PROJECT MANUAL
MAPLE STREET
STORMPIPE REPLACEMENT

FEBRUARY 2026

SECTION 00005

CERTIFICATIONS PAGE

This Project Manual is certified as follows:

Project Coordinator

Darryl Koon & Ray Leonard
1 South Allapaha Avenue
Davenport, FL 33837
Ph. 863-557-0587 or 863-232-7221

_____
Darryl Koon, Public Services Director

_____
Date

The appendices to this Project Manual may contain information prepared by other professionals, bearing the name, address, and logo of the professional. The City of Davenport is not responsible for items prepared by other professionals, and these items are not covered under the above registered professionals' signature and seal.

END OF SECTION

PROJECT MANUAL INDEX

CITY OF DAVENPORT
MAPLE STREET
STORMPIPE REPLACEMENT

Bidding Requirements, Contract Forms, and Conditions of the Contract

Division 1 - General Requirements

Division 2 - Site Construction

Division 3 - Concrete

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

Invitation To Bid

Bid Title:	
Bid Number:	
Requesting Department:	Bid Contact:
Bid Due Date:	Bid Time Due:
Location to Deliver Bid:	

In accordance with the intent and content of this Invitation to Bid (ITB), I/we, the undersigned, as authorized signatory to commit the firm, do hereby offer to perform as stipulated in this response. Failure to do so may result in the forfeiting of bid security, removal from the City's Bidder list, or other remedies available to the City under the laws of the State of Florida.

Legal Name of Bidder:		
Business Address (street, city, state and zip code):		City:
Phone Number:	Fax Number:	E-Mail Address:
City of Davenport Local Business Tax Receipt Number (as applicable):		
State of Florida License Number (as applicable):		
Authorized Signature:		Date:
Printed Signature:		Title:

EMERGENCY CONTACT INFORMATION — In the event the City needs to contact your firm during an emergency	
Emergency Contact Person:	
Cell Phone Number:	Residence Phone Number:

GENERAL INSTRUCTIONS/DECLARATIONS

1. Bids will be opened and publicly read aloud by a representative of the City Clerk's Office in the Commission Chambers, located at 1 S. Allapaha Ave., Davenport, FL 33837, on the date and time indicated above. All bid openings are open to the public and any interested parties are welcome to attend.
2. **Bids must be submitted on the form furnished by the City and in accordance with the specifications and the list of quantities desired.**
3. Page One must be completed and submitted as the top sheet of the bid response.
4. It is the intent and purpose of the City of Davenport that this Invitation to Bid promotes competitive bidding. It shall be the Bidder's responsibility to advise the Project Coordinator, if any language, requirements, etc., or any combination thereof, inadvertently restricts or limits the requirements stated in this Invitation to Bid to a single source. Such notification must be submitted in writing and must be received by the Project Coordinator no later than ten (10) calendar days prior to the bid closing date.
5. **A MANDATORY PRE-BID CONFERENCE will be held on March 4 @ 9:00 a.m.** at the Davenport Commission Chambers in City Hall, located at 1 S. Allapaha Ave., Davenport, FL 33837. **Attendance is mandatory.** Questions regarding this bid must be received through written email directed to the designated Project Coordinator listed above. Questions of sufficient general interest will be formatted by the Project Coordinator and issued to all interested parties in the form of an addendum.

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
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Bid Title:		

SECTION A. INSTRUCTIONS TO BIDDER.

AI. Mandatory Pre-Bid Conference (if required):
It is imperative that all bidders have a clear understanding of the specifications and scope of work requirements. Therefore, in certain solicitations, attendance at mandatory pre-bid conferences will be a pre-requisite for submitting a bid; and bids will only be accepted from those who are represented at a mandatory pre-bid conference. Attendance at the pre-bid conference will be evidenced by the bidder's/representative's signature on the attendance roster. In the event of a mandatory pre-bid conference, the time, date, and location of the meeting will be noted in the solicitation. Please plan your travel time accordingly.

A2. Public Reading of Bids: Bids will be publicly opened and read aloud in the Commission Chambers in City Hall, located at 1 S. Allapaha Ave., Davenport, Florida 33837, on April 1, 2026 at 10:00 a.m., or as soon as possible thereafter.

A3. Bid Compliance:
(a) All items contained in the bid must be in total compliance with the specifications in this solicitation.
(b) Alternate bids will not be considered unless they are specifically called for in this solicitation.
(c) Bidders' attention is specifically called to the terms and conditions of this solicitation. As witnessed by the Bidder's signature on the cover page and the proposal page(s), all Bidders, without exception, will be solely responsible for all aspects of the terms, conditions, and special provisions of this solicitation.

A4. Unit Price Accuracy: Please check the stated unit prices before submitting the bid as no change in prices will be allowed after the opening. All prices and notations must be in ink or typewritten. In cases of the extended price irregularities, unit pricing will prevail. Please note that the City reserves the right to clarify any extended amount errors.

A5. Bid Price Schedule: Each Bidder shall furnish the information required on the Bid Price Schedule, Section F, and each accompanying sheet thereof on which the Bidder makes an entry. Offers submitted on any other format may be disqualified.

A6. Lobbying; Lobbying Black-Out Period; Questions Regarding Bids:
(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.
(b) A lobbying black-out period commences upon the issuance of this solicitation and concludes upon the signing of the agreement. Bidders shall not contact any City Commission or Advisory Board, or Selection Committee Member, the City Manager, and/or any requesting or evaluating Department/Office personnel during said black-out period. All questions and procedural matters shall be directed to the Project Coordinator. The City Commission and/or the City Manager may disqualify any solicitation response where any City Commission, Advisory Board, or Selection Committee Member, the City Manager, and/or City Personnel have been lobbied in violation of the black-out period.
(c) Any questions relating to the interpretation of specifications or any aspect of the solicitation process shall be addressed to the Project Coordinator, in writing, **at least ten (10) calendar days before the bid opening date**.
(d) Respondents to this solicitation or persons acting on their behalf may not contact, between the release of the solicitation and the end of the 72-hour period following the agency posting the notice of intended award, excluding Saturdays, Sundays, and City observed holidays, any employee or officer of the executive or legislative branch concerning any aspect of this solicitation, except in writing to the project coordinator or as provided in the solicitation documents. Violation of this provision may be grounds for rejecting a response.

A7. Addenda:
(a) Any interpretations, clarifications, or changes made will be in the form of written addenda issued by the Procurement Representative.
(b) Oral answers received by Project Coordinator or requesting department will not be authoritative and the City will not entertain any protests based on a verbal instruction.
(c) It will be the responsibility of the Bidder to contact the Project Coordinator prior to submitting a bid to ascertain if any addenda have been issued, to obtain all such addenda, and to return executed

addenda with their bid. The City will not consider requests to re-open a bid as a result of the failure of the Bidder to secure addenda.

A8. **Proper Signatures:** Failure to sign and witness the Bidder's signature may result in a disqualification of the bid. Please be sure the bid is signed, properly witnessed, and sealed.

A9. **Bid Bond: A Bid Bond, in the amount of 5% of the bid, is required for this project.**

A10. **Bid Submittal:**

(a) All bids must be submitted in a sealed envelope, plainly marked on the outside with the bid number, date, time of opening, and the bidder's name.

(b) Bids will be received at Davenport City Hall, located at 1 S. Allapaha Ave., Davenport, FL 33837, prior to 10:00 AM EST on April 1, 2026. Any bid received after this date and time will not be accepted or considered, and will be returned unopened to the Bidder.

(c) Cost of Submittal: The cost of submittal of this bid is considered an operational cost of the Bidder and shall not be passed on to or be borne by the City.

(d) No telegraphic or facsimile offers will be considered.

All. **Bid Copies:** Bidders are asked to submit **two (2) copies** of the bid response (one (1) bound original and one (1) electronic copy). **The electronic copy can be included on a CD-ROM or memory stick containing the entire proposal formatted to be read with Microsoft® software products or Adobe® PDF software.**

Al2. **Withdrawal of Bids:** Bids may be withdrawn anytime before the bid opening date. The Bidder may withdraw a bid without prejudice to itself, not later than the day and hour set for opening of bids, by communicating the purpose of the withdrawal in writing to the City. Thereafter, the bid will be returned to the Bidder unopened. **Bids may not be withdrawn for a period of ninety (90) days after the bid opening date.**

A13. **Limitations on Liability:** Bidders are advised that the City will not accept limitations on liability. The successful Bidder will be fully liable for all damages and events caused by the successful Bidder without any limitations as to dollar amount. The City will pursue liable Bidders to the extent allowed by law. Any bid received that limits liability to the amount of the bid will be considered unresponsive and the Bidder non-responsible, and, as such, the bid will not be accepted by the City.

A14. **Bid Protests:** The City abides by the parameters set forth in Chapter 120, Florida Statutes, relating to the consideration and addressing of valid bid protests. Any actual or prospective Bidder who protests the reasonableness, award recommendation, necessity, or competitiveness of the terms and/or conditions of the Invitation to Bid, selection, or award recommendation shall file such protest in writing with the City Clerk's Office within three (3) business days after the City Commission and/or City Manager, has signed the Agreement.

A15. **Failure to comply with any of the foregoing instructions or any other essential element of the Invitation to Bid may result in the disqualification of the bid.**

SECTION B. GENERAL PROVISIONS.

B1. **Notice of Award:** Notice of an award by the City of Davenport will constitute acceptance of the bid from the overall lowest priced, most responsive, and responsible Bidder. The bid package signed by the successful Bidder, along with documentation included in the Bidder's submittal, as required by this Invitation to Bid, and other additional materials submitted by the Bidder and accepted by the City, shall constitute the Bidder's response. At the City's discretion, either a purchase order or other award document such as an agreement will be issued by the City when appropriate to do so.

B2. **Applicable Law, Venue, Jury Trial:** Any contractual arrangement between the City of Davenport and the successful Bidder shall be consistent with, and be governed by, the ordinances of the City of Davenport, the whole law of the State of Florida, both procedural and substantive, and applicable federal statutes, rules, and regulations. Any and all litigation arising under any contractual arrangement shall be brought in the appropriate court in Polk County, Florida.

B3. **Appropriations/Fund Availability:** Any agreement resulting from this solicitation is deemed effective only to the extent that appropriations are available. Pursuant to Florida Statutes, all appropriations lapse at the end of the Fiscal Year. Multi-year awards shall be adequately funded; however, the City reserves the right not to appropriate funds for an ongoing procurement if it is deemed in its best interest.

B4. **Compliance with All Laws:** The Bidder, by submission of this bid, certifies that the Bidder will provide the services agreed upon in a timely and professional manner in accordance with the specifications. In addition, the Bidder shall comply with all laws, ordinances, judicial decisions, orders, and regulations of federal, state, City, and municipal governments, as well as their respective departments, commissions, boards, and officers, which are in effect at the time of execution of the contractual agreement.

B5. **Receiving/Payment/Invoicing:** The City of Davenport shall pay all Bidders pursuant to, and in accordance with, the promulgations set forth in Section 218.70, Florida Statutes, Florida's Prompt Payment Act. Payment shall not be made until the materials, goods, or services have been received, inspected, and accepted by the City in the quality and quantity ordered. **Payment will be accomplished by the submission of an invoice mailed to City of Davenport; Attn: Accounts Payable; 1 S. Allapaha Ave., Davenport, Florida 33837.** Payment in advance of receipt of goods or services by the City of Davenport cannot be made without prior written approval by the City.

B6. **Inspection/Acceptance/Title:** Inspection and acceptance of goods/services will be at the destination, unless otherwise stipulated. Title and risk of loss or damage to all items shall be the responsibility of the successful Bidder until accepted by the requesting department/office of the City, unless loss or damage results from negligence by the City or the requesting department/office.

B7. **Acceptance of Goods/Services:** Receipt of goods/services shall **not** constitute acceptance. Final acceptance and authorization of payment shall be given only after a thorough inspection indicates that the product/performance meets the Invitation to Bid specifications and conditions. Should the products/services differ in any respect from the specifications, payment will be withheld until such time as the Bidder takes necessary corrective action. If the proposed corrective action is not acceptable to the requesting department/office, the City Manager may authorize said department/office to refuse the final acceptance of the goods/services. Should a representative of the City of Davenport agree to accept the goods/services on the condition that the Bidder will correct its performance within a stipulated time period, then payment will be withheld until the services are performed, as specified, in the executed agreement.

B8. **Termination:**

(a) *Termination for Default:* The performance of the agreement may be terminated by the City of Davenport in accordance with this clause, in whole or in part, in writing, whenever the City shall determine that the Bidder has failed to meet the performance requirement(s) of the agreement.

(b) *Termination for Convenience:* The City reserves the right to terminate a contractual agreement, in whole or part, by giving the Bidder written notice at least thirty (30) days prior to the effective date of the termination. Upon receipt of termination from the City of Davenport, the Bidder shall only provide those services specifically approved or directed by the City. All other rights and duties of the parties under the agreement shall continue during such notice period, and the City shall continue to be responsible to the Bidder for the payment of any obligations to the extent that such responsibility has not been excused by

breach of default of the Bidder.

(c) Payment Upon Termination: Upon termination, the Bidder shall bill the City for all amounts not previously billed and due the Bidder at that time. The Bidder shall not be entitled to a professional fee, or expenses for any work commenced, or expenses incurred after the notice of termination was received by the Bidder, unless specifically approved or requested by the City. The Bidder shall, however, be entitled to payment for services commenced, completed, and approved by the City prior to the receipt of notice, or with the express written consent of the City, prior to the effective date of termination, which have resulted in a usable product or otherwise tangible benefit to the City. All such payments shall be subject to a set-off for any damages incurred by the City resulting from any delay occasioned by the early termination.

B9. Insurance Requirement:

(a) Include a copy of your current liability insurance, workman's compensation insurance certificate, and a copy of your firm's Local Business Tax Receipt (Reference B10) with your bid submittal.

(b) The successful Bidder(s) shall provide original certificates of Insurance, as outlined