm sewers, inlets, manholes, etc., these areas will not be included in the measurements.

Area measurements for walls will be based on exposed vertical face measurements times the horizontal length of the wall.

110-11.5 Plugging Water Wells: The quantity to be paid for will be the number of water wells plugged, for each type of well (artesian or non-artesian).

110-11.6 Mailboxes: The quantity to be paid for will be the number of mailboxes acceptably furnished and installed.

110-11.7 Delivery of Salvageable Material to the Department The quantity to be paid for will be the Lump Sum quantity for delivery of salvageable materials to the Department, as indicated in the Plans.

110-11.8 General: In each case, except as provided below, where no item of separate payment for such work is included in the proposal, all costs of such work will be included in the various scheduled items in the Contract, or under specific items as specified herein below or elsewhere in the Contract.

110-12 Basis of Payment.

110-12.1 Clearing and Grubbing:

110-12.1.1 Lump Sum Payment: Price and payment will be full compensation for all clearing and grubbing required for the roadway right-of-way and for lateral ditches, channel changes, or other outfall areas, and any other clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing

equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc.

Where construction easements are specified in the Plans and the limits of clearing and grubbing for such easements are dependent upon the final construction requirements, no adjustment will be made in the lump sum price and payment, either over or under, for variations from the limits of the easement defined in the Plans.

110-12.1.2 When No Direct Payment is Provided: When no item for clearing and grubbing is included in the proposal, the Contractor shall include the cost of any work of clearing and grubbing which is necessary for the proper construction of the project in the Contract price for the structure or other item of work for which such clearing and grubbing is required. The Contractor shall include the cost of all clearing and grubbing which might be necessary in pits or areas from which base material is obtained in the Contract price for the base in which such material is used. The clearing and grubbing of areas for obtaining stabilizing materials, where required only for the purpose of obtaining materials for stabilizing, will not be paid for separately.

110-12.2 Selective Clearing and Grubbing: Price and payment will be full compensation for all selective clearing and grubbing, including all necessary hauling, furnishing equipment, Certified Arborist, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain, root pruning and tree protection.

110-12.3 Removal of Existing Bridges: Price and payment will be full compensation for all work of removal and disposal of the designated bridges.

When direct payment for the removal of existing bridges is not provided in the proposal, the Contractor shall include the cost of removing all bridges in the Contract price for clearing and grubbing or, if no item of clearing and grubbing is included, in the compensation for the other items covering the new bridge being constructed.

110-12.4 Removal of Existing Concrete: Price and payment will be full compensation for performing and completing all the work of removal and satisfactory disposal.

When no separate item for this work is provided and no applicable item of excavation or embankment covering such work (as provided in 120-13.1) is included, the Contractor shall include the costs of this work in the Contract price for the item of clearing and grubbing or for the pipe or other structure for which the concrete removal is required.

110-12.5 Plugging Water Wells: Price and payment will be full compensation for each type of well acceptably plugged.

If a water well requiring plugging is encountered and the Contract contains no price for plugging wells of that specific type, the plugging of such well will be paid for as unforeseeable work.

110-12.6 Mailboxes: Price and payment will be full compensation for all work and materials required, including supports and numbers.

110-12.7 Delivery of Salvageable Material to the Department: Price and payment will be full compensation for all work required for delivery of the materials to the Department.

110-12.8 Payment Items: Payment will be made under:

Item No. 110- 1-	Clearing and Grubbing - lump sum.
Item No. 110- 2-	Selective Clearing and Grubbing Area - acre.
Item No. 110- 3-	Removal of Existing Bridges - lump sum.
Item No. 110- 4-	Removal of Existing Concrete - per square yard.
Item No. 110- 5-	Plugging Water Wells (Artesian) - each.

Item No. 110- 6- Plugging Water Wells (Non-Artesian) - each.
Item No. 110- 7- Mailbox (Furnish and Install) - each.
Item No. 110- 21 Tree Protection Barrier - per linear foot.
Item No. 110- 22 Tree Root and Branch Pruning - per each tree.
Item No. 110- 23 Tree Removal - per each tree.
Item No. 110- 86- Delivery of Salvageable Material to FDOT - lump sum.

EARTHWORK AND RELATED OPERATIONS

SECTION 120
EXCAVATION AND EMBANKMENT

120-1 Description.

120-1.1 General: Excavate and construct embankments as required for the roadway, ditches, channel changes and borrow material. Use suitable excavated material or authorized borrow to prepare subgrades and foundations. Construct embankments in accordance with Standard Plans, Index 120-001. Compact and dress excavated areas and embankments.

Meet the requirements of Section 110 for excavation of material for clearing and grubbing and Section 125 for excavation and backfilling of structures and pipe. Material displaced by the storm sewer or drainage structure system is not included in the earthwork quantities shown in the Plans. The original ground line is defined as the contour of existing natural topography. The finished grading template is defined as the contour of the finished side slopes, unpaved shoulders, and the bottom of the roadway base or subbase, as applicable and shoulder base for flexible or rigid pavement.

120-1.2 Unidentified Areas of Contamination: When encountering or exposing any abnormal condition indicating the presence of contaminated materials, cease operations immediately in the vicinity and notify the Engineer. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate the presence of contaminated materials and must be treated with extreme caution.

Make every effort to minimize the spread of contamination into uncontaminated areas. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Ensure provisions adhere to all applicable laws, rules or regulations covering potentially hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

The Engineer will notify the District Contamination Impact Coordinator (DCIC) who will coordinate selecting and tasking the Department’s Contamination Assessment/Remediation Contractor (CAR). Provide access to the potentially contaminated area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary under applicable laws, rules, and regulations for additional assessment and/or remediation work to resolve the contamination issue.

The CAR Contractor will delineate the contamination areas, any staging or holding area required; and, in cooperation with the Prime Contractor and Engineer, develop a work plan that will provide the CAR Contractor’s operations schedule with projected completion dates for the final resolution of the contamination issue.

The CAR Contractor will maintain jurisdiction over activities inside any outlined contaminated areas and any associated staging holding areas. The CAR Contractor will be responsible for the health and safety of workers within the delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Both Contractors will use the schedule as a basis for planning the completion of both work efforts. The Engineer may grant the Contract Time extensions according to the provisions of 8-7.3.2.

Cooperate with the CAR Contractor to expedite integration of the CAR Contractor's operations into the construction project. The Prime Contractor is not expected to engage in routine construction activities, such as excavating, grading, or any type of soil manipulation, or any construction processes required if handling of contaminated soil, surface water or ground water is involved. All routine construction activities requiring the handling of contaminated soil, surface water or groundwater will be by the CAR Contractor. Adjustments to quantities or to Contract unit prices will be made according to work additions or reductions on the part of the Prime Contractor in accordance with 4-3.

The Engineer will direct the Prime Contractor when operations may resume in the affected area.

120-2 Classifications of Excavation.

120-2.1 General: The Department may classify excavation specified under this Section for payment as any of the following: regular excavation, subsoil excavation, lateral ditch excavation, and channel excavation.

If the proposal does not show subsoil excavation or lateral ditch excavation as separate items of payment, include such excavation under the item of regular excavation.

If the proposal shows lateral ditch excavation as a separate item of payment, but does not show channel excavation as a separate item of payment, include such excavation under the item of lateral ditch excavation. Otherwise, include channel excavation under the item of regular excavation.

120-2.2 Regular Excavation: Regular excavation includes roadway excavation and borrow excavation, as defined below for each.

120-2.2.1 Roadway Excavation: Roadway excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction of the roadway, ditches, channel changes, etc., except for removal of existing pavement as defined in Section 110.

120-2.2.2 Borrow Excavation: Borrow excavation consists of the excavation and utilization of material from authorized borrow pits, including only material that is suitable for the construction of roadway embankments or of other embankments covered by the Contract.

A Cost Savings Initiative Proposal (CSIP) submittal based on using borrow material from within the project limits will not be considered.

120-2.3 Subsoil Excavation: Subsoil excavation consists of the excavation and disposal of muck, clay, rock, or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For pond and ditches that identify the placement of a blanket material, consider the finished grading template as the bottom of the blanket material. Subsoil excavation also consists of the excavation of all suitable material within the above limits as necessary to excavate the unsuitable material. Consider the limits of subsoil excavation indicated in the Plans as being particularly variable, in accordance with the field conditions actually encountered.

The quantity of material required to replace the excavated material and to raise the elevation of the roadway to the bottom of the template will be paid for under embankment or borrow excavation (Truck Measure).

120-2.4 Lateral Ditch Excavation: Lateral ditch excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the Plans.

120-2.5 Channel Excavation: Channel excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the Plans.

120-3 Preliminary Soils Investigations.

When the Plans contain the results of a soil survey, do not assume such data is a guarantee of the depth, extent, or character of material present.

120-4 Removal of Unsuitable Materials and Existing Roads.

120-4.1 Subsoil Excavation: Where muck, rock, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the Plans or indicated by the Engineer, and backfill with suitable material. Shape backfill material to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance, from the lines shown in the Plans as the removal limits, of plus or minus 0.2 feet in depth and plus or minus 6 inches (each side) in width.

120-4.2 Construction over Existing Old Road: Where a new roadway is to be constructed over an old one, completely remove the existing pavement for the entire limits of the width and depth. Compact disturbed material in accordance with Section 120 or 160, whichever material applies. If indicated in the Plans, remove the existing base in accordance with Section 110-2.

120-5 Disposal of Surplus and Unsuitable Material.

120-5.1 Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the Plans or, if the Plans do not indicate the method of disposal, take ownership of the materials and dispose of them outside the right-of-way.

120-5.2 Disposal of Muck on Side Slopes: As an exception to the provisions of 120-5. 1, when approved by the Engineer, in rural undeveloped areas, the Contractor may place muck (A-8 material) on the slopes, or store it alongside the roadway, provided there is a clear distance of at least 6 feet between the roadway grading limits and the muck, and the Contractor dresses the muck to present a neat appearance. In addition, the Contractor may also dispose of this material by placing it on the slopes in developed areas where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Department, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any State maintained road. If the materials are buried, disregard the 300 foot limitation.

120-6 Borrow.

120-6.1 Materials for Borrow: Do not open borrow pits until the Engineer has approved their location.

Do not provide borrow materials that are polluted as defined in Chapter 376 of the Florida Statutes (oil of any kind and in any form, gasoline, pesticides, ammonia, chlorine, and derivatives thereof, excluding liquefied petroleum gas) in concentrations above any local, State, or Federal standards.

Prior to placing any borrow material that is the product of soil incineration, provide the Engineer with a copy of the Certificate of Materials Recycling and Post Burn Analysis showing that the material is below all allowable pollutant concentrations.

120-6.2 Furnishing of Borrow Areas: To obtain the Engineer's approval to use an off-site construction activity area that involves excavation such as a borrow pit or local aggregate pit, request in writing, a review for -cultural resources involvement. Send the request to the Division of Historical Resources (DHR), Department of State, State Historic Preservation Officer, Tallahassee, FL. As a minimum, include in the request the Project Identification Number, the County, a description of the property with Township, Range, Section, etc., the dimensions of the area to be affected, and a location map. Do not start any work at the off-site construction activity area prior to receiving clearance from the DHR that no additional research is warranted.

For certain locations, the DHR will require a Cultural Resources Assessment (CRA) Survey before approval can be granted. When this is required, secure professional archaeological services to complete an historical and archaeological survey report. Submit the report to the DHR and to the Department. The Engineer will determine final approval or rejection of off-site construction activity areas based on input from the DHR.

Before receiving approval or before use of borrow areas, obtain written clearance from the Engineer concerning compliance with the Federal Endangered Species Act and other Wildlife Regulations as specified in 7-1.4 and Section 4(f) of the USDOT Act as specified in 7-1.8.

The Department will adjust Contract Time in accordance with 8-7 for any suspension of operations required to comply with this Article. The Department will not accept any monetary claims due to delays or loss of off-site construction activity areas.

Except where the Plans specifically call for the use of a particular borrow or dredging area, the Contractor may substitute borrow or dredging areas of his own choosing provided the Engineer determines the materials from such areas meet the Department's standards and other requirements for stability for use in the particular sections of the work in which it is to be placed, and the Contractor absorbs any increase in hauling or other costs. Stake the corners of the proposed borrow area and provide the necessary equipment along with an operator in order for the Engineer to investigate the borrow area. The Engineer will determine test locations, collect samples, and perform tests to investigate the proposed borrow area based on soil strata and required soil properties. The Engineer will approve use of materials from the proposed area

based on test results and project requirements. Final acceptance of materials will be based on Point of Use Test as described in 6-1.2.4.

Before using any borrow material from any substitute areas, obtain the Engineer's approval, in writing, for the use of the particular areas, and, where applicable, ensure that the Engineer has cross-sectioned the surface. Upon such written approval by the Engineer, consider the substitute areas as designated borrow areas.

When furnishing the dredging or borrow areas, supply the Department with evidence that the necessary permits, rights, or waivers for the use of such areas have been secured.

Do not excavate any part of a Contractor furnished borrow area which is less than 300 feet from the right-of-way of the project or any State Road until the Engineer has approved a plan for landscaping and restoring the disturbed area. Perform this landscaping and land restoration at no expense to the Department, prior to final acceptance of the project. Do not provide a borrow area closer than 25 feet to the right-of-way of any state road. In Department furnished borrow pits, do not excavate material within 5 feet of adjacent property lines.

Upon completion of excavation, neatly shape, dress, grass, vegetate, landscape, and drain all exposed areas including haul roads, as necessary so as not to present an objectionable appearance.

Meet the requirements of Section 104 when furnishing borrow areas, regardless of location.

120-6.3 Borrow Material for Shoulder Build-up: When so indicated in the Plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile. Include all costs of providing a material with the required bearing value in the Contract unit price for borrow material.

120-6.4 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the Department, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-6.5 Authorization for Use of Borrow: When the item of borrow excavation is included in the Contract, use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures. Do not use borrow material until so ordered by the Engineer, and then only use material from approved borrow pits.

120-7 Materials for Embankment.

120-7.1 Use of Materials Excavated from the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-7.2 General Requirements for Embankment Materials: Construct embankments of acceptable material including reclaimed asphalt pavement (RAP), recycled concrete aggregate (RCA) and portland cement concrete rubble, but containing no muck, stumps, roots, brush,

vegetable matter, rubbish, reinforcement bar or other material that does not compact into a suitable and enduring roadbed. Do not use RAP or RCA in the top 3 feet of slopes and shoulders that are to be grassed or have other type of vegetation established. Do not use RAP or RCA in stormwater management facility fill slopes.

Remove all waste material designated as undesirable. Use material in embankment construction in accordance with plan details or as the Engineer directs.

Complete the embankment using maximum particle sizes (in any dimension) as follows:

1. In top 12 inches: 3-1/2 inches (in any dimension).
2. 12 to 24 inches: 6 inches (in any dimension).
3. In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-9.2.

When and where approved by the Engineer, the Contractor may place larger rocks (not to exceed 18 inches in any dimension) outside the one to two slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Construct grassed embankment areas in accordance with 120-9.2.5. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3-1/2 inches in diameter within 3 feet of the location of any end-bent piling.

120-7.3 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-8 Embankment Construction.

120-8.1 General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment. Do not construct another LOT over an untested LOT without the Engineer's approval in writing.

For construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems, a LOT is defined as a single lift of finished embankment not to exceed 500 feet.

For construction of shoulder-only areas, shared use paths, and sidewalks areas, a LOT is defined as a single lift of finished embankment not to exceed 2000 feet.

Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

120-8.2 Dry Fill Method:

120-8.2.1 General: Construct embankments to meet the compaction requirements in 120-9 and in accordance with the acceptance program requirements in 120-10.

As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

Construct embankment using the dry fill method whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-8.2.1.1 Maximum Compacted Lift Thickness Requirements: Construct the embankment in successive layers with lifts up to a maximum listed in Table 120-1 below based on the embankment material classification group.

Table 120-1			
Group	AASHTO Soil Class	Maximum Lift Thickness	Thick Lift Control Test Section Requirements
1	A-3	12 inches	Not Needed
	A-2-4 (No. 200 Sieve ≤ 15%)		
2	A-1	6 inches without Control Test Section	Maximum of 12 inches per 120-8.2.1.2
	A-2-4 (No. 200 Sieve > 15%)		
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6		
	A-7 (Liquid Limit < 50)		

120-8.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in Table 120-1 above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Notify the Engineer and obtain approval in writing prior to beginning construction of a test section.

a. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.2 for the full depth of a thicker lift.

2. Construct a test section of the length of one full LOT of not less than 500 feet.

3. Perform five Quality Control (QC) tests at random locations within the test section.

a. All five QC tests and a Department Verification test must meet the density required by 120-10.2.

b. Identify the test section with the compaction effort and soil classification in the Department's Earthwork Records System (ERS).

4. Obtain Engineer's approval in writing for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, failing QC test or when the QC tests cannot be verified, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6 inch compacted lifts.

120-8.2.1.3 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or on low swampy ground in accordance with 120-9.2.3.

120-8.2.2 Placing in Unstable Areas: When depositing fill material in water, or on low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-9.2.2.

120-8.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut steps into the surface of the existing slope on which the embankment is to be placed.

120-8.2.4 Placing Outside the Standard Minimum Slope: The standard minimum slope is defined as the plane described by a one (vertical) to two (horizontal) slope downward from the roadway shoulder point or the gutter line, in accordance with Standard Plans, Index 120-001 and 120-002. Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope, place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum slope, in 18 inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

120-8.3 Hydraulic Method:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked, or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-8.3.2 Excess Material: Do not use any excess material placed outside the prescribed slopes or below the normal high-water table to raise the fill areas. Remove only the portion of this material required for dressing the slopes.

120-8.3.3 Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same existing channel depth as before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

120-8.4 Reclaimed Asphalt Pavement (RAP) Method:

120-8.4.1 General: Use only RAP material stored at facilities with an approved Florida Department of Environmental Protection Stormwater permit or, transferred directly from a milling project to the Department project. Certify the source if RAP material is from an identifiable Department project. Do not use RAP material in the following areas: construction areas that are below the seasonal high groundwater table elevation; MSE Wall backfill; underneath MSE Walls or the top 6 inches of embankment.

Prior to placement, submit documentation to the Engineer for his approval, outlining the proposed location of the RAP material.

120-8.4.2 Soil and RAP Mixture: Place the RAP material at the location and spread uniformly**,** using approved methods to obtain a maximum layer thickness of 4 inches. Mix this 4 inches maximum layer of RAP with a loose soil layer 8 to 10 inches thick. After mixing, meet all embankment utilization requirements of Standard Plans, Index 120-001 for the location used. The total RAP and other embankment material shall not exceed 12 inches per lift after mixing and compaction if the contractor can demonstrate that the density of the mixture can be achieved. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Engineer will determine the order in which to spread the two materials. Mix both materials to the full depth. Ensure that the finished layer will have the thickness and shape required by the typical section. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-8.4.3 Alternate Soil and RAP Layer Construction: Construct soil in 6 to 12 inch compacted lifts and RAP in alternate layers with 6 inch maximum compacted lifts. Use soil with a minimum LBR value of 40 to prevent failure during compaction of the overlying RAP layer. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-9 Compaction Requirements.

120-9.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

120-9.2 Compaction of Embankments:

120-9.2.1 General: Uniformly compact each layer, using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-9.2.2 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided in 120-8.2.2), compact the top 6 inches (compacted thickness) of such layer to the density as specified in 120-10.2.

120-9.2.3 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see AASHTO M145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-9.2.4 Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-9.2.5 Compaction of Grassed Embankment Areas: Do not compact the outer layers of any embankments where plant growth will be established. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations. Do not place RAP or RAP blended material within the top 12 inches of areas to be grassed.

120-9.3 Compaction for Pipes, Culverts, etc.: Compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of 125-9.2.

Thoroughly compact embankments over and around pipes, culverts, and bridges in a manner which will not place undue stress on the structures, and in accordance with the requirements of 125-9.2.

120-9.4 Compaction of Subgrade: If the Plans do not provide for stabilizing, compact the subgrade as defined in 1-3 in both cuts and fills, to the density specified in 120-10.2. For cut areas, determine Standard Proctor Maximum Density in accordance with FM 1-T099 at a frequency of one per mile or when there is a change in soil type, whichever occurs first. For undisturbed soils, do not apply density requirements where constructing paved shoulders 5 feet or less in width.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-10 Acceptance Program.

120-10.1 General Requirements:

120-10.1.1 Initial Equipment Comparison: Before initial production, perform an initial nuclear moisture density gauge comparison with the Verification and Independent Assurance (IA) gauges. When comparing the computed dry density of one nuclear gauge to a second gauge, three sets of calculations must be performed (IA to QC, IA to Verification, and QC to Verification). Ensure that the difference between any two computed dry densities does not exceed 2 lb/ft^3 between gauges from the same manufacturer, and 3 lb/ft^3 between gauges from different manufacturers. Repair or replace any gauge that does not compare favorably with the IA gauge.

Perform a comparison analysis between the QC nuclear gauge and the Verification nuclear gauge any time a nuclear gauge or repaired nuclear gauge is first brought to the project. Repair and replace any QC gauge that does not compare favorably with the Verification gauge at any time during the remainder of the project. Calibrate all QC gauges annually.

120-10.1.2 Initial Production LOT: Before construction of any production LOT, prepare a 500 foot initial control section consisting of one full LOT. Notify the Engineer in writing at least 24 hours prior to production of the initial control section. Perform all QC tests required in 120-10.1.4. When the initial QC test results pass specifications, the Engineer will perform a Verification test to verify compliance with the specifications. Do not begin constructing another LOT until successfully completing the initial production LOT. The Engineer will notify the Contractor in writing of the initial production LOT approval within three working days after receiving the Contractor's QC data when test results meet the following conditions:

1. QC and Verification tests must meet the density requirements.
2. Difference between QC and Verification computed dry density results shall meet the requirements of 120-10.1.1.

If Verification test result fails the density requirements of 120-10.2, correct the areas of non-compliance. The QC and Verification tests will then be repeated.

120-10.1.3 Density over 105%: When a QC computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, the Engineer will perform an Independent Verification (IV) density test within 5 feet. If the IV density results in a value greater than 105%, the Engineer will investigate the compaction methods, examine the applicable Standard Proctor Maximum Density and material description. The Engineer may collect and test an IV Standard Proctor Maximum Density sample for acceptance in accordance with the criteria of 120-10.2.

120-10.1.4 Quality Control (QC) Tests:

120-10.1.4.1 Standard Proctor Maximum Density Determination: Determine the QC standard Proctor maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in 120-10.2.

120-10.1.4.2 Density Testing Requirements: Ensure compliance to the requirements of 120-10.2 by Nuclear Density testing in accordance with FM 1-T238. Determine the in-place moisture content for each density test. Use FM 1-T238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D-4643 (Laboratory Determination of Moisture Content of Granular Soils by use of a Microwave Oven) for moisture determination.

120-10.1.4.3 Soil Classification: Perform soil classification tests on the sample collected in 120-10.1.4.1, in accordance with AASHTO T88, T89, T90, and FM 1-T267. Classify soils in accordance with AASHTO M145 in order to determine compliance with embankment utilization requirements as specified in Standard Plans, Index 120-001.

120-10.1.5 Department Verification: The Engineer will conduct Verification tests in order to accept all materials and work associated with 120-10.1.4. The Engineer will verify the QC results if they meet the Verification Comparison Criteria, otherwise the Engineer will implement Resolution procedures.

The Engineer will select test locations, including Station, Offset, and Lift, using a random number generator, based on the LOTs under consideration. Each Verification test evaluates all work represented by the QC testing completed in those LOTs.

In addition to the Verification testing, the Engineer may perform additional Independent Verification (IV) testing. The Engineer will evaluate and act upon the IV test results in the same manner as Verification test results.

When the project requires less than four QC tests per material type, the Engineer reserves the right to accept the materials and work through visual inspection.

120-10.1.6 Reduced Testing Frequency: Obtain the Engineer's written approval for the option to reduce density testing frequency to one test every two LOTs if Resolution testing was not required for 12 consecutive verified LOTs, or if Resolution testing was required, but the QC test data was upheld and all substantiating tests are recorded in the Earthwork Records System (ERS).

Generate random numbers based on the two LOTs under consideration. When QC test frequency is reduced to one every two LOTs, obtain the Engineer's approval to place more than one LOT over an untested LOT. Assure similar compaction efforts for the untested LOTs. If the Verification test fails, and QC test data is not upheld by Resolution testing, the QC testing will revert to the original frequency of one QC test per LOT. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, sidewalks, and first and last lift.

120-10.1.7 Payment for Resolution Tests: If the Resolution laboratory results compare favorably with the QC results, the Department will pay for Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution laboratory results do not compare favorably with the QC results, the costs of the Resolution testing will be deducted from monthly estimates. No additional time will be granted for the impacts of any such testing.

120-10.2 Acceptance Criteria: Obtain a minimum QC density of 100% of the standard Proctor maximum density as determined by FM 1-T099, Method C, with the following exceptions: embankment constructed by the hydraulic method as specified in 120-8.3; material placed outside the standard minimum slope as specified in 120-8.2.4 except when a structure is supported on existing embankment; and, other areas specifically excluded herein.

120-10.3 Additional Requirements:

120-10.3.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in Table 120-2 below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in Table 120-2 below.

Table 120-2

Test Name	Quality Control	Verification	Verification of Shoulder-Only Areas, Shared Use Paths, and Sidewalks
Standard Proctor Maximum Density	One per soil type	One per soil type	One per soil type
Density	One per LOT	One per four LOTS and for wet conditions, the first lift not affected by water	One per two LOTs
Soil Classification and Organic Content	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density

120-10.3.2 Test Selection and Reporting: Determine test locations including stations and offsets, using the random number generator approved by the Engineer. Do not use notepads or worksheets to record data for later transfer to the Density Log Book. Notify the Engineer upon successful completion of QC testing on each LOT prior to placing another lift on top.

120-10.4 Verification Comparison Criteria and Resolution Procedures:

120-10.4.1 Standard Proctor Maximum Density Determination: The Engineer will verify the QC results if the results compare within 4.5 lb/ft^3 of the Verification test result. Otherwise, the Engineer will take one additional sample of material from the soil type in question. The State Materials Office (SMO) or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T099, Method C.

The Engineer will compare the Resolution test results with the QC test results. If all Resolution test results are within 4.5 lb/ft^3 of the corresponding QC test results, the

Engineer will use the QC test results for material acceptance purposes for each LOT with that soil type. If the Resolution test result is not within 4.5 lb/ft^3 of the Contractor's QC test, the Verification test result will be used for material acceptance purposes.

120-10.4.2 Density Testing: When a Verification or IV density test fails the acceptance criteria, retest the site within a 5 foot radius and the following actions will be taken:

1. If the QC retest meets the acceptance criteria and meets the 120-10.1.1 criteria when compared with the Verification or IV test, the Engineer will accept those LOTs.

2. If the QC retest does not meet the acceptance criteria and compares favorably with the Verification or IV test, rework and retest the LOT. The Engineer will re-verify those LOTs.

3. If the QC retest and the Verification or IV test do not compare favorably, complete a new comparison analysis as defined in 120-10.1.1. Once acceptable comparison is achieved, retest the LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOT until the Contractor has a gauge that meets the comparison requirements.

Record QC test results in the density logbook on approved Department forms provided by the Engineer. Submit the original, completed density logbook to the Engineer at final acceptance.

120-10.4.3 Soil Classification: The Engineer will verify the QC test results if the Verification and the QC test results both match the soil utilization symbol listed in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform the Resolution testing. The material will be sampled and tested in accordance with AASHTO T88, T89, and T90, and classified in accordance with AASHTO M145.

The Engineer will compare the Resolution test results with the QC test results. If the Resolution test matches the QC soil utilization symbol, the Engineer will use the QC soil utilization symbol for material acceptance purposes. If the Resolution test result does not match the Contractor's QC soil utilization symbol, the Verification test results will be used for material acceptance purposes.

120-10.4.4 Organic Content: The Engineer will verify the QC test results if the Verification test results satisfy the organic content test criteria in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T267. If the Resolution test results satisfy the required criteria, material of that soil type will be verified and accepted. If the Resolution test results do not meet the required criteria, reject the material and reconstruct with acceptable material.

120-10.5 Disposition of Defective Materials: Assume responsibility for removing and replacing all defective material, as defined in Section 6.

Alternately, submit an Engineering Analysis Scope in accordance with 6-4 to determine the disposition of the material.

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Department except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the Plans, until final acceptance of the project.

120-12 Construction.

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the cross-section shown in the Plans.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of conveyance ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the Plan cross-section.
5. When the work includes permitted linear stormwater management facilities, shape the swales and ditch blocks to within 0.1 feet of the cross-section shown in the Plans.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.

120-12.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-13 Method of Measurement.

120-13.1 General: When payment for excavation is on a volumetric basis, the quantity to be paid for will be the volume, in cubic yards. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer, unless otherwise specified under the provisions for individual items.

Where subsoil excavation extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances, and the space is backfilled with material obtained in additional authorized roadway or borrow excavation, the net fill, plus shrinkage allowance, will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

The quantity of all material washed, blown, or placed beyond the authorized roadway cross-section will be determined by the Engineer and will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

Subsoil excavation that extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances will be deducted from the quantity to be paid for as subsoil excavation.

120-13.2 Roadway Excavation: The measurement will include only the net volume of material excavated between the original ground line or finished grading template of an existing roadbed, as applicable, and the finished grading template of new pavement, except that the measurement will also include all unavoidable slides which may occur in connection with excavation classified as roadway excavation.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4. On designated 3-R Projects, regular excavation will be paid for at the Contract lump sum price provided that the excavation was accomplished in substantial compliance with the plan dimension.

120-13.3 Borrow Excavation: Measurement will be made on a loose volume basis, measured in trucks or other hauling equipment at the point of dumping on the road. If measurement is made in vehicles, level the material to facilitate accurate measurement.

Unsuitable material excavated from borrow pits where truck measurement is provided for and from any borrow pits furnished by the Contractor, will not be included in the quantity of excavation to be paid for.

120-13.4 Lateral Ditch Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or as directed by the Engineer. The measurement will include the full station-to-station length shown in the Plans or directed by the Engineer and acceptably completed. Excavation included for payment under Section 125 will not be included in this measurement.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4.

120-13.5 Channel Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or in accordance with authorized Plan changes. The measurement will include the full station-to-station length shown in the Plans including any authorized changes thereto.

If shoaling occurs subsequent to excavation of a channel and the Engineer authorized the shoaled material to remain in place, the volume of any such material remaining within the limits of channel excavation shown in the Plans will be deducted from the measured quantity of channel excavation.

120-13.6 Subsoil Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans (including the tolerance permitted therefore) or as directed by the Engineer.

When no item for subsoil excavation is shown in the Contract but subsoil excavation is subsequently determined to be necessary, such unanticipated subsoil excavation will be paid for as provided in 4-4.

120-13.7 Embankment: The quantity will be at the plan quantity. Where payment for embankment is not to be included in the payment for the excavation, and is to be paid for on a cubic yard basis for the item of embankment, the measurement will include material actually placed above the original ground line or the finished grading template of an existing roadbed, as applicable, within the lines and grades indicated in the Plans or directed by the Engineer. Where

embankment is constructed over an existing road, the embankment measurement will include only the material actually placed above the existing base unless the Plans require the complete removal of the base. If both the asphalt and base is removed, the embankment measurement will include only the material actually placed above the finish grading template of the existing roadbed. If there are authorized changes in plan dimensions or if errors in plan quantities are detected, plan quantity will be adjusted as provided in 9-3.2.

Any overrun or underrun of plan quantity for subsoil excavation which results in a corresponding increase or decrease in embankment will be considered as an authorized plan change for adjustment purposes as defined in 9-3.2.2.

No payment will be made for embankment material used to replace unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

In no case will payment be made for material allowed to run out of the embankment on a flatter slope than indicated on the cross-section. The Contractor shall make his own estimate on the volume of material actually required to obtain the pay section.

120-14 Basis of Payment.

120-14.1 General: Prices and payments for the various work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; maintaining and protecting the complete earthwork; and hauling.

The Department will not allow extra compensation for any reworking of materials. The Department will compensate for the cost of grassing or other permanent erosion control measures directed by the Engineer as provided in the Contract for similar items of roadway work.

120-14.2 Excavation:

120-14.2.1 Items of Payment: When no classification of material is indicated in the Plans, and bids are taken only on regular excavation, the total quantity of all excavation specified under this Section will be paid for at the Contract unit price for regular excavation.

When separate classifications of excavation are shown in the proposal, the quantities of each of the various classes of materials so shown will be paid for at the Contract unit prices per cubic yard for regular excavation, lateral ditch excavation, subsoil excavation, and channel excavation, as applicable, and any of such classifications not so shown will be included under the item of regular excavation (except that if there is a classification for lateral ditch excavation shown and there is no classification for channel excavation, any channel excavation will be included under the item of lateral ditch excavation). As an exception on designated projects, regular excavation will be paid for at the Contract lump sum price.

120-14.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any reworking that may be necessary to accomplish final disposal as shown in the Plans; the dressing of shoulders, ditches and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the Plans; and compacting as required.

120-14.2.3 Additional Depth of Subsoil Excavation: Where subsoil excavation is made to a depth of 0 to 5 feet below the depth shown in the Plans, such excavation will be paid for at the unit price bid.

Where subsoil excavation is made to a depth greater than 5 feet, and up to 15 feet, deeper than the depth shown in the Plans, such excavation will be paid for at the unit price bid plus 25% of such unit price. Additional extra depth, more than 15 feet below such plan depth, will be considered as a change in the character of the work and will be paid for as unforeseeable work.

Where no subsoil excavation is shown in a particular location on the original Plans, payment for extra depth of subsoil will begin 5 feet below the lowest elevation on the grading template.

120-14.2.4 Borrow Excavation: When the item of borrow excavation is included in the Contract, price and payment will also include the cost of furnishing the borrow areas and any necessary clearing and grubbing thereof, the removal of unsuitable material that it is necessary to excavate in order to obtain suitable borrow material, and also the costs incurred in complying with the provisions of 120-6.3.

120-14.2.5 Materials Excluded from Payment for the Excavation: No payment for excavation will be made for any excavation covered for payment under the item of embankment.

No payment will be made for the excavation of any materials which is used for purposes other than those shown in the Plans or designated by the Engineer. No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer. As an exception, in operations of roadway excavation, all slides and falls of insecure masses of material beyond the regular slopes that are not due to lack of precaution on the part of the Contractor, will be paid for at the Contract unit price for the material involved. The removal of slides and falls of material classified as lateral ditch excavation or as subsoil excavation will not be paid for separately, but will be included in the Contract unit price for the pay quantity of these materials, measured as provided in 120-14.

120-14.3 Embankment:

120-14.3.1 General: Price and payment will be full compensation for all work specified in this Section, including all material for constructing the embankment, all excavating, dredging, pumping, placing and compacting of material for constructing the embankment complete, dressing of the surface of the roadway, maintenance and protection of the completed earthwork, and the removal of rubbish, vegetation, etc., from the roadway where no clearing and grubbing of the area is specified in the Plans. Also, such price and payment, in each case, will specifically include all costs of any roadway, lateral ditch, or channel excavation, unless such excavation is specifically shown to be paid for separately, regardless of whether the materials are utilized in the embankment.

120-14.3.2 Excluded Material: No payment will be made for the removal of muck or overburden from the dredging or borrow areas. No payment will be made for embankment material used to replace muck or other unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

120-14.3.3 Clearing and Grubbing: No payment will be made for any clearing and grubbing of the borrow or dredging areas. Where no clearing and grubbing of such areas is specified in the Plans, the cost of any necessary clearing and grubbing will be included in the Contract unit or lump sum price for Embankment.

120-14.3.4 Cost of Permits, Rights, and Waivers: Where the Contractor provides borrow or dredging areas of his own choosing, the cost of securing the necessary permits, rights or waivers will be included in the Contract price for embankment.

120-14.4 Payment Items: Payment will be made under:

Item No. 120- 1-	Regular Excavation - per cubic yard.
Item No. 120- 2-	Borrow Excavation - per cubic yard.
Item No. 120- 3-	Lateral Ditch Excavation - per cubic yard.
Item No. 120- 4-	Subsoil Excavation - per cubic yard.
Item No. 120- 5-	Channel Excavation - per cubic yard.
Item No. 120- 6-	Embankment - per cubic yard.
Item No. 120- 71-	Regular Excavation (3-R Projects) - lump sum.

SECTION 204
GRADED AGGREGATE BASE

204-1 Description.

Construct a base course composed of graded aggregate.

204-2 Materials.

Use graded aggregate material, produced from Department approved sources, which yields a satisfactory mixture meeting all the requirements of these Specifications after it has been crushed and processed as a part of the mining operations.

The Contractor may furnish the material in two sizes of such gradation that, when combined in a central mix plant pugmill, the resultant mixture meets the required specifications.

Use graded aggregate base material of uniform quality throughout, substantially free from vegetable matter, shale, lumps and clay balls, and having a Limerock Bearing Ratio value of not less than 100. Use material retained on the No. 10 sieve composed of aggregate meeting the following requirements:

Soundness Loss, Sodium, Sulfate: AASHTO T104 ..... 15%
Percent Wear: AASHTO T96 (Grading A)
Group 1 Aggregates 45%
Group 2 Aggregates 65%

Group 1: This group of aggregates is composed of limestone, marble, or dolomite.

Group 2: This group of aggregates is composed of granite, gneiss, or quartzite.

Use graded aggregate base material meeting the following gradation:

Table 204-1

Sieve Size	Percent by Weight Passing
2 inch	100
1 1/2 inch	95 to 100
3/4 inch	65 to 90
3/8 inch	45 to 75
No. 4	35 to 60
No. 10	25 to 45
No. 50	5 to 25
No. 200	0 to 10

For Group 1 aggregates, ensure that the fraction passing the No. 40 sieve has a Plasticity Index (AASHTO T90) of not more than 4.0 and a Liquid Limit (AASHTO T89) of not more than 25, and contains not more than 67% of the weight passing the No. 200 sieve.

For Group 2 aggregates, ensure that the material passing the No. 10 sieve has a sand equivalent (AASHTO T176) value of not less than 28.

The Contractor may use graded aggregate of either Group 1 or Group 2, but only use one group on any Contract. (Graded aggregate may be referred to hereinafter as “aggregate”.)

204-3 Equipment.

Provide equipment meeting the requirements of 200-3.

204-4 Transporting Aggregate.

Transport aggregate as specified in 200-4.

204-5 Spreading Aggregate.

Spread aggregate as specified in 200-5.

204-6 Compacting and Finishing Base.

204-6.1 General: Meet the requirements of 200-7.1 with density requirements of 204-6.3.

204-6.1.1 Single-Course Base: Construct as specified in 200-6.1.1.

204-6.1.2 Multiple-Course Base: Construct as specified in 200-6.1.2.

204-6.2 Moisture Content: Meet the requirements of 200-6.2.

204-6.3 Density Requirements: After attaining the proper moisture conditions, uniformly compact the material to a density of not less than 100% of the maximum density as determined by FM 1-T 180, Method D. For shoulder only areas and shared use paths, obtain a minimum density of 98% of the maximum density as determined by FM 1-T 180, Method D.

204-6.4 Density Tests: Meet the requirements of 200-7.2.2.

204-6.5 Correction of Defects: Meet the requirements of 200-6.4.

204-6.6 Dust Abatement: Minimize the dispersion of dust from the base material during construction and maintenance operations by applying water or other dust control materials.

204-7 Testing Surface.

Test the surface in accordance with the requirements of 200-7.

204-8 Priming and Maintaining.

Meet the requirements of 200-8.

204-9 Thickness Requirements.

Meet the requirements of 285-6.

204-10 Calculations for Average Thickness of Base.

Calculations for determining the average thickness of base will be made in accordance with 285-7.

204-11 Method of Measurement.

204-11.1 General: The quantity to be paid for will be the plan quantity area, in square yards, completed and accepted.

204-11.2 Authorized Normal Thickness Base: The surface area of authorized normal thickness base will be the plan quantity area, omitting any areas not allowed for payment under the provisions of 204-9 and omitting areas which are to be included for payment under 204-11.3. The area for payment, of authorized normal thickness base, will be the surface area determined as provided above, adjusted by adding or deducting, as appropriate, the area of base represented by the difference between the calculated average thickness, determined as provided in 204-10, and the specified normal thickness, converted to equivalent square yards of normal thickness base.

204-11.3 Authorized Variable Thickness Base: As specified in 200-10.3.

204-12 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including dust abatement, correcting all defective surface and deficient thickness, removing cracks and checks and the additional aggregate required for such crack elimination.

Payment will be made under:

Item No. 285- 7- Optional Base - per square yard.

SECTION 515
METAL PEDESTRIAN/BICYCLE RAILINGS, GUIDERAILS, AND HANDRAILS

515-1 Description.

Furnish and install metal pedestrian/bicycle railings, including bullet rails, guiderails and handrails in accordance with the Plans and Standard Plans.

Obtain rail components from producers currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.

515-2 Materials.

Meet the following requirements:

Concrete	Section 346
Anchor Bolts, Rods, Nuts and Washers*	Section 962
Adhesive Anchors**	Section 937
Aluminum	Section 965
Bearing Pads	932-2.5
Epoxy Mortar**	Section 926
Steel	Section 962

*Do not use expansion anchors.

**Use products listed on the Department's Approved Product List (APL).

515-3 Construction Requirements.

515-3.1 General: Space posts to clear obstacles without exceeding maximum post spacing and maintain a uniform spacing with reasonable consistency. Place splices in approximately the same place within a railing section.

Railings must be free of burrs and sharp edges and all plug welds ground smooth.

515-3.2 Welds: Nondestructive testing of welds is not required, unless otherwise shown in the Plans.

515-3.2.1 Aluminum Railing: Welds must be in accordance with Section 965. Filler material for seal welds, plug welds and bend splices may be ER4303.

515-3.2.2 Steel Railing: Meet the requirements of Section 962, except weld connections must be in accordance with AWS D1.1, Structural Welding Code, using E70XX weld material, unless otherwise shown in the Plans.

515-3.3 Coatings:

515-3.3.1 Aluminum Railing: Coating is not required, unless otherwise shown in the Plans. Finished product must have a smooth uniform appearance.

When a colored coating is required, use a fluoropolymer based powder coating system complying with American Architectural Manufacturers Association (AAMA) Specification No. 2605.

515-3.3.2 Steel Railing: Components must be hot-dip galvanized after fabrication in accordance with Section 962, unless otherwise shown in the Plans. When a colored coating is required, meet the requirements of 649-4.

515-4 Shop Drawings.

Submit shop drawings and obtain approval prior to fabrication in accordance with Section 5. Show project specific geometry (line and grade), post type and locations, expansion joint and splice locations.

Include other project specific details such as tapered end transitions, continuity or transition details post and panel infill type, and anchor bolt general details.

515-5 Installation.

515-5.1 General: Place a 1/8 inch thick bearing pad with dimensions matching the base plate between the base plate and concrete surface.

515-5.2 Bullet Railings: Install rail posts perpendicular to the profile grade longitudinally and plumb transversely.

515-5.3 Pedestrian /Bicycle Railings and Guiderails: For locations other than bridges, fabricate and install posts plumb. On bridges, fabricate and install posts perpendicular to the profile grade line longitudinally and plumb transversely. Use aluminum shim plates to make necessary adjustments. Bond stacked shim plates with adhesive bonding material and field trim shim plates to match the foundation contours. Beveled shim plates may be used in lieu of trimmed flat shim plates.

If shims greater than 1/2 inch total thickness are required, provide longer anchor bolts. Bolts must be long enough to secure washers and nuts and meet the minimum embedment length.

Post tolerance from plumb is plus or minus one inch, measured at 42 inches above the foundation. Rails must form a smooth continuous line without hills or dips greater than 1/2 inch between any three posts or side sway greater than 1/2 inch between post assemblies.

515-5.4 Anchoring:

515-5.4.1 General: Secure nuts to a snug tight condition. Tack weld nuts to stem or distort bolt threads to prevent nut loosening and removal. Coat damaged galvanizing on bolt stems, nuts, and tack welds in accordance with Section 562.

515-5.4.2 Adhesive Anchors: Install anchors in accordance with Section 416.

515-5.4.3 C-I-P and Thru-Bolt Anchors: Use galvanized hex head anchor bolts. When thru-bolting is used, coat cut reinforcing steel inside the drilled hole with a zinc galvanizing compound in accordance with Section 562 prior to installing bolts.

515-5.4.4 Embedded Guiderail Posts: Core holes into the foundation concrete, then clean holes, in accordance with the manufacturer's instructions. At a minimum, use oil free compressed air to remove loose particles, brush the inside surface to free loose particles, then use compressed air again to remove any remaining particles. Use a Type AB, or F epoxy compound to secure guiderail posts into the cored holes.

515-6 Method of Measurement.

The quantity of railing to be paid for will be the plan quantity, in linear feet, installed and accepted. The quantity will be measured along the centerline of the top rail.

515-7 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including all materials, hardware, labor, and incidentals required to complete the installation.

For relocation of existing railing, price and payment will be full compensation for the removal and reinstallation, including all materials, hardware, labor, and incidentals required to complete the installation.

Payment will be made under the following:

Item No. 515- 1- Pipe Handrail-Guiderail - per linear foot.
Item No. 515- 2- Pedestrian/Bicycle Railing - per linear foot.

Item No. 515- 3- Handrail - Retrofit to Existing Railing - per linear foot.
Item No. 515- 4- Aluminum Bullet Railings - per linear foot.

ITEM 524
ARTICULATING CONCRETE BLOCK (ACB) SYSTEM HAND-PLACED

524-1 DESCRIPTION

524-1.1 Scope of Work

The contractor shall furnish all labor, materials, equipment, and incidentals required for, and perform all operations in connection with, the installation of the Articulating Concrete Block (ACB) system hand placed in accordance with the lines, grades, design and dimensions shown on the Contract Drawings and as specified herein.

524-1.2 Submittal

The Contractor shall submit to the Engineer of Record (EOR) evidence of full-scale hydraulic testing in accordance with ASTM D-7277, from Colorado State University. The Contractor shall also submit to the EOR an appropriate geotextile, selected for the site being protected on the basis of the gradation and permeability of the surface soils, which information shall have been provided by the EOR or the designated geotechnical engineer.

The Contractor shall furnish manufacturer's certificates of compliance for the ACB, geotextile, and any other components that are required. The Contractor shall also furnish the manufacturer's specifications, literature, installation instructions, and any recommendations, if applicable, that are specifically related to the project. If a color has been specified for the block, the Contractor shall submit a color chart indicating the specified standard color.

Alternative materials from qualified suppliers may be considered; to qualify, proposed alternative suppliers must own and operate their own manufacturing facility, and shall directly employ a minimum of five (5) registered Professional Engineers. Full documentation consistent with the foregoing must be submitted in writing to the EOR a minimum of twenty (20) business days prior to bid date, and must be pre-approved in writing as an addendum to the bid documents and drawings by the EOR at least ten (10) business days prior to bid date. Submittal packages must also include, as a minimum, the following:

1. Evidence of satisfactory full-scale laboratory testing in accordance with *ASTM D 7277, Standard Test Method for Performance Testing of Articulating Concrete Block (ACB) Revetment Systems for Hydraulic Stability in Open Channel Flow*, performed on behalf the submitting manufacturer on a qualifying test flume of sufficient length for the test flows to achieve normal depth in all cases, and associated engineered calculations quantifying the FoS of the proposed ACB system under the design conditions of the specific project, stamped and signed by a registered Professional Engineer residing in and licensed to practice in the state where the project is located;

2. A list of 5 comparable projects, in terms of size and applications, in the United States.

3. The analysis shall be performed based upon the stability of the ACB's due to gravity forces alone, neglecting conservative forces added by cabling, mechanical anchorage, contact with adjacent blocks, or other restraints not attributable to gravity-based forces. The analysis must account for a 0.5-inch block projection, in accordance with *ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems,* Section 6.3.3. **Site grading requirements may not be used to omit this requirement for standard (non-tapered) block.**

524-2.2 Articulating Concrete Blocks

1. Scope: This specification covers articulating concrete blocks used in revetments for soil stabilization. Concrete units covered by this specification are made from lightweight or normal weight aggregates, or both. The values stated in U.S. customary units are to be regarded as the standard.

2. Materials: Cementitious Materials shall conform to the following applicable ASTM specifications:

a) Portland Cements - Specification C 150, for Portland Cement.
b) Blended Cements - Specification C 595, for Blended Hydraulic Cements.
c) Hydrated Lime Types - Specification C 207, for Hydrated Lime Types.
d) Pozzolans - Specification C 618, for Fly Ash and Raw or Calcined Natural Pozzolans for use in Portland Cement Concrete.
e) Aggregates – Specification C 33, for Concrete Aggregates, except that grading requirements shall not necessarily apply.

3. Casting: The ACB units shall be produced by a dry cast method. Dry cast units obtain strength more quickly than wet cast blocks, and will also achieve a greater uniformity of quality and greater durability.

4. Physical Requirements: At the time of delivery to the work site, the units shall conform to the physical requirements prescribed in Table 1 below.

TABLE1. PHYSICAL REQUIREMENTS

Compressive Strength Net Area Min. p.s.i (mPa)		**Water Absorption Max. lb/ft^3 (kg/m^3)**	
Avg. of 3 units	Individual Unit	Avg. of 3 units	Individual Unit
4,000 (27.6)	3,500 (24.1)	9.1 (160)	11.7 (192)

Units will be sampled and tested in accordance with ASTM D 6684-04, *Standard Specification for Materials and Manufacture of Articulating Concrete Block (ACB) Revetment Systems.*

5. Visual Inspection: All units shall be sound and free of defects that would interfere with either the proper placement of the unit or impair the performance of the system. Surface cracks incidental to the usual methods of manufacture, or surface chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.

Cracks exceeding 0.25 inches (.635 cm) in width and/or 1.0 inch (2.54 cm) in depth shall be deemed grounds for rejection. Chipping resulting in a weight loss exceeding 10% of the average weight of a concrete unit shall be deemed grounds for rejection.

Blocks rejected prior to delivery from the point of manufacture shall be replaced at the manufacturer's expense. Blocks rejected at the job site shall be repaired with structural grout or replaced at the expense of the contractor.

6. Sampling and Testing: The purchaser (or their authorized representative) shall be accorded access to the relevant manufacturing facility or facilities, if desired, in order to inspect and/or sample the ACB units from lots ready for delivery prior to release for delivery to the job site. Such inspections are at the sole expense of the requesting entity.

Field installation shall be consistent with the way the system was installed in preparation for hydraulic testing pursuant to ASTM D 7277, *Standard Test Method for Performance Testing of Articulating Concrete Block (ACB) Revetment Systems for Hydraulic Stability in Open Channel Flow*. Any external restraints, anchors, or other ancillary components (such as synthetic drainage mediums) shall be employed as they were during testing; e.g., if the hydraulic testing installation utilized a drainage layer, then the field installation must also utilize a drainage layer. This does not preclude the use of other section components for other purposes, e.g., a geogrid for strengthening the subgrade for vehicular loading, or an intermediate filter layer of sand to protect very fine-grained native soils.

Purchaser may request additional testing other than that provided by the manufacturer as needed. Such requested testing will extend any stated lead times for manufacturing and delivery, if the results of such testing are a prerequisite to approval (i.e., approval for release to manufacturing). Costs associated with such testing shall be borne by the purchaser.

7. **Manufacturer:** Basis of Design for (ACB) System shall be **ArmorFlex®** as manufactured and sold by:

   Contech Engineered Solutions, LLC
   Phone: 813-294-5913

   URL: http://www.conteches.com/Products/Erosion-Control/Hard-Armor/ArmorFlex

The selected ARMORFLEX® blocks shall have the following nominal characteristics:

STANDARD SIZES OF ARMORFLEX® BLOCKS

CLASS	TYPE	MIN. WEIGHT (lbs)	BLOCK SIZE			OPEN AREA %
			Length (in)	Width (in)	Height* (in)	
30S	Open	32	13.0	11.6	4.75	20
50S	Open	42	13.0	11.6	6.0	20
45S	Closed	39	13.0	11.6	4.75	10
55S	Closed	50	13.0	11.6	6.0	10
40	Open	59	17.4	15.5	4.75	20
50	Open	76	17.4	15.5	6.0	20

60	Open	93	17.4	15.5	7.5	20
70	Open	113	17.4	15.5	8.5	20
45	Closed	71	17.4	15.5	4.75	10
55	Closed	91	17.4	15.5	6.0	10
75	Closed	112	17.4	15.5	7.5	10
85	Closed	135	17.4	15.5	8.5	10
40L	Open	97	17.4	23.6	4.75	20
50L	Open	115	17.4	23.6	6.0	20
70L	Open	174	17.4	23.6	8.5	20
45L	Closed	109	17.4	23.6	4.75	10
55L	Closed	138	17.4	23.6	6.0	10
85L	Closed	207	17.4	23.6	8.5	10
**Block height may vary based on local manufacture's capabilities.*						

524-2.3 <u>Filter Fabric</u>

The geotextile filter shall meet the minimum physical requirements listed in Table No. 3 of these Specifications. Consultation with the manufacturer is recommended; the standard for sizing geotextile for these applications is AASHTO M-288, Permanent Erosion Control. Only **non-woven** geotextile is acceptable, as long as they meet the other project requirements.

The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic, if necessary, to make the filaments resistant to deterioration due to ultraviolet and heat exposure. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile.

The Contractor shall furnish manufacturer's certified test results to the EOR, showing actual test values obtained when the physical properties are tested for compliance with the specifications.

During all periods of shipment and storage, the filter fabric shall be protected from direct sunlight, UV radiation, and temperatures greater than 140°F. To the extent possible, the fabric shall be maintained wrapped in its protective covering. The geotextile shall not be exposed to sunlight or UV radiation until the installation process begins.

TABLE 2. PHYSICAL REQUIREMENTS

Physical Property	Test Procedure	Minimum Value
Grab Tensile Strength (Unaged Geotextile)	ASTM D4632	*IAW AASHTO M288 Class 2*
Breaking Elongation (Unaged Geotextile)	ASTM D4632	50% max. (in any principal direction)
Burst Strength	ASTM D3786	*IAW AASHTO M288 Class 2*
Puncture Strength	ASTM D4833	*IAW AASHTO M288 Class 2*
A.O.S., U.S. Std. Sieve	ASTM D4751	See Design Manual
Permittivity	ASTM D4491	See Design Manual

Final acceptance of the filtration geotextile must be made by the EOR based on project specific soil information and shall be dependent upon the geotextile performance when tested in accordance with ASTM D5101, Standard Test Method for Measuring the Soil-Geotextile System Clogging by the Gradient Ratio Test or the Hydraulic Conductivity Ratio Test. Soil characteristics such as grain size distribution, permeability, and plasticity shall be determined for every 200,000 square feet of geotextile installed or for each source of borrow material used during construction. Significant differences in soil characteristics may require the performance of further sieve and possible hydrometer testing at the discretion of the EOR. The locations for which the material to be tested is extracted shall be approved by the EOR. The Contractor shall provide the site-specific soil and modified proctor curves for the site soil, at his own expense, to the manufacturer. Also, the contractor shall be responsible for the performance of the test by a certified independent laboratory experienced in performing such test. The test shall be performed under the actual field soil conditions or as otherwise required by the EOR.

At the time of installation, the filter fabric shall be rejected if it has been removed from its protective cover for over 72 hours or has defects, tears, punctures, flow deterioration, or damage incurred during manufacture, transportation or storage. With the acceptance of the Engineer, placing a filter fabric patch over the damaged area prior to placing the mats shall repair a torn or punctured section of fabric. The patch shall be large enough to overlap a minimum of three (3) feet in all directions.

524-3 FOUNDATION PREPARATION, GEOTEXTILE AND PLACEMENT

524-3.1 Subgrade Preparation

General: Areas on which filter fabric and articulating concrete blocks are to be placed shall be constructed to the lines and grades shown on the Contract Drawings and to the tolerances specified in the Contract Documents and approved by the Engineer. All subgrade preparation shall be performed in accordance with *ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems*, as updated and amended.

Grading: The slope shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile (filter fabric), and between the geotextile and the entire bottom surface of the articulating concrete blocks. All slope deformities, roots, grade stakes, and stones which project normal to the local slope face must be re-graded or removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1.0 inch in depth normal to the local slope face shall be permitted. No grooves or depressions greater than 0.5 inches in depth normal to the local slope face with a dimension exceeding 1.0 foot in any direction shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material. The slope and slope face shall be uniformly compacted, and the depth of layers, homogeneity of soil, and amount of compaction shall be as required by the Engineer.

Excavation and preparation for anchor trenches, side trenches, and toe trenches or aprons shall be done in accordance to the lines, grades and dimensions shown in the Contract Drawings. The anchor trench hinge-point at the top of the slope shall be uniformly graded so that no dips

or bumps greater than 0.5 inches over or under the local grade occur. The width of the anchor trench hinge-point shall also be graded uniformly to assure intimate contact between all articulating concrete blocks and the underlying grade at the hinge-point.

Inspection: Immediately prior to placing the filter fabric and articulating concrete blocks, the prepared subgrade shall be inspected by the Engineer as well as the owner's representative and by the manufacturer's representative. No fabric or blocks shall be placed thereon until that area has been approved by each of these parties.

524-3.2 Placement of Geotextile Filter Fabric

General: All placement and preparation should be performed in accordance with *ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems,* as updated and amended. Filter Fabric, or filtration geotextile, as specified elsewhere, will be placed within the limits of ACBs shown on the Contract Drawings.

Placement: The filtration geotextile shall be placed directly on the prepared area, in intimate contact with the subgrade, and free of folds or wrinkles. The geotextile shall not be walked on or disturbed when the result is a loss of intimate contact between the articulating concrete block and the geotextile or between the geotextile and the subgrade. The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip. The longitudinal and transverse joints shall be overlapped at least three (3) feet. The geotextile shall extend at least one foot beyond the top and bottom revetment termination points. If articulating concrete blocks are assembled and placed as large mattresses, the top lap edge of the geotextile should not occur in the same location as a space between articulating concrete mats unless the space is concrete filled.

524-3.3 Placement of Articulating Concrete Blocks

General: ACB placement and preparation should be performed in accordance with *ASTM D 6884, Standard Practice for Installation of Articulating Concrete Block (ACB) Revetment Systems*, as amended and updated. Articulating concrete blocks, as specified in Part 2 of these Specifications, shall be constructed within the specified lines and grades shown on the Contract Drawings.

Placement: The articulating concrete blocks shall be placed on the filter fabric in such a manner as to produce a smooth plane surface in intimate contact with the filter fabric. No individual block within the plane of placed articulating concrete blocks shall protrude more than one-half inch or as otherwise specified by the Engineer. To ensure that the articulating concrete blocks are flush and develop intimate contact with the subgrade, the blocks shall be "seated" with a roller or other means as approved by the Engineer.

Anchor trenches and side trenches shall be backfilled and compacted flush with the top of the blocks. The integrity of a soil trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the articulating concrete blocks for its entire service life. Toe trenches shall be backfilled as shown on the Contract Drawings. Backfilling and compaction

of trenches shall be completed in a timely fashion. No more than 500 linear feet of placed articulating concrete blocks with non-completed anchor and/or toe trenches shall be permitted at any time.

Finishing: The cells or openings in the articulating concrete blocks shall be backfilled and compacted immediately with suitable material to assure there are no voids and so that compacted material extends from the filter fabric to one-inch above the surface of the articulating concrete block. Backfilling and compaction shall be completed in a timely manner so that no more than 500 feet of exposed mats exist at any time.

Consultation: The manufacturer of the articulating concrete blocks shall provide design and construction advice during the design and initial installation phases of the project when required. The ACB supplier shall provide, at a minimum, one full day or two half-days of on-site project support upon request.

524-4 METHOD OF MEASUREMENT

524-4.1 Open cell articulating concrete block hand-placed shall be measured by the square yard, in place, complete. This price shall be full compensation for furnishing all materials and for all preparation, embedment, anchors, placing and grading of the draining stone, geotextile fabric, restoration, furnishing and installation of appurtenances and connections as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure. Excavation and embankment to the final lines and grades required for installation of the open cell articulating concrete block shall be paid for under Item P-152, Excavation and Embankment.

524-5 BASIS OF PAYMENT

524-5.1 Payment will be made at the contract unit price per square yard of open cell articulating concrete block mat installed and accepted. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item 524.1 Open Cell Articulating Concrete Block Hand-Place - per square yard

ITEM S-126

PROJECT SURVEY AND STAKEOUT

126-1 DESCRIPTION

126-1.1 Under this item, the Contractor shall do all necessary surveying required to construct all elements of the Project as shown on the Plans and specified in the Proposal and Specifications, as well as provide an as-built survey and final cross sections upon construction completion. This shall include but not be limited to stakeout, layout and elevations for pavements, structures, forms and appurtenances as shown and required, consistent with the current practices and shall be performed by competently qualified personnel acceptable to the Engineer. The stakeout survey shall proceed immediately following the award of the Contract and shall be expeditiously progressed to completion in a manner and at a rate satisfactory to the Engineer. The Contractor shall keep the Engineer fully informed as to the progress of the stakeout survey. All survey work shall be provided under the direction of a licensed land surveyor.

126-2 MATERIALS.

126-2.1 All instruments, equipment, stakes and any other material necessary to perform the work satisfactorily shall be provided by the Contractor.

All stakes used shall be of a type approved by the Engineer. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

126-3 CONSTRUCTION DETAILS.

126-3.1 The Contractor shall trim trees, brush and other interfering objects, not consistent with the Plans, from survey lines in advance of all survey work to permit accurate and unimpeded work by his stakeout survey crews and cross-section and topo survey crews.

The exact position of all work shall be established from control points, baseline transit points or other points of similar nature which are shown on the Plans and/or modified by the Engineer. Any error, apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation.

The Contractor shall place two offset stakes or references at each centerline station and at such intermediate locations as the Engineer may direct. From computations and measurements made by the Contractor, these stakes shall be clearly and legibly marked with the correct centerline station number, offset and cut or fill to permit the establishment of the exact centerline location and elevation during construction. If markings become faded or blurred for any reason, the markings shall be restored by the Contractor and at the request of the Engineer. The Contractor shall locate and place all cut, fill, slope, fine grade or other stakes and points, as the Engineer

may direct, for the proper progress of the work. All control points shall be properly guarded and flagged for easy identification.

Drainage structures shall be staked out by the Contractor at the locations and elevations shown on the Plans or as specified by the Engineer.

Reference points, baselines, stakes and benchmarks for borrow pits shall be established by the Contractor.

Settlement gauges shall be established on subgrade in embankment areas, as shown on the plans, after topsoil stripping is complete.

Permanent survey marker locations shall be established and referenced by the Contractor.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the Contract. Damaged or destroyed points, benchmarks or stakes, or any reference points made inaccessible by the progress of the construction, shall be replaced or transferred by the Contractor. Any of the above points which may be destroyed or damaged shall be transferred by the Contractor before construction begins. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the Engineer immediately. All stakeout survey work shall be referenced to the centerlines shown on the Plans. All computations necessary to establish the exact position of the work from control points shall be made and preserved by the Contractor. All computations, survey notes and other records necessary to accomplish the work, shall be neatly made. Such computations, survey notes and other records shall be made available to the Engineer upon request and delivered to the Engineer not later than the date of acceptance of the Contract, to become the property of the owner.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor. Any necessary correction to the work shall be made immediately by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy or completeness of his work.

Prior to the final cross-section and topo survey of the Project by the Contractor, the Contractor shall re-establish centerline or baseline points and stationing as required by the Engineer. The As-Built cross sections and topo extending to grading limits, with defined breaklines, shall be provided to the Engineer in a three dimensional electronic DWG format.

Prior to the final cross-section survey of any borrow pits by the Contractor, the Contractor shall reestablish baseline points and stationing, as well as any necessary benchmarks as required by the Engineer.

The Contractor will be required to provide original ground and finished grade, as-built, complete topo survey and cross-sections of all areas altered during construction (to grading limits), including

work outside main project grading limits. As-Built elevations of drainage structures and piping shall also be taken. The Contractor shall provide the Owner and Engineer with electronic copies of all original ground and as-built survey information, including a three dimensional Digital Terrain Model (DTM) and invert elevations in a three dimensional electronic DWG format (AutoCad). During the progress of the construction work, the Contractor will be required to furnish all of the surveying and stakeout incidental to the proper location by line and grade for each phase of the work. For paving and any other operation requiring extreme accuracy, the Contractor will restake with pins or other acceptable hubs located directly adjacent to the work at a spacing directed by the Engineer.

Any existing stakes, iron pins, survey monuments or other markers defining property lines which may be disturbed during construction shall be properly tied into fixed reference points before construction begins and accurately reset in their proper position upon completion of the work.

The Contractor shall set nails or pins flush with finished grade on the centerline of the runway pavement at each runway threshold. The set points shall be located, elevated and referenced to the project coordinate system. The as-built runway threshold elevation and coordinates shall be given to the Engineer.

Just prior to completion of the Contract, the Contractor shall reestablish if necessary, and retie all control points as permanently as possible, to the satisfaction of the Engineer.

126-4 METHOD OF MEASURMENT.

126-4.1 Measurement for project survey and stake-out, and as-built survey will be made on a lump sum basis.

126-5 BASIS OF PAYMENT.

126-5.1 The lump sum price bid shall include the cost of furnishing all labor, equipment, instruments and all other material necessary to satisfactorily complete the Project surveying and stakeout and as-built survey as specified. Partial payments may be made at the discretion of the Engineer as the work progresses.

Payment will be made under:

Item S-126-5.1	Project Survey and Stakeout – Per Lump Sum
Item S-126-5.2	As-Built Survey and Final Cross Sections – Per Lump Sum

END OF ITEM S-126

ITEM T-901

SEEDING

901-1 DESCRIPTION. This item shall consist of soil preparation, seeding, mulching, overseeding, and fertilizing the areas shown on the Plans or as directed by the Engineer in accordance with these specifications.

901-2 MATERIALS.

901-2.1 Seed: The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Fed. Spec. A-A-2671.

Seed shall be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the Engineer duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number of each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in the case of a mixture, the proportions of each kind of seed.

Seeds shall be applied as follows:

Seed	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application of Pure Live Seed (lb./acre)
Pensacola Bahia	95	80	80
Bermuda (Hulled)	95	85	10
Bermuda (Unhulled)	95	85	10
Millet (April-Oct)*	90	85	30
Annual Rye (Nov.-March)*	95	90	30

* Contractor shall utilize either millet or annual type rye at 30 lbs./acre based upon the time

of year the seeding operation occurs.

For areas to receive Bermuda Sod with Rye Overseeding, the Contractor shall utilize either millet or annual type rye based upon the time of year the seeding operation occurs, at the rate recommended by seeding provider for overseed application. Sodding shall be installed in accordance with Item T-904.

901-2.2 FERTILIZER. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified herein, and shall meet the requirements of Fed. Spec. A-A-1909, and applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;
b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or
c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall contain the following minimum pounds of available plant food per acre: sixty (60) pounds of Nitrogen, sixty (60) pounds of phosphoric acid, sixty (60) pounds of water soluble potash. This is the equivalent of a 10-6-4 commercial fertilizer spread at a rate of 1,000 lbs./acre.

901-2.3 MULCH. Mulch shall be a commercially available product composed of recycled paper or wood products.

901-2.4 Soil for Repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other objectionable materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the Engineer before being placed.

901-3 SUBMITTALS AND CERTIFICATIONS

901-3.1 Submittals of "Shop and Setting Drawings," "Working Drawings," "Catalog Data," and "Certifications" shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications are as follows:

- Certification that the seed mixture meets the requirements specified.

- Certification that the fertilizer meets the requirements specified.

901-4 CONSTRUCTION METHODS.

901-4.1 Advance Preparation and Cleanup: After grading of areas has been completed and before applying fertilizer, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities and repairing other incidental damage.
An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots or other undesirable matter and if shaped to the required grade.

However, when the area to be seeded is sparsely sodded, weedy, barren, and unworked or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods shall be broken and the top 3 inches of soil shall be worked into a satisfactory seedbed by discing or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-4.2 DRY APPLICATION METHOD. (NOT PERMITTED)

901-4.3 WET APPLICATION METHOD.

a. General. The Contractor may elect to apply seed, fertilizer and mulch by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified.

b. Spraying Equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds per square inch. The pump shall be mounted in a line, which will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipelines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner

that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over a distance varying from 20 feet to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle and one a long-range jet nozzle. For ease of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.
In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

c. Mixtures. Seed, fertilizer, and mulch shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. Brackish water shall not be used at any time. The Contractor shall identify to the Engineer all sources of water at least 2 weeks prior to use. The Engineer may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source, which is disapproved by the Engineer following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within 2 hours from the time they were mixed or they shall be wasted and disposed of at locations acceptable to the Engineer.

d. Spraying. Mixtures of seed, fertilizer, and mulch shall only be sprayed upon previously prepared seedbeds. The mixtures shall be applied by means of a high-pressure spray which shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area. Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the Engineer, seed and fertilizer applied by the spray method need not be raked into the

soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-4.4 MAINTENANCE OF SEEDED AREAS. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the Engineer. Surfaces gullied or otherwise damaged following seeding shall be repaired by re-grading and re-seeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When the wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the Engineer. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded. If at the time when the Contract has been otherwise completed, it is not possible to make an adequate determination of the color, density and uniformity of such stand of grass, payment for the unaccepted portions of the areas seeded out of season will be withheld until such time as these requirements have been met.

901-5 METHOD OF MEASUREMENT.

901-5.1 There will be no measurement.

901-6 BASIS OF PAYMENT.

901-6.1 Overseeding shall be paid for under Item T-904, Sodding. Seeding of all other disturbed areas shall not be paid for directly since this is incidental to other Items of work.

MATERIAL REQUIREMENTS

ASTM C 602	Agricultural Liming Materials
ASTM D 977	Emulsified Asphalt
FED SPEC A-A-1909	Fertilizer
FED SPEC A-A-2671	Seeds, Agriculture

END OF ITEM T-901

ITEM T-904

SODDING

904-1 DESCRIPTION

904-1.1 The requirements of the Florida Department of Transportation Specification Section 570, Performance Turf, shall apply with the following modifications.

904-2 MATERIALS

904-2.1 Sod shall be Bermuda type, and shall be overseeded with Rye in accordance with Item T-901.

904-3 METHOD OF MEASUREMENT

904-3.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod, including overseed application, and accepted.

904-4 BASIS OF PAYMENT

904-4.1 This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, fertilizing, overseeding with rye, watering, mowing and incidentals necessary to satisfactorily complete the items specified.

Payment will be made under:

Item T-904	Bermuda Sod with Rye Overseeding – Per Square Yard

END OF ITEM T-904

ITEM T-905

TOPSOILING

905-1 DESCRIPTION.

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this Specification at the locations shown on the Plans or as directed by the Engineer.

905-2 MATERIALS.

905-2.1 Topsoil: Topsoil shall be the surface layer of soil with no admixture, refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), clay lumps or similar objects. Brush and other vegetation which will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sods and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh sieve as determined by the wash test in accordance with ASTM C 117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above Specifications.

Topsoil used in areas designated for re-planting with wetland plants shall be natural soil stripped from the disturbed wetland areas.

905-2.2 Inspection and Tests: Within 10 days following acceptance of the bid, the Engineer shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths for testing purposes as specified in 905-2.1.

905-3 SUBMITTALS AND CERTIFICATIONS

905-3.1 Submittals of "Shop and Setting Drawings," "Working Drawings," "Catalog Data," and "Certifications" for review shall be submitted in accordance with appropriate sections of the General Provisions. Submittals and Certifications required are as follows:

- Certification that Topsoil meets the requirements specified.

905-4 CONSTRUCTION METHODS.

905-4.1 General. Areas to be topsoiled shall be shown on the Plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the Plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil and for handling and placing of all required materials shall be on hand, in good condition, and approved by the Engineer before the various operations are started.

905-4.2 Preparing the Ground Surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the Engineer, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture or the proper growth of the desired planting. Limited areas, as shown on the Plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the Plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and properly compacted condition to prevent, insofar as practical, the formation of low places or pockets where water will stand.

905-4.3 Obtaining Topsoil: Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the Engineer. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the Engineer. The topsoil shall be spread on areas already tilled and smooth-graded or stockpiled in areas approved by the Engineer. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoiling purposes shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

Excessive topsoil not used in the finished work which has been stripped and stockpiled from areas designated for construction of new pavements or for regrading will be paid for under Item P-152-6.1, Unclassified Excavation. All topsoil not used in the finished work shall be placed in locations

on the site as designated by the Engineer. If no sites are designated, the topsoil shall be disposed of by the Contractor at no cost to the Owner.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the Engineer. The Contractor shall notify the Engineer sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-4.4 Placing Topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth as shown on the Contract Drawings after compaction. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. After spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the Engineer. The compacted topsoil surface shall conform to the required lines, grades, and cross sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

905-5 METHOD OF MEASUREMENT.

905-5.1 Topsoil shall be measured by volume in cubic yards computed on the basis of the actual surface or fraction thereof times the depth stated in the Plan details.

905-6 BASIS OF PAYMENT.

905-6.1 Payment will be made at the contract unit price per cubic yard for topsoiling. This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905	3” Minimum Topsoiling – Per Square Yard

TESTING REQUIREMENTS

ASTM C 117	Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing

END OF ITEM T-905

ITEM T-910

WETLAND PLANTS AND INSTALLATION

910-1 GENERAL

910-1.1 DESCRIPTION.

A. This item shall consist of the planting of wetland plants, including the following activities:
   1. Construction of planting areas;
   2. Soil preparation;
   3. Staking of planting zones based on construction drawing elevations;
   4. Plant materials and installation;
   5. Maintenance of new materials including watering, staking, etc.; and
   6. Replacement of dead or impaired materials at the end of the first growing season.

B. No plant materials will be installed without the approval of the Engineer. All plant material specified will be provided and installed by the Contractor.

C. Related Sections include but are not necessarily limited to:
   1. Instruction to Bidders, General Provisions, and Special Provisions.
   2. Division 1 – General Requirements.

910-1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Grades and Standards for Nursery Plants, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, latest edition
   2. Control of Non-Native Plants in Natural Areas of Florida, K. A. Langeland and R. K. Stocker, Florida Cooperative Extensions Services, Institute of Food and Agricultural Sciences, University of Florida.
   3. ANSI Z60.1- American Standard for Nursery Stock
   4. Standard Methods of the Association of Official Agricultural Chemists.
   5. Federal Specifications (FS):
      a. A-A-2671, Agricultural Seeds.
   6. United States Department of Agriculture (USDA):
      a. Federal Seed Act.
   7. FDOT Standard Specifications, 2000, as supplemented.
   8. Florida Pesticides Laws and Rules, Chapter 487, Florida Statutes, Florida Department of Agriculture and Consumer Services, June 1986.
   9. International Society of Arboriculture (ISA) “Guide for Establishing Values of Trees and Other Plants,” prepared by the Council of Tree and Landscape Appraisers (CTLA).
   10. Florida Statutes, 403.9321-403.9333, 1996 Mangrove Trimming and Preservation Act
   11. American Sod Producers Association (ASPA)

910-1.3 SUBMITTALS

A. Shop Drawings:
   1. See Drawings, Permit Plans, or Construction Plans.

B. Product Technical Data including:
   1. Acknowledgement that products submitted meet requirements of standards referenced.
   2. Manufacturer's installation instructions.
   3. Other documents:
      a. Delivery schedule.
      b. Prior to delivery of materials, certificates of compliance attesting that materials meet specified requirements. Certified copies of the material certificates shall include the classification, botanical name, common name, size, quantity by species, and location where grown. Plants shall be inspected prior to installation by the Project Manager or his/her designated representative.
      c. Maintenance Record includes monthly reports during the 90-day plant establishment period stating maintenance work performed, quantity of plant losses, and replacements, and diagnosis of unhealthy plant material.

910-1.4 DELIVERY, STORAGE, AND HANDLING

A. A delivery schedule shall be provided at least 10 calendar days prior to the first day of delivery and after approval of as-built survey of planting areas by Project Manager or his/her designated representative.

B. Comply with Referenced Documents and manufacturer's recommendations for delivery, storage and handling of herbicides.

C. Plant Materials:
   1. Protection during delivery: Plant material shall be protected during delivery to prevent desiccation and damage to the root system. Exposed portions of the plant shall be covered during transport.
   2. Inspection: Plant material shall be well shaped, vigorous and healthy with a healthy, well branched root system, free from disease, harmful insects and insect eggs, sun scald injury, disfigurement or abrasion. Plant material shall be checked for unauthorized substitution and to establish nursery-grown status. Plant material showing desiccation, abrasion, sunscald injury, disfigurement, or unauthorized substitution shall be rejected. The plant material shall exhibit typical form of branch to height ratio, and meet the caliper and height measurements specified. Plant material that measures less than specified, or has been poled, topped off or headed back, shall be rejected. Container-grown plant material shall show new fibrous roots and the root mass shall contain its shape when removed from the container. Plant material with broken or cracked balls; or broken container shall be rejected. Other material shall be inspected for compliance with Part 2 – PRODUCTS.
   3. Storage: Plant material not installed on the day of arrival at the site shall be stored and protected in designated areas. Plant material shall not be stored longer than 24 hours.

Plant material shall be protected from direct exposure to wind and sun. All plant material shall be kept in a moist condition until installed by watering in a manner acceptable to the Project Manager.

4. Handling: Plant material shall not be injured during handling. Cracking or breaking the plant material shall be avoided. Plant materials shall not be handled by the stems. Materials shall not be dropped from vehicles.

910-1.5 SEQUENCING AND SCHEDULING

A. Installation Schedule:
   1. Provide schedule showing when plant materials are anticipated to be planted.
   2. Indicate planting schedules in relation to schedule for finish grading and topsoiling.
   3. Indicate anticipated dates Project Manager or his/her authorized representative will be required to review installation for initial acceptance and final acceptance.

910-1.6 SPECIAL PROJECT WARRANTY

A. Furnished plant material shall have a warranty for plant growth to be in a vigorous growing condition for a minimum 90-day period, regardless of the contract time period. When plant material is determined to be unhealthy in accordance with paragraph 910-3.3.B.2.b, it shall be replaced under this warranty.

B. Remove and replace plants found to be dead or in unhealthy condition during period. Make replacements during growing season following end of construction period.

910-2 PRODUCTS

910-2.1 MATERIALS

A. Plants:
   1. See plant list on Drawings.
   2. Sound, healthy, vigorous, with normal top and root systems, free from disease, insect pests or their eggs, grown in same climatic zone as the project location.
   3. All plant species are to be nursery grown Florida Grade No. 1 or equivalent better as given in Grades and Standards for Nursery Plants and Trees, latest edition (FDAC), and subject to the permit conditions.
   4. All plants shall be grown from seed stock originating as close to the project location as practical.
   5. All plant materials are to be freshly dug. No collected stock. All plant materials shall be Florida #1 of Species and size as indicated on Drawings.
   6. Container Grown plants (CG): Roots well established in soil, grown in container for at least one growing season.

910-3 EXECUTION

910-3.1 SOIL PREPARATION

A. General:
   1. Limit preparation to areas that will be planted soon after.
   2. Provide facilities to protect and safeguard all persons on or about premises.
   3. *Verify location and existence of all underground utilities. Take necessary* precaution to protect existing utilities from damage due to construction activity. Repair all damages to utility items at Contractor's sole expense.

B. Provide facilities such as protective fences and/or watchmen to protect work from vandalism. Contractor to be responsible for vandalism until acceptance of work in whole or in part.

C. Restore areas to specified condition if eroded or otherwise disturbed between fine grading and planting.

910-3.2 PLANT INSTALLATION

A. Notification: Notify Project Manager of source of plants and plant materials at least 30 days prior to planting to permit Project Manager or duly authorized representative to inspect source qualifications prior to delivery.

B. Preparation:
   1. Handle plants so that roots or balls are adequately protected from breakage and from the sun or drying winds. Ensure tops or roots of plants are not permitted to dry out.
   2. During transport, protect materials from wind and sun to prevent tops and roots from drying out.
   3. Protect tops of plants from damage. Plants with damaged tops will be rejected.
   4. Do not prune shrubs at nursery.

C. Planting Season: Plant shrubs, and groundcovers any time the ground and moisture conditions are suitable and the temperature is above 32°F.

D. Planting Procedure:
   1. Plant installation shall not begin until planting areas are accepted by the Project Manager or his/her authorized representative.
   2. Material shall be installed at the soil depths at which it was originally grown.
   3. Substrate shall be sufficiently watered and/or packed to eliminate air pockets.
   4. Indicate locations of plants for approval by Project Manager before excavating plant locations.
   5. In the event that underground construction, utilities, obstructions, or rock are encountered in excavation of plantings, secure alternate locations from Project Manager. Make said changes without additional compensation.

6. Excavate pits and beds as necessary and in accordance with American Standard for Nursery Stock. Excavation is unclassified; excavate all materials without additional cost.
7. Install plantings in individual holes of required size.
8. Set plants straight or plumb, in locations when indicated and at such level that after settlement they bear same relationship to finished grade as they did in their former setting. Carefully tamp planting soil under and around base of plant to prevent voids.
9. Backfill plants with planting soil. Tamp to ½ depth of pit and thoroughly water and puddle before bringing backfill to proper grade. After planting has been completed, flood pit again so that backfill is thoroughly saturated and settled.
10. Fertilize according to fertilizer manufacturer's recommendations.
11. Remove dead or damaged branches.
12. Furnish and supply all other material including water and accessory items as may be required to facilitate the planting and establishment of all plants specified to be installed.

910-3.3 MAINTENANCE AND REPLACEMENT

A. General:
   1. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
   2. Furnish and supply al other material including water and such accessory items as may be required to facilitate the planting and establishment of all plants specified to be installed.
   3. The Contractor shall provide for the irrigation of the planting areas as may be required depending upon weather conditions antecedent to, during, and after plant installation, until the date of the Project Manager's final acceptance.
   4. Maintenance includes but is not limited to watering when necessary, removing dead or dying branches, removing sprouts and suckers; tightening, maintaining mulch to originally specified depth; and weeding plant beds and pits.
   5. The Contractor shall clean up and remove from the premises all surplus and discarded materials and rubbish.
   6. Protection of new materials:
      a. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing improvements indicated to remain. Repair and pay for all damaged items.
   7. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Project Manager or his/her authorized representative.

B. Plant Establishment Period:
   1. Commencement:
      a. Upon completion of the last day of the planting operation, the plant establishment period for maintaining installed plant material in a healthy growing condition shall commence and shall be in effect for the remaining contract time period, not to

exceed 90 days. Written calendar time period shall be furnished for the plant establishment period.

b. Project Manager of his/her authorized representative will review completed planting for acceptability of installation. Approval of planting denotes initial acceptance and the beginning of the maintenance period.

2. Maintenance during Establishment Period
   a. The Contractor shall be responsible for ensuring 100% survival of all herbaceous plants and shrubs installed from the completion of the last day of planting through a ninety (90) day establishment period.
   b. The Contractor shall, within the said period, replace any and all herbaceous plants and shrubs that have deteriorated below the level of Florida Grade No. 1.
   c. The Contractor shall ensure the presence of undesirable vegetative species is contained at the ten percent (10%) level until the final acceptance of the project by the Project Manager (see Section 02940, Exotic Plant Control).
   d. Undesirable species may include, but are not necessary limited to, Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina pp.*), Punk tree (*Melaleuca quinquenervia*), cattail (*Typha sp.*), torpedo grass (*Panicum repens*), and primrose willow (*Ludwigia peruviana*).
   e. The Contractor shall be responsible for the labor and materials to replace existing, desirable vegetation that may be damaged during maintenance activities.

910-3 METHOD OF MEASUREMENT

910-3.1 The quantity of planting to be paid for shall be the number of acres or fractions thereof measured on the ground surface, completed, and accepted.

910-4 BASIS OF PAYMENT

910-4.1 Payment shall be made at the Contract unit price per acre, or fractions thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Item T-910	Wetland Plantings – Per Acre

END OF ITEM T-910

ITEM T-912

EXOTIC PLANT CONTROL

912-1 GENERAL

912.1-1 DESCRIPTION. This item includes the complete removal, disposal, and treatment of exotic and nuisance species within the project limits shown in the plans by clearing and grubbing, herbicide application and re-application, and/or mechanical removal. It includes the canopy removal of identified tree species for mulching of exotic vegetation debris. Mulch will be stock piled at the project site for use in the installation of plants. Excess mulch shall be removed from the project site.

912.1-2 RELATED SECTIONS:
A. Instructions to Bidders, General Provisions and Special Provisions
B. Division 1 – General Requirements

912-1.3 QUALITY CONTROL. Quality Control shall follow the procedures outlined in "Control of Non-Native Plants in Natural Areas of Florida," K.A. Langeland, R.K. Stocker, SP 242, Published by: Florida Cooperative Extension Services, Institute of Food and Agricultural Sciences, University of Florida.

912-2 PRODUCTS

912-2.1 PRODUCT SAFETY

A. Use licensed, suitably trained, and suitably experienced works to handle, mix and apply herbicides.

B. Comply with applicable governmental regulations and manufacturer's directions when handling, mixing, transporting, applying and disposing of pesticides.

C. Comply with safety recommendations in the Reference Document and applicable laws and regulations.

912-2.2 HERBICIDE

A. Refer to species specific product recommendations in reference document and to labeling restrictions. Herbicides are to be pre-approved by the Project Manager for pertinent location and application method.

912-2.3 HERBICIDE VEHICLE

A. "Biodiesel" is preferred when applicable.

912-3 EXECUTION

912-3.1 GENERAL

A. Comply with recommendations in Referenced Document for mechanical removal.

B. Comply with this Section, Reference Document and manufacturers' recommendations for herbicide application and follow up. Use herbicide, vehicles and solution specified in this Section.

C. Exotic and nuisance plants of Category I and II species detailed in most recent Florida Exotic Pest Plant Council's List of Invasive Plants that includes, but are not necessarily limited to:

- Cattails, (*Typha* spp.);
- Primrose Willow (*Ludwigia* spp);
- Carolina Willow (*Salix caroliniana*);
- Brazilian Pepper (*Schinus terebinthifolius*);
- Australian Pine (*Casuarina* spp.);
- Punk Tree (*Melaleuca quinquenervia*); and
- Lead Tree (*Leucaena leucocephala*).

912-3.2 HERBICIDE APPLICATION

A. Apply herbicide to exotic and nuisance plant shoots and sprouts recurring 30 days after mechanical removal and/or clearing and grubbing. Retreat 60 days after initial application. Use minimal concentrations necessary to control regrowth and/or cause death. Use in all cleared areas above 1.5 ft. NGVD for re-growth of exotic plants.

B. Apply 3 treatments of herbicide 60 days apart to all live exotic plants not mechanically removed. Treat so there are no live exotic plants 60 days after the third application. Treat with a fourth application, if necessary. Use in all areas inside the limits of the Work and not disturbed by grading or cleaning work.

912-3.3 SELECTIVE MECHANICAL REMOVAL

A. Inside the limits of construction (excluding the preservation areas) shown on the drawing sheets where exotic plants are accessible to mechanical equipment without risk of damage to other native species, the Project Manager or his/her authorized representative may direct total (foliage, branches, trunk, and root system) mechanical removal. Where mechanical removal of exotics is directed, take care to avoid damage to native species.

B. Outside the limits of construction and within the preservation area limits shown on the drawings, carry out designated “spot”, or selective clearing using hand removal methods (chain saws, machetes, etc.) within 10 feet of desirable plant species. If selective clearing is not possible without disturbing or damaging desirable native vegetation, exotic and nuisance plants shall be killed in place with dye-laced herbicide.

C. Dispose of removed exotics by mulching plant branches and leaves. Pile mulched exotic plants in an area identified by the Project Manager or his/her authorized representative. Follow the procedures for storing mulched exotic plant material to ensure no viable seeds are in the mulch. In areas inside the limits of construction restore to finished grade.

D. Include areas of mechanical and selective removal for follow up application of approved herbicide.

912-1 METHOD OF MEASUREMENT

912-3.1 The quantity of exotic plant control to be paid for shall be on a lump sum basis.

912-2 BASIS OF PAYMENT

912-4.1 Payment shall be made at the Contract unit price per lump sum, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Item T-912	Exotic Plant Control – Per Lump Sum

END OF ITEM T-912

ITEM T-914

MAINTENANCE AND MONITORING

914-1 GENERAL

914-1.1 DESCRIPTION. This Item includes the maintenance and monitoring of planted areas based upon the drawings and the permit documents. It will include all the wetland and upland planted areas shown to be planted in accordance with the planting plans.

914-1.2 RELATED SECTIONS.

1. Instruction to Bidders, General Provisions, and Special Provisions
2. Division 1 – General Requirements
3. Item T-912, Exotic Plant Control

914-1.3 MAINTENANCE AND MONITORING PERIOD. The maintenance and monitoring period is defined as the 1,095-day period following the date of final acceptance of the planting of the project area.

914-2 PRODUCTS

914-2.1 MATERIALS. The Contractor shall furnish all materials and accessories required to accomplish plant maintenance and monitoring.

914-2.2 REPLACEMENT PLANTS:

1. Sound, healthy, vigorous, with normal top and root systems, free from disease, insect pests or their eggs, grown in same climatic zone as the project.
2. All plant species are to be nursery grown Florida Grade No. 1 or equivalent better as given in Grades and Standards for Nursery Plants and Trees, latest edition (FDAC), and subject to the permit conditions.
3. All plants shall be grown from seed stock originating as close to the project location as practical.
4. All plant materials are to be freshly dug. No collected stock. All plant materials shall be Florida #1 of Species and size as indicated on Drawings.
5. Container grown plants (CG): Roots well established in soil, grown in container for at least one growing season.

914-3 EXECUTION

914-3.1 PLANTING REPLACEMENT

A. Notification:

1. Notify Project Manager of source of plants and plant materials at least 30 days prior to planting to permit Project Manager or his/her authorized representative to inspect source qualifications.

B. Preparation:
   1. Handle plants so that roots are adequately protected from breakage of balls, from sun or drying winds. Ensure tops or roots of plants are not permitted to dry out.
   2. During transport, protect materials from wind and sun to prevent tops and roots from drying out.
   3. Protect tops of plants from damage. Plants with damaged tops will be rejected.
   4. Do not prune shrubs at nursery.

C. Planting Season:
   1. Installs plants any time the ground and moisture conditions are suitable.

D. Planting Procedure:
   1. Plant installation shall not begin until planting areas are accepted by the Project Manager or his/her authorized representative.
   2. Material shall be installed at the soil depths at which it was originally grown.
   3. Substrate shall be sufficiently watered and/or packed to eliminate air pockets.
   4. Indicate locations of plants for approval by Project Manager before excavating plant locations.
   5. In the event underground construction, utilities, obstructions, or rock are encountered in excavation of plantings, secure alternate locations from Project Manager. Make said changes without additional compensation.
   6. Excavate pits and beds as necessary and in accordance with American Standard for Nursery Stock. Excavation is unclassified; excavate all materials without additional cost.
   7. Shrub pits to be circular in shape. Planting holes should be at least two times the diameter of the root ball. The root ball is set on undisturbed solid ground.
   8. Shrub and ground cover beds:
      a. Plant shrubs and ground covers used in mass plantings in individual holes of required size.
   9. Set plants straight or plumb, in locations when indicated and at such level that after settlement they bear same relationship to finished grade as they did in their former setting. Carefully tamp planting soil under and around base of plant to prevent voids.
   10. Backfill plants with planting soil. Tamp to ½ depth of pit and thoroughly water and puddle before bringing backfill to proper grade. After planting has been completed, flood pit again so that backfill is thoroughly saturated and settled.
   11. Fertilize according to fertilizer manufacturer’s recommendations.
   12. Remove dead or damaged branches.
   13. Furnish and supply all other material including water and accessory items as may be required to facilitate the planting and establishment of all plants specified to be installed.

914-3.2 MAINTENANCE AND REPLACEMENT

A. General:
   1. Maintenance and monitoring of the project area begins immediately after final acceptance of the planted area.
   2. Furnish and supply all other material including water and such accessory items as may be required to facilitate the replacement planting and establishment of all replacement plants specified to be installed.
   3. The Contractor shall provide for the irrigation of the replacement plantings as may be required depending upon weather conditions antecedent to, during, and after plant installation, until the date of the Project Manager's final acceptance.
   4. Maintenance includes but is not limited to watering when necessary, removing dead or dying branches, removing sprouts and suckers; tightening, and weeding plant beds and pits.
   5. The Contractor shall clean up and remove from the premises all surplus and discarded materials and rubbish.
   6. Protection of replacement materials:
      a. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing improvements indicated to remain. Repair and pay for all damaged items.
   7. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Project Manager or his/her authorized representative.

B. Exotic Plant Control:
   1. The Contractor shall ensure the presence of undesirable vegetative species is contained at less than the ten percent (10%) level for 1,095 day period following the date of final acceptance of the planting of the project area.
      a. Undesirable species are Category I and II species detailed in the most recent Florida Exotic Pest Plant Council's List of Invasive Plants that include, but are not necessarily limited to Brazilian pepper (*Schinus terebinthifolius*), Australian pine (*Casuarina* spp.), Punk tree (*Melaleuca quinquenervia*), cattail (*Typha* sp.), torpedo grass (*Panicum repens*), and primrose willow (*Ludwigia peruviana*).
      b. The Contractor shall be responsible for the labor and materials to replace existing, desirable vegetation that may be damaged during maintenance activities.

C. Reports:
      a. A written summary of inspection and maintenance activities will be submitted to the Project Manager with each invoice.
      b. The report shall include the date, number of plants, and species name of plants that were replaced.

914-3.3 SEQUENCING AND SCHEDULING

A. Maintenance Schedule:

1. The Contractor is required to complete as a minimum, one maintenance event per quarter for the first year. For the second and third years, the Contractor is to perform semi-annual maintenance events at a minimum.
2. Provide schedule showing when replacement plant materials are anticipated to be planted.

B. Monitoring Schedule: The Contractor is required to complete at a minimum, an initial baseline monitoring event after initial plant installation followed by semi-annual monitoring events for three years.

914-3 METHOD OF MEASUREMENT

914-3.1 The quantity of monitoring and maintenance events to be paid for shall be the number of events that are completed, and accepted.

914-4 BASIS OF PAYMENT

914-4.1 Payment shall be made at the Contract unit price per each, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, reports and incidentals necessary to complete the work.

Payment will be made under:

Item T-914-1	Maintenance Events – Per Each
Item T-914-2	Monitoring Events – Per Each

END OF ITEM T-914

PART 5

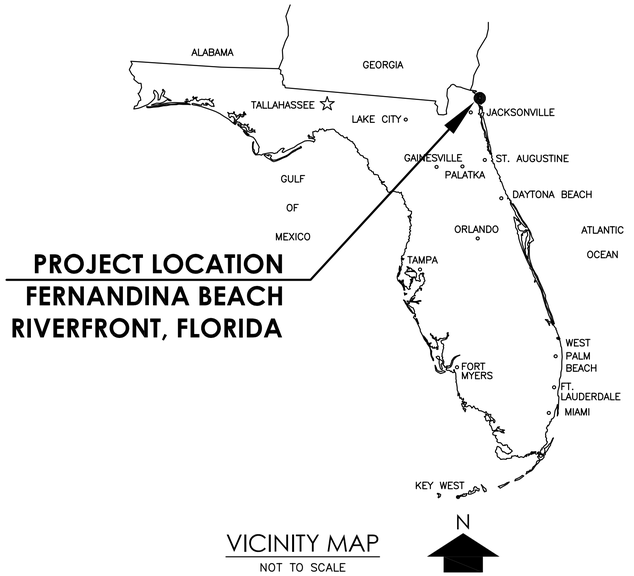
PLAN DRAWINGS

CONTRACT DRAWINGS FOR:

CITY OF FERNANDINA BEACH

FRONT STREET
FERNANDINA BEACH, FL 32034

CITY OF FERNANDINA BEACH
204 ASH STREET
FERNANDINA BEACH, FL 32034



VICINITY MAP
NOT TO SCALE

• AMELIA RIVER WATERFRONT STABILIZATION PARKING LOTS C & D

U.S. Army Corps of Engineers Nationwide Permits 13 and 54 Verification
SAJ-2020-01718

Application for State of Florida Environmental Resource Permit (62-330, F.A.C.)

LOCATION MAP
NOT TO SCALE

N

PASSERO ASSOCIATES
engineering architecture

Certificate of Authorization # 3428
4730 Casa Cola Way, Suite 200 (904) 757-6106
St. Augustine, FL 32095 Fax: (904) 757-6107

PASSERO ASSOCIATES
PROJECT NUMBER 99000047.0095

May 10, 2021

BID SET

ESTIMATE OF QUANITITIES – BASE BID

ITEM	DESCRIPTION	UNIT	TOTAL	AS–BUILT
BASE BID				
101–1	MOBILIZATION	LS	1	–
110–1	ALONG BOARDWALK: CLEARING AND GRUBBING	AC	0.343	–
110–2	ALONG RIVERBANK: TRASH DEBRIS REMOVAL & DISPOSAL	LS	1	–
110–3	ALONG WETLANDS (SOUTH BOUNDARY) AND PETANQUE AREA: TRASH DEBRIS REMOVAL & DISPOSAL	LS	1	–
M–100	MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1	–
02–41–00	SELECTIVE DEMOLITION OF MINOR STRUCTURES – TIMBER BOARDWALK	LS	1	–
524.1	OPEN CELL ARTICULATING CONCRETE BLOCK HAND–PLACED (INCLUDING ANCHORED ENDS)	SY	915	–
P–156	TEMPORARY SOIL EROSION AND SILTATION CONTROL	LS	1	–
C3–6	"I" WALL WITH COQUINA MIX CONCRETE MONOLITH	LF	793	–
C3–1	8'–0" WIDE COQUINA MIX CONCRETE BOARDWALK ON GRADE	LF	515	–
C3–2	12'–0" WIDE COQUINA MIX BOARDWALK ON GRADE AT TIMBER BULKHEAD	LF	278	–
C2–5	NEW TIMBER PILE BULKHEAD TO MATCH EXISTING TIMBER PILE BULKHEAD	LF	25	–
02–41–00	SELECTIVE DEMOLITION OF (2) EXISTING TIMBER DOCK CONNECTORS	LS	1	–
C2–5	(2) NEW TIMBER DOCK CONNECTORS FROM NEW BOARDWALK TO EXISTING TIMBER DOCKS	LS	1	–
08–42–39	PRESSURE–RESISTANT SINGLE FLOOD PLANKBARRIER SYSTEM AT (4) OPENINGS	LS	1	–
26–50–00	EXTERIOR WATERPROOF RECESSED LED PATHWAY LIGHTING INCLUDING CONDUITS, WIRING AND PHOTOCELL	LS	1	–
P–152–6.1	UNCLASSIFIED EXCAVATION	LS	1	–
P–152–6.3	EMBANKMENT IN PLACE	LS	1	–
S–126–5.1	PROJECT SURVEY & STAKEOUT	LS	1	–
S–126–5.2	AS–BUILT SURVEY & FINAL CROSS SECTIONS	LS	1	–
T–904	BERMUDA SOD WITH RYE OVERSEEDING	SY	645	–
T–905	3" MINIMUM TOPSOILING	SY	645	–
4/C3–4	OYSTER BAG REEF	LF	645	–
T–912	EXOTIC PLANT CONTROL	LS	1	–
T–914–1	MAINTENANCE VENTS	EA	8	–
T–914–2	MONITORING EVENTS	EA	–	–
–	–	–	–	–
–	–	–	–	–
BID ADDITIVE "1"				
02–41–00	COMPLETE DEMOLITION OF EXISTING MARINA BATH–HOUSE AND RESTROOM BUILDING INCLUDING SITE RESTORATION	LS	1	–
–	–	–	–	–
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UTILITY LEGEND

- STORM MANHOLE
- STORM INLET
- YARD DRAIN
- CLEANOUT/LAMPHOLE
- INVERT LOCATION
- SPRINKLER
- HEADWALL
- SANITARY SEWER
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- ELECTRICAL MANHOLE
- ELECTRICAL HANDHOLE
- PULL BOX
- JUNCTION BOX
- ELECTRICAL BOX
- ELECTRICAL METER
- TRANSFORMER
- ELECTRICAL PEDESTAL
- UTILITY POLE
- LIGHT POLE
- DUCTBANK MARKER
- COMMUNICATIONS MANHOLE
- CABLE MARKER
- TELEPHONE PEDESTAL
- COMMUNICATIONS BOX
- TELEPHONE BOOTH
- TRAFFIC BOX
- GAS MARKER
- GAS VALVE
- GAS METER
- GAS REGULATOR
- A/C UNIT
- SIGN
- BOLLARD
- STORM LINE
- DITCH
- SS — SS — SANITARY LINE
- W — W — W — WATER LINE
- IR — IR — IR — IRRIGATION SLEEVE
- CONDUIT
- DUCT BANK
- FO — FO — FIBER OPTIC LINE
- C — C — C — COMMUNICATION LINE
- GAS — NATURAL GAS LINE
- F — F — F — FUEL LINE
- X — X — FENCE LINE

LEGEND

CATV	CABLE TELEVISION PEDESTAL
E	ELECTRICITY METER
	ALUMINUM LIGHT POLE
	COVERED AREA
T	TELEPHONE PEDESTAL
W	WATER METER
WV	WATER VALVE
ICV	IRRIGATION CONTROL VALVE
	BENCHMARK
	WETLAND FLAG
	CENTERLINE
CB	CHORD BEARING
CD	CHORD DISTANCE
CH	CHORD
RCP	REINFORCED CONCRETE PIPE
HDPE	HIGH–DENSITY POLYETHYLENE
ELEV	ELEVATION
NAVD	NORTH AMERICAN VERTICAL DATUM
O.R.B.	OFFICIAL RECORDS BOOK
R	RADIUS
R/W	RIGHT–OF–WAY

TREE LEGEND

CDR =	CEDAR TREE
HB =	HACKBERRY TREE
PM =	PALM TREE

INDEX OF DRAWINGS

PASSERO ASSOCIATES
engineering architecture
www.passero.com

BID SET

Stamp:

Client:

City of Fernandina Beach
204 Ash St.
Fernandina Beach, Florida, 32034

Passero Associates
4730 Casa Cola Way, Suite 200 (904) 757-6106
St. Augustine, FL 32095 Fax: (904) 757-6107
Certificate of Authorization # 3428
Principal-in-Charge Andrew M. Holesko, C.M.
Project Manager Christopher Nardone, AIA
Designed by Emily Bredestege

Revisions

No.	Date	By	Description

INDEX OF DRAWINGS, ABBREVIATIONS, LEGEND & SUMMARY OF QUANTITIES

Amelia River Waterfront Stabilization
Parking Lots C & D

Town/City: Fernandina Beach
County: Nassau State: Florida

Project No.
99000047.0095

Drawing No.
G1-2

Date
May 10, 2021

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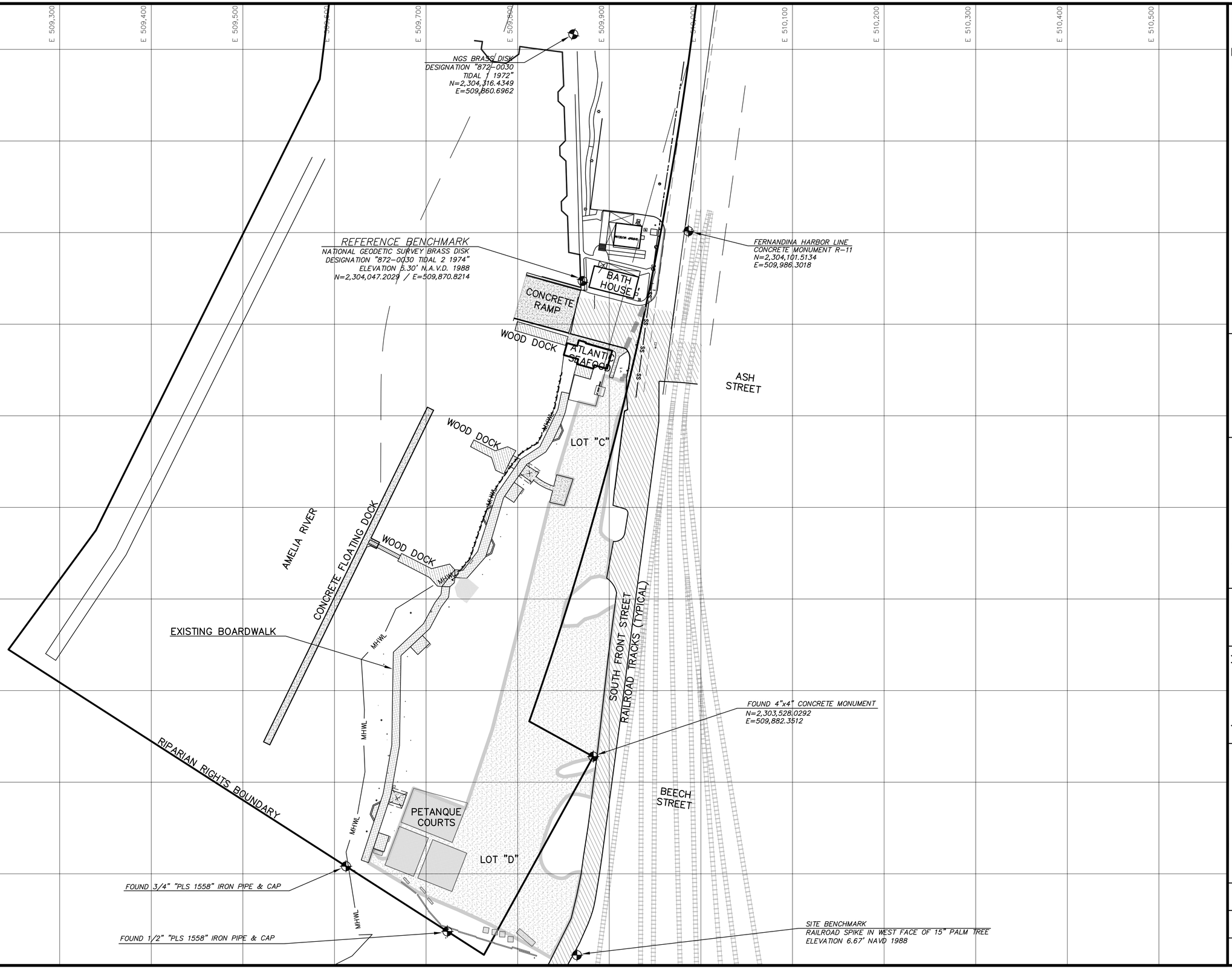

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PASSERO ASSOCIATES
engineering architecture
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BID SET

50' 0 50'
SCALE

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Certificate of Authorization # 3428
Principal-in-Charge Andrew M. Holesko, C.M.
Project Manager Christopher Nardone, AIA
Designed by Emily Bredestege

Revisions

No.	Date	By	Description

HORIZONTAL AND VERTICAL CONTROL PLAN

Amelia River Waterfront Stabilization
Parking Lots C & D
Town/City: Fernandina Beach
County: Nassau State: Florida

Project No.
99000047.0095

Drawing No.
G1-3

Date
May 10, 2021

GENERAL NOTES

1. THE INTENT OF THIS CONTRACT IS TO COMPLETE THE PROJECT WITH MINIMAL AMOUNT OF DELAYS TO THE OWNER (I.E. THE SHORTEST AMOUNT OF THE ACTIVE MARINA AREAS ARE OUT OF SERVICE).
2. THE CONTRACTOR SHALL GIVE A 48–HOUR NOTICE TO THE OWNER PRIOR TO THE START OF CONSTRUCTION, SO THAT THE OWNER CAN ISSUE THE APPROPRIATE NOTICE.
3. ALL CONSTRUCTION ACTIVITIES SHALL BE COMPLETED WITHIN 270 CALENDAR DAYS.
4. IN THE CASE OF A HURRICANE WARNING OR A TROPICAL STORM WARNING FOR THE COUNTY, THE CONTRACTOR SHALL SECURE THE SITE TO THE EXTENT PRACTICAL AND REMOVE MATERIAL AS REQUIRED UNTIL SUCH TIME AS THE STORM EVENT PRECLUDES ANY FURTHER ACTIVITY ON SITE.
5. SILT FENCE SHALL BE MAINTAINED IN FUNCTIONAL WORKING CONDITION. THE SILT FENCE SHALL BE KEPT IN GOOD REPAIR AND REPLACED AND RESTAKED AS NECESSARY IN COMPLIANCE WITH BEST MANAGEMENT PRACTICES. INCLUDE ALL EROSION CONTROL COSTS IN ITEM P–156.
6. THE STAGING STOCKPILE AREA SHALL BE KEPT IN A WORKMANLIKE MANNER WITH 2:1 MAXIMUM SIDE SLOPES AND A MAXIMUM HEIGHT OF 12 FEET ABOVE THE EXISTING GROUND.
7. TRUCKS SHALL BE EQUIPPED WITH APPROVED LOAD COVERS THAT WILL BE SECURED ALONG THE TRUCK ROUTE (FRONT STREET).
8. THE TRUCKS SHALL BE LOADED SO THAT NO MATERIAL AT ANY POINT IN THE BED IS HIGHER THAN THE SIDE OF THE TRUCK BED.
9. ANY MATERIAL SPILLED FROM ANY TRUCK ALONG THE ROUTE (FRONT STREET) IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CLEANED UP IMMEDIATELY, AS DIRECTED BY THE ENGINEER.
10. OPERATIONS WILL INCLUDE THE USE OF A FLAGGER IF REQUIRED TO DIRECT TRAFFIC DURING BACKING AND OFFLOADING.
11. SIDE SLOPES OF THE STAGING STOCKPILE AREA AND SPOIL TRANSFER AREA ARE TO BE STABILIZED WITH HYDRO–MULCH AT THE END OF EACH DAY.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DEVELOP A SPILL PREVENTION AND COUNTERMEASURES PLAN AND A STORMWATER POLLUTION PREVENTION PLAN FOR THE ENGINEER'S APPROVAL, AND MAINTAIN SAME.
13. NOTICES TO OWNER (CITY) – PROVIDE THE NECESSARY INFORMATION ON CONSTRUCTION CONDITIONS CLOSURES, ETC.) TO THE OWNER MINIMUM OF 48 HOURS PRIOR SO THAT A NOTICE CAN BE ISSUED IN ACCORDANCE WITH ESTABLISHED CRITERIA BY THE OWNER TO THE MARINA.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE STORAGE AND SECURITY OF HIS MATERIAL AND EQUIPMENT AND SHALL ERECT STORAGE FACILITIES AND FENCING AS NECESSARY. THE CONTRACTOR'S STORAGE AND STAGING AREAS SHALL BE IN THE LOCATIONS SHOWN ON DRAWING G2–1: OVERALL PLAN.
15. CONSTRUCTION STAKE–OUT SHALL BE PERFORMED BY CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MEASUREMENTS THAT MAY BE REQUIRED TO LAYOUT THE CONSTRUCTION. THE COST OF STAKING WILL BE INCLUDED IN ITEM S–126–5.1.
16. THE CONTRACTOR'S STAGING AREA(S) SHOWN ON THE PLANS ARE GENERAL AND FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL SIZE AND LOCATION OF STAGING AREAS WILL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION COMMENCEMENT.
17. ALL NON–PAVED AREAS OUTSIDE THE LIMITS OF CONSTRUCTION WHICH ARE DISTURBED BY THE CONTRACTOR'S OPERATIONS, SUCH AS THE CONTRACTOR'S ACCESS ROAD (FRONT STREET), STAGING AREA, ETC., SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND SODDED UPON COMPLETION OF THE PROJECT. IN ADDITION, ALL EXISTING PARKING AREAS THAT WILL BE USED AS THE CONTRACTOR'S STAGING AREA(S) SHALL BE MAINTAINED DURING CONSTRUCTION AND RESTORED TO THEIR PRE–CONSTRUCTION CONDITION. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THIS ITEM.
18. THE CONTRACTOR SHALL CONDUCT HIS CONSTRUCTION OPERATIONS AS SHOWN ON THE PLAN DRAWINGS. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE OWNER'S (CITY OF FERNANDINA BEACH) CITY ENGINEER TO MINIMIZE INTERFERENCE TO MARINA OPERATIONS DURING CONSTRUCTION.
19. THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE AT ALL TIMES FOR THE PURPOSE OF CONTROLLING DUST AS REQUIRED BY THE ENGINEER.
20. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. THE CONTRACTOR SHALL REPORT TO THE OWNER'S (CITY OF FERNANDINA BEACH) CITY ENGINEER ANY VARIATIONS FROM THE INFORMATION SHOWN ON THE CONSTRUCTION PLANS.
21. ANY UNPLANNED, UNAPPROVED, OR ACCIDENTAL SHUTDOWN OR INTERRUPTION OF SERVICE TO ANY LIGHTING CIRCUIT OR MARINA REQUIRES IMMEDIATE NOTIFICATION TO THE CITY ENGINEER BY THE CONTRACTOR.
22. ALL DISPUTES ARISING FROM THE CONTRACTOR SHALL BE DECIDED BY THE OWNER'S (CITY OF FERNANDINA BEACH), WHOSE DECISION SHALL BE FINAL.
23. THE CONTRACTOR SHALL OBTAIN AND PAY ASSOCIATED FEES FOR ALL OUTSTANDING PERMITS NECESSARY FOR THE COMPLETION OF THIS PROJECT.
24. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CLEANUP AND DISPOSAL OF ALL TRASH AND DEBRIS CREATED BY HIS WORK OR PERSONNEL. NO BURNING IS ALLOWED ON SITE. ALL TRASH AND DEBRIS MUST BE DISPOSED OF OFF SITE.
25. THE CONTRACTOR SHALL MAINTAIN SECURITY WITHIN THE PROJECT SITE AT ALL TIMES. NO UNAUTHORIZED PERSONNEL SHALL BE ALLOWED ON THE SITE. ALL GATES MUST BE LOCKED AT ALL TIMES. A GATE GUARD MAY BE USED. NO ADDITIONAL PAYMENT WILL BE MADE IF CONTRACTOR ELECTS TO USE A GATE GUARD.
26. THE TEMPORARY IMPACT AREAS WILL BE RESTORED/REPLANTED TO PRE–CONSTRUCTION CONDITIONS.
27. ALL EROSION CONTROL DEVICES ARE TO BE MAINTAINED IN GOOD FUNCTIONING ORDER. ALL SILT FENCES AND TURBIDITY CURTAINS ARE TO BE INSPECTED, AND REPLACED IF NECESSARY, FOLLOWING ANY RAINFALL EVENT.

UTILITY NOTES

1. CONTRACTOR WILL PROTECT ALL EXISTING LIGHTING, SIGNS, AND EQUIPMENT IN THE VICINITY OF THE WORK AREA. ANY DAMAGE WILL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
2. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PROVIDING ALL PERMANENT AND TEMPORARY UTILITY CONNECTIONS TO THE STAGING AREA.
3. PRIOR TO DIGGING ANY TRENCHES, CONTRACTOR SHALL NOTIFY ALL UTILITIES (ELECTRIC, GAS, TELEPHONE, WATER, SEWER) AND OBTAIN LOCATIONS OF UNDERGROUND UTILITIES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND IDENTIFICATION OF ALL EXISTING UTILITIES AND UNDERGROUND PIPELINES IN CONSTRUCTION AREA. ANY DAMAGES TO EXISTING UTILITIES OR UNDERGROUND PIPELINES ON OR OFF CITY PROPERTY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL REPAIR WORK SHALL MEET THE APPROVAL OF THE OWNER OF THE DAMAGED UTILITY. NO REIMBURSEMENT WILL BE ALLOWED FOR UTILITY/PIPE REPAIR OR REPLACEMENT.
5. ANY UNPLANNED, UNAPPROVED, OR ACCIDENTAL SHUTDOWN OR INTERRUPTION OF SERVICE TO ANY LIGHTING CIRCUIT OR THE MARINA REQUIRES IMMEDIATE NOTIFICATION TO THE OWNER'S (CITY OF FERNANDINA BEACH) CITY ENGINEER BY THE CONTRACTOR. THE COST OF MATERIALS AND LABOR REQUIRED TO REPAIR THE LIGHTING CIRCUIT SHALL BE BORNE BY THE CONTRACTOR.

GENERAL

1. FOR ALL ITEMS REQUIRING THE USE OF WATER, THE CONTRACT UNIT PRICE BID FOR THE RESPECTIVE ITEM SHALL INCLUDE THE COST OF FURNISHING THE WATER (TYPICAL).

COORDINATION AND OPERATIONS

1. THE CONTRACTOR SHALL ACQUAINT SUPERVISORS AND SUBCONTRACTORS EMPLOYEES TO THE TRAFFIC ACTIVITY AND OPERATIONS THAT MAY BE IMPACTED BY THIS PROJECT. THE CONTRACTOR SHALL CONDUCT CONSTRUCTION ACTIVITIES TO CONFORM TO ALL ROUTINE AND EMERGENCY TRAFFIC REQUIREMENTS AND GUIDELINES AS NOTED AND/OR SHOWN ON THE PLANS.
2. THE CONTRACTOR SHALL CONDUCT WEEKLY COORDINATION MEETINGS TO DISCUSS WORK AREAS, SCHEDULING, SAFETY, ETC. WITH THE ENGINEER AND OTHER APPROPRIATE OFFICIALS. MINUTES FROM THE WEEKLY MEETINGS SHALL BE PREPARED BY THE CONTRACTOR, UNLESS OTHERWISE DIRECTED BY THE ENGINEER, AND COPIES DISTRIBUTED TO ALL APPROPRIATE INDIVIDUALS.
3. CONSTRUCTION AND MAINTENANCE OPERATIONS BY OTHERS MAY OCCUR CONCURRENTLY AND AT TIMES IN THE VICINITY OF CONSTRUCTION ASSOCIATED WITH THIS PROJECT. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS AND COOPERATE WITH MAINTENANCE CREWS AND OTHER CONTRACTORS WORKING IN THE AREA. COORDINATION WITH APPROPRIATE GOVERNMENT AND UTILITY AGENCIES IS ALSO REQUIRED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR TOWING/RELOCATING VEHICLES WITHIN THE PARKING LOT.

CONSTRUCTION LAYOUT

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT, INCLUDING RESTAKING/LAYOUT AS REQUIRED TO COMPLETE THE PROJECT (TYPICAL).
2. ALL EXISTING SURVEY MONUMENTS SHALL BE PROTECTED BY THE CONTRACTOR DURING CONSTRUCTION. ALL MONUMENTS DISTURBED BY THE CONTRACTORS OPERATIONS SHALL BE RESET TO REQUIRED STANDARDS BY A REGISTERED SURVEYOR (STATE OF FLORIDA) AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE ENGINEER.
3. THE CONTRACTOR SHALL CONFIRM EXISTING GRADE ELEVATIONS AND PROVIDE AN OPPORTUNITY FOR THE ENGINEER (OR REPRESENTATIVE) TO REVIEW THE PROPOSED LAYOUT/GRADES PRIOR TO ACTUAL CONSTRUCTION.

CONTRACTOR'S REQUIREMENTS

1. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED FOR THE PERFORMANCE OF THIS CONTRACT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FILE/OBTAIN AND TO PAY ALL PERMIT FEES. COSTS FOR PERMITS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
2. THE CONTRACTOR MUST OBTAIN PROPER PERMITS FOR DELIVERY OF MATERIALS AND EQUIPMENT TO THE SITE. ANY DAMAGE TO OFF–SITE AND/OR ON–SITE ROADS SHALL BE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PROMPTLY REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.
3. ALL CONTRACTOR'S VEHICLES AND TRAFFIC (UNLESS OTHERWISE AUTHORIZED) SHALL REMAIN WITHIN THE DESIGNATED STAGING AREA, CONSTRUCTION LIMITS OR HAUL ROUTES. CONTRACTOR VEHICLES, INCLUDING EMPLOYEE VEHICLES WILL NOT BE PERMITTED TO PARK IN PUBLIC PARKING LOTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ADDITIONAL STAGING AREA IS NEEDED. ADDITIONAL AREA MAY BE MADE AVAILABLE IF OPERATIONS PERMIT.
4. ALL CONTRACTOR VEHICLES SHALL BE IN GOOD WORKING ORDER WHILE ON THE WORK SITE.
5. THE CONTRACTOR SHALL RESTORE ALL HAUL ROUTE PAVEMENTS TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE OWNER AND THE ENGINEER. THE CONTRACTOR SHALL REPAIR DAMAGE TO PUBLIC ROADWAYS RESULTING FROM HIS CONSTRUCTION OPERATIONS WITHIN 24 HOURS, AND TO THE SATISFACTION OF THE APPROPRIATE JURISDICTIONS.
6. CONTRACTOR SHALL CONFORM TO AND IMPLEMENT THE CONSTRUCTION SAFETY AND PHASING PLAN IN THE CONTRACT DOCUMENTS.
7. NPDES AND ALL ASSOCIATED STORM WATER PERMITTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COST SHALL BE INCIDENTAL TO THE PROJECT.

AS–BUILT DRAWINGS/MEASUREMENTS

1. THE CONTRACTOR SHALL, UPON COMPLETION OF THE WORK, FURNISH TO THE ENGINEER AS–BUILT SURVEY FOR ALL WORK ITEMS ASSOCIATED WITH THE PROJECT INCLUDING LOCATION COORDINATES AND ELEVATIONS (MSL), DIMENSIONS AND FINAL AS–BUILT QUANTITIES. INFORMATION SHALL BE PROVIDED IN ELECTRONIC (AUTOCAD (VERSION 2020 COMPATIBLE) OR OTHERWISE SPECIFIED BY THE OWNER) FORMAT TO THE ENGINEER PRIOR TO PROJECT FINAL ACCEPTANCE. ALL AS–BUILT/RECORD INFORMATION SHALL BE PREPARED UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL SURVEYOR/ENGINEER, AND STAMPED/SEALED BY SAID PROFESSIONAL UPON FINAL SUBMITTAL TO THE OWNER.

UNDERGROUND UTILITIES

1. THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND FIELD CHECKS, AND ARE BELIEVED TO BE CORRECT. NO GUARANTEE IS MADE AS TO THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL LOCATE AND IDENTIFY ALL UNDERGROUND UTILITIES IN THE WORK AREA PRIOR TO CONSTRUCTION. ANY UNDERGROUND UTILITIES LOCATED WHICH DO NOT APPEAR ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ANY DAMAGE TO UTILITIES, CAUSED BY THE CONTRACTOR, SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.
2. ALL ELECTRICAL CIRCUITS AND/OR UTILITIES AFFECTED BY THIS PROJECT SHALL BE PROTECTED AND MAINTAINED DURING OPERATIONAL PERIODS BY THE CONTRACTOR. THE CONTRACTOR, AT HIS/HER EXPENSE SHALL, IMMEDIATELY REPAIR, WITH IDENTICAL MATERIAL AND BY SKILLED WORKMEN, ANY UNDERGROUND CABLES WHICH ARE DAMAGED BY THEIR ACTIVITIES, WORKMEN, EQUIPMENT OR PERSONNEL. PRIOR WRITTEN APPROVAL BY THE OWNER MUST BE OBTAINED FOR THE MATERIALS, WORKMEN, TIME, AND METHOD OF REPAIRS AND FOR ANY TEMPORARY OR PERMANENT REPAIRS THE CONTRACTOR PROPOSES TO MAKE TO FACILITIES DAMAGED BY THE CONTRACTOR. SUCH REPAIRS MUST BE STARTED IMMEDIATELY AFTER LOCATING DAMAGED FACILITY AND CONTINUED UNTIL COMPLETE. THE OWNER MAY ELECT TO HAVE ANY REPAIR PERFORMED BY OTHERS AT THE CONTRACTORS SOLE EXPENSE.

UTILITIES NOTIFICATION

1. THE CONTRACTOR SHALL NOTIFY, AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE, AND THE OWNER OF EACH UNDERGROUND UTILITY FACILITY SHOWN ON THE PLANS.
2. THE CONTRACTOR SHALL GIVE THE OWNER OF THE UNDERGROUND UTILITY A MINIMUM OF FORTY–EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAY AFTER NOTICE IS RECEIVED, TO STAKE, MARK, OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY ARE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION. NO DIGGING SHALL PROCEED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
3. THE LOCATION OF UTILITIES SHOWN WITHIN THESE PLANS ARE APPROXIMATE ONLY AND THOSE SHOWN ARE NOT NECESSARILY ALL OF THE UTILITIES AND STRUCTURES. THE EXACT LOCATION AND ROUTING OF UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK ON THIS PROJECT. AFTER ALL UTILITIES HAVE BEEN FIELD LOCATED, THE CONTRACTOR SHALL EXCAVATE AND EXPOSE ALL UTILITIES WHICH MAY BE IN CONFLICT WITH PROPOSED FACILITIES. LOCATION AND ELEVATION SHALL BE ACCURATELY MEASURED. ANY APPARENT CONFLICT BETWEEN EXISTING AND PROPOSED FACILITIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR SHALL OBTAIN WRITTEN DIRECTIONS ON HOW TO PROCEED BEFORE BEGINNING ANY FURTHER EXCAVATION OR CONSTRUCTION. FAILURE TO FULLY COMPLY WITH THIS PROVISION WILL RESULT IN THE CONTRACTOR ASSUMING ALL RESPONSIBILITY AND COST OF UTILITY RELOCATION IN CASES OF CONFLICT.
4. ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S STAGING AREA SHALL BE ARRANGED FOR BY THE CONTRACTOR AT HIS/HER SOLE EXPENSE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY POLES, LINES, PIPES, METERS, ETC. TO BRING THE SERVICES FROM EXISTING SOURCES TO THE AREA AS NECESSARY. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY AGENCIES. ALL UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL HAVE ALL UTILITIES DISCONNECTED AND SHALL REMOVE ALL TEMPORARY POLES, PIPES, METERS, ETC. AND RESTORE THE AREAS TO THEIR PREVIOUS CONDITION OR BETTER.
5. ANY UTILITIES DAMAGED OR BROKEN BY THE CONTRACTOR WILL BE REPAIRED BY THE CONTRACTOR AT HIS/HER SOLE EXPENSE. EACH CONTRACTOR INVOLVED SHALL ASSUME ALL LIABILITY, FINANCIAL OR OTHERWISE, IN CONNECTION WITH THE CONTRACT AND APPLICABLE SUB–CONTRACTS AND SHALL PROTECT AND SAVE HARMLESS THE OWNER FROM ANY AND ALL DAMAGES OR CLAIMS THAT MAY ARISE BECAUSE OF INCONVENIENCES, DELAYS, LOSS OF SERVICE OR INCOME EXPERIENCED BY UTILITY SERVICE PROVIDERS OR TENANT OPERATIONS.

SUPERVISION

1. THE CONTRACTOR SHALL HAVE AT ALL TIMES ON SITE, WHILE WORK IS IN PROGRESS, A JOB SUPERINTENDENT/FOREMAN. THIS PERSON SHALL BE FAMILIAR WITH ALL TYPES OF CONSTRUCTION BEING PERFORMED AND SHALL BE THE SAME PERSON EACH DAY THROUGHOUT THE PROJECT. THE SUPERINTENDENT/FOREMAN SHALL HAVE THE RESPONSIBILITY OF COORDINATING EACH DAYS WORK WITH THE ENGINEER AND SHALL HAVE AUTHORITY TO SCHEDULE AND ADJUST ALL WORKERS, PRIME AND SUBCONTRACTORS, TO ACCOMMODATE OPERATION AS DIRECTED BY THE ENGINEER AND/OR OWNER.

GENERAL DEMOLITION NOTES:

1. ANY MATERIAL BEING DEMOLISHED SHALL BE REMOVED PROMPTLY (MAXIMUM 48 HOURS) AND DISPOSED OF OFF THE PROPERTY, UNLESS SPECIFICALLY CALLED FOR IN THE CONTRACT DOCUMENTS TO BE RE–USED/RECYCLED.

PASSERO ASSOCIATES
engineering architecture
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BID SET

Stamp:

Client:

City of Fernandina Beach
204 Ash St.
Fernandina Beach, Florida, 32034

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Certificate of Authorization # 3428
Principal-in-Charge Andrew M. Holesko, C.M.
Project Manager Christopher Nardone, AIA
Designed by Emily Bredestege

Revisions

No.	Date	By	Description

GENERAL NOTES

Amelia River Waterfront Stabilization
Parking Lots C & D
Town/City: Fernandina Beach
County: Nassau State: Florida

Project No.
99000047.0095

Drawing No.
G1-4

Date
May 10, 2021

Drawing name: F:\PASSERO\FHB\99000047.0095 FHB Waterfront\Airport\G1-04_GENL-NOTE.dwg G1-4_GENL-NOTE May 07, 2021 2:58pm by: EBredestege

STRUCTURAL GENERAL NOTES

LOAD CRITERIA

1. STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (7TH EDITION)

2. DESIGN LIVE LOADS (REDUCED AS ALLOWED BY THE BUILDING CODE):
BOARDWALK: 100 PSF
CONSTRUCTION SURCHARGE
LIVE LOAD BEHIND SHEET PILE WALL 250 PSF

3. BULKHEAD SOIL DESIGN PARAMETERS:

PER PROJECT GEOTECHNICAL REPORT

4. DESIGN SNOW LOAD: N/A

5. DESIGN WIND LOADS:
ULTIMATE WIND SPEED, V 128 MPH (THREE SECOND GUST)
NOMINAL WIND SPEED, V 99 MPH (THREE SECOND GUST)
RISK CATEGORY, II
EXPOSURE, D
INTERNAL PRESSURE COEFF GCpi, N/A

COMPONENTS AND CLADDING WIND LOADS, N/A

6. DESIGN SEISMIC LOADS ARE BASED ON THE FOLLOWING DATA: N/A

FLOOD DESIGN DATA

1. FEMA FIRM: PANEL 237 OF 510, MAP # 12089C0237G
2. FLOOD ZONE: VE (FLOOD SIDE) AE (PROTECTED SIDE)
3. BASE FLOOD ELEVATION, BFE: ZONE AE: +10.0 FT, NAVD 88
ZONE VE: +12.0 FT, NAVD 88
4. STILLWATER ELEVATION,
1% ANNUAL CHANCE: +8.8 FT, NAVD 88
5. TOP OF SEAWALL: +9.0 FT, NAVD 88

GENERAL FOUNDATION AND BULKHEAD WALL NOTES

1. BULKHEAD WALLS SHALL CONSIST OF FIBER REINFORCED POLYMER (FRP) SHEET PILES OR TREATED TIMBER PILING, WITH TIEBACK AND DEADMAN ANCHORAGE, DRIVEN TO DEPTHS INDICATED.

2. DESIGN IS BASED ON RECOMMENDATIONS FOUND IN THE PROJECT GEOTECHNICAL REPORT BY ECS FLORIDA, LLC TITLED "GEOTECHNICAL ENGINEERING REPORT – FHB RIVERFRONT", DATED MARCH 31, 2020.

3. CONTRACTOR SHALL EMPLOY A GEOTECHNICAL ENGINEER FOR SPECIAL INSPECTIONS AND OBSERVATIONS TO PROVIDE CONTINUOUS OBSERVATION TO CONFIRM THE ENCOUNTERED SOILS AND PILE DRIVING CONDITONS ARE IN ACCORDANCE WITH RECOMMENDATIONS PROVIDED IN THE PROJECT GEOTEHCNICAL REPORT. IF DIFFERENT CONDITIONS ARE ENCOUNTERED, THE GEOTECHNICAL ENGINEER SHALL PROVIDE REVISED RECOMMENDATIONS FOR DESIGN OF THE BULKHEAD WALLS.

4. CONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, ETC., IN FIELD AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION OR SHOP DRAWINGS.

5. THE DRAWINGS ARE INTENDED TO REQUIRE AND TO INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT PROPER FOR THE WORK.

6. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES AND REQUIREMENTS.

7. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND SAFETY PROCEDURES. THE ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS OR THEIR AGENTS OR EMPLOYEES OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK.

8. OBSERVE ALL OSHA AND OTHER APPLICABLE SAFETY REQUIREMENTS INCLUDING THE USE OF SAFETY GLASSES, HARD HATS, AND PROTECTION OF AREA WHEN WORKING OVERHEAD. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR CONSTRUCTION SAFETY AT ALL TIMES.

9. THE CONTRACTOR SHALL DESIGN AND PROVIDE ANY TEMPORARY SHORING, BRACING, ETC., AS NEEDED FOR THE WORK SO AS NOT TO ENDANGER THE STRUCTURAL INTEGRITY OF ANY EXISTING FEATURE.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE DONE TO EXISTING FEATURES AS A RESULT OF THIS WORK. DAMAGED ITEMS SHALL BE REPLACED IN KIND AND AT NO ADDITIONAL COST TO THE OWNER.

FIBER REINFORCED POLYMER (FRP) SHEET PILING

1. SHEET PILE MATERIAL SHALL BE EVERLAST EVERCOMP 26.1, 8"DEEP, AS PROVIDED BY EVERLAST SYNTHETIC PRODUCTS, LLC
   a. AN APPROVED EQUAL MAY BE USED
   b. DESIGN IS BASED ON SHEET PILE PROPERTIES AS INDICATED BELOW. APPROVED EQUAL MUST MEET OR EXCEED THESE PROPERTIES.
   c. EVERCOMP 26.1 PROPERTIES:
      a. FLEXURAL STRESS:
         i. ULTIMATE: 90,000 PSI (ALONG LENGTH OF PILE)
         ii. ULTIMATE: 29,000 PSI (ALONG WIDTH OF PILE)
         iii. ALLOWABLE: 25,000 PSI (ALONG LENGTH OF PILE)
         iv. MODULUS OF ELASTICITY: 3,500,000 PSI (ALONG LENGTH OF PILE)
         v. MODULUS OF ELASTICITY: 1,900,000 PSI (ALONG WIDTH OF PILE)
         vi. MAX ALLOWABLE MOMENT: 27,000 LB–FT/FT
      b. TENSILE STRESS:
         i. ULTIMATE: 77,000 PSI (ALONG LENGTH OF PILE)
         ii. ULTIMATE: 9,000 PSI (ALONG WIDTH OF PILE)
         iii. ALLOWABLE: 25,000 PSI (ALONG LENGTH OF PILE)
         iv. MODULUS OF ELASTICITY: 5,000,000 PSI (ALONG LENGTH OF PILE)
         v. MODULUS OF ELASTICITY: 3,200,000 PSI (ALONG WIDTH OF PILE)

      c. SHEAR STRESS:
         i. ULTIMATE: 5,500 PSI (ALONG LENGTH OF PILE)
         ii. ULTIMATE: 5,400 PSI (ALONG WIDTH OF PILE)
         iii. ALLOWABLE: 2,200 PSI (ALONG LENGTH OF PILE)

      d. SECTION PROPERTIES:
         i. WIDTH: 18"
         ii. DEPTH: 8"
         iii. THICKNESS: 0.25"
         iv. SECTION MODULUS: 13 IN^3/FT
         v. MOMENT OF INERTIA: 52 IN^4/FT
         vi. RADIUS OF GYRATION: 3.29"
         vii. AREA OF WEB: 2.3 IN^2

2. MATERIALS:
   a. POLYMER (RESIN) – THE RESIN FOR THE FRP SHEET PILE SHALL EITHER BE POLYESTER OR VINYL ESTER. RESIN SHALL CONTAIN U.V. STABILIZERS TO PROVIDE SUFFICIENT RESISTANCE TO ULTRA VIOLET LIGHT DEGRADATION. NO OTHER RESINS WILL BE ACCEPTED FOR USE ON THIS PROJECT.
   b. REINFORCEMENT – THE GLASS REINFORCEMENT SHALL BE IN THE FORM OF CONTINUOUS ROVING, WOVEN ROVING OR STICHED FABRICS, AND SURFACE MATTING.
   c. THE FRP SHEET PILE SHALL BE Z–SHAPED WITH A BALL AND SOCKET INTERLOCK AND MEETING THE DIMENSIONAL TOLERANCES AS INDICATED.
   d. THE FRP SHEET PILE SHALL BE MANUFACTURED USING THE PULTRUSION PROCESS.
3. INSTALLATION:
   a. FRP SHEET PILE SHALL BE INSTALLED USING TRADITIONAL DRIVING METHODS INCLUDING VIBRATORY HAMMERS, IMPACT HAMMERS OR WATER JETS. CONTRACTOR SHALL CONTACT MANUFACTURER FOR SPECIFIC HAMMER RECOMMENDATIONS AND IS RESPONSIBLE FOR EMPLOYING THE CORRECT INSTALLATION METHOD. ANY COSTS ASSOCIATED WITH USING THE INCORRECT HAMMER METHOD IS THE RESPONSIBILITY OF THE CONTRACTOR.
   b. THE FRP SHEET PILE CAN BE CUT USING CARBIDE EDGED MASONRY BLADES AND DRILLED WITH CARBIDE OR COBALT TIPPER BITS.
   c. IF DAMAGED, THE FRP SHEET PILE MAY BE REPAIRS AS PER THE MANUFACTURER'S RECOMMENDATIONS.

CONCRETE

1. COMPLY WITH THE FOLLOWING CODES AND STANDARDS:
ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
ACI 305, ACI 306, ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
ACI DETAILING MANUAL (ACI SP–66–04)
ACI 347 "RECOMMENDED PRACTICE FOR CONCRETE FORM WORK"
CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE"
ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
2. CONCRETE STRENGTH:
ALL CONCRETE – COQUINA MIX f'c = 5000 psi

MAX WATER/CEMENT RATIO 0.40
AIR CONTENT (%) N/A

3. MIX DESIGN REQUIREMENTS:
1. PREPARE DESIGN MIXES FOR EACH TYPE AND STRENGTH OF CONCRETE BY EITHER LABORATORY TRIAL BATCH OR FIELD EXPERIENCE METHODS AS SPECIFIED IN ACI 318/ACI 301.
2. CONCRETE SHALL BE READY MIXED PER ASTM C94. JOBSITE MIXING SHALL NOT BE PERMITTED.
2. MAXIMUM NOMINAL AGGREGATE SIZE IS ¾".
3. CONCRETE MIX SHALL INCORPORATE COQUINA COARSE AGGREGATE AND SHALL BE DESIGNED TO WITHSTAND HARSH CORROSIVE/MARINE ENVIRONMENT (ACI 318 – CONCRETE EXPOSURE LEVEL "C2")

4. MATERIALS:

1. REINFORCING BARS – ASTM A 615 GRADE 60, DEFORMED
2. PORTLAND CEMENT – ASTM C150, TYPE V (LESS THAN 5% C3A CONTENT)
3. AGGREGATE – ASTM C33
COQUINA AGGREGATE
4. PROHIBITED ADMIXTURES – CALCIUM CHLORIDE THYOCYANATES OR ADMIXTURES CONTAINING MORE THAN 0.1% CHLORIDA IONS ARE NOT PERMITTED.

5. CONCRETE FINISH:
1. SURFACES EXPOSED TO PUBLIC VIEW: SMOOTH FORM FINISH
2. SURFACES NOT EXPOSED TO PUBLIC VIEW: ROUGH FORM FINISH

SMOOTH FORM FINISH MUST HAVE FINS REMOVED AND A SMOOTH RUBBED FINISH APPLICATION. REFER TO ACI 301 FOR ALL OTHER FINISH DESIGNATION REQUIREMENTS.

6. REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI SP–66–04. DEVELOPMENT AND SPLICE LENGTHS ARE IN TENSION UNLESS OTHERWISE INDICATED. TENSION LAP SPLICES SHALL BE AS TABULATED IN THE SPLICE LENGTH TABLE BELOW. UNLESS OTHERWISE INDICATED.

f'c (psi)	BAR TYPE	#3	#4	#5	#6	#7	#8	#9	#10	#11
5000	TOP BARS	22	29	36	44	63	72	81	90	99
5000	OTHER BARS	17	23	28	34	49	56	63	69	76

TOP BARS ARE HORIZONTAL REINFORCEMENT PLACED SO THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

7. CONTINUOUS REINFORCING IN WALLS AND SLABS MAY BE SPLICED, AS REQUIRED, PROVIDING BARS ARE OF THE LONGEST PRACTICABLE LENGTH AND SPLICES ARE SHOWN ON REINFORCING SHOP DRAWINGS. WHEREVER POSSIBLE, SPLICES SHALL BE STAGGERED. FIELD CUTTING OF REINFORCEMENT WILL NOT BE PERMITTED.

8. PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS, U.N.O.:

ALL REINFORCING, MIN COVER: 3"

9. PROVIDE DOWELS TO MATCH REINFORCEMENT SIZE AND SPACING INDICATED FOR ALL STRUCTURAL ELEMENTS, UNLESS OTHERWISE INDICATED.

10. MAJOR CONSTRUCTION JOINTS ARE SHOWN ON THE DRAWINGS. INTERMEDIATE JOINTS IN WALLS AND SLABS ARE NOT SHOWN. CONSTRUCTION JOINTS MAY BE ADDED, OMITTED OR RELOCATED IF PROPERLY DETAILED ON SHOP DRAWINGS AND APPROVED BY THE OWNER'S REPRESENTATIVE.

11. PLACING OF REINFORCEMENT: PROVIDE CHAIRS, BOLSTERS, ADDITIONAL REINFORCEMENT, AND ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITION SHOWN ON DRAWINGS. SUPPORT OF REINFORCEMENT ON FORM TIES, WOOD, BRICK, BRICKBAT OR OTHER UNACCEPTABLE MATERIAL, WILL NOT BE PERMITTED.

12. THE CONTRACTOR SHALL REVIEW ALL DRAWINGS FOR SIZE AND LOCATION OF ALL EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS, OPENINGS, ETC. REQUIRED BY OTHER TRADES. RECONCILE THEIR EXACT SIZES AND LOCATIONS BEFORE PROCEEDING WITH THE WORK. ALL ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE. SECURE THE APPROVAL OF THE OWNER'S REPRESENTATIVE PRIOR TO PLACING OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS.

13. PROVIDE CONTROL JOINTS IN CAST–IN–PLACE CONCRETE SLABS–ON–GRADE AT 12 FEET O.C. MAX. LOCATE CONTROL JOINTS TO FORM APPROXIMATE SQUARE PANELS WITH THE LENGTH OF ONE SIDE NOT EXCEEDING THE ADJACENT SIDE BY A FACTOR OF 1.5. CONTROL JOINTS MAY BE CONTRACTION JOINTS, CONSTRUCTION JOINTS, OR EXPANSION JOINTS.

14. CHAMFER EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES 3/4–INCH, UNO.

15. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING WHEN IT IS SAFE TO REMOVE FORMS AND/OR SHORING. FORMS AND SHORING MUST NOT BE REMOVED UNTIL THE CONCRETE IS STRONG ENOUGH TO CARRY ITS OWN WEIGHT AND ANY ANTICIPATED SUPERIMPOSED LOADS. WHEN FORMS ARE STRIPPED THERE MUST BE NO EXCESSIVE DEFLECTION, DISTORTION, DISCOLORATION, AND NO EVIDENCE OF DAMAGE TO THE CONCRETE.

WOOD

1. FRAMING LUMBER SHALL BE AS FOLLOWS:

ALL LUMBER (U.N.O.): SOUTHERN PINE, MARINE GRADE
BULKHEAD SHEETING: SOUTHER PINE, SEAWALL GRADE

2. LUMBER: NOMINAL SIZES ARE INDICATED, EXCEPT AS SHOWN BY DETAIL DIMENSIONS. PROVIDE DRESSED LUMBER, S4S, UNLESS NOTED OTHERWISE. BULKHEAD SHEETING LUMBER SHALL BE PROVIDED WITH SLOPPY V – T&G OR SQUARE T&G PROFILES. PROVIDE LUMBER WITH 19 PERCENT MOISTURE CONTENT, KILN DRIED AFTER TREATMENT (KDAT). TIMBERS GREATER THAN 5"IN THICKNESS MUST BE LESS THAN 25 PERCENT MOISTURE CONTENT, KDAT.

3. ALL LUMBER SHALL BE PRESSURE PRESERVATIVE TREATED AS FOLLOWS:

AWPA U1 – USE CATEGORY –UC5C: MARINE USE, SOUTHERN WATERS

ALL FIELD CUTS TO LUMBER/TIMBERS MUST BE COATED/DIPPED/BRUSHED WITH COPPER NAPHTHENATE PRIOR TO INSTALLATION, IN ACCORDANCE WITH AWPA STANDARD M4

4. WHERE NOT OTHERWISE SHOWN ON PLANS, ALL NAILING OR SCREWING SHALL BE AS INDICATED IN THE BUILDING CODE. ALL SHEATHING MUST BE NAILED. ADHESIVES SHALL NOT BE USED IN PLACE OF NAILING.

5. ALL FASTENERS USED SHALL BE HOT–DIPPED GALVANIZED OR STAINLESS STEEL.

6. METAL CONNECTORS TO BE PROVIDED BY 'SIMPSON STRONG–TIE' OR EQUIVALENT.

SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS WILL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE CHAPTER 17.

2. OWNER, OR ARCHITECT/STRUCTURAL ENGINEER OF RECORD ACTING AS THE OWNER'S AGENT, SHALL DIRECTLY EMPLOY AND PAY FOR SERVICES OF THE SPECIAL INSPECTORS TO PERFORM REQUIRED SPECIAL INSPECTIONS.

3. THE FOLLOWING GENERAL TYPES OF WORK REQUIRE SPECIAL INSPECTION: REFER TO FLORIDA BUILDING CODE CHAPTER 17 FOR DETAILED INSPECTION REQUIREMENTS

FOUNDATIONS/PILING
CONCRETE
REINFORCING STEEL
FORMWORK
POST–INSTALLED CONCRETE ANCHORS

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Project Manager Christopher Nardone, AIA
Designed by Emily Bredestege

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No.	Date	By	Description

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Drawing name: F:\PASSERO\FHB\99000047.0095 FHB Waterfront\Airport\G1-04_GENL-NOTE.dwg G1-5_STRC-NOTE May 07, 2021 2:57pm by: EBredestege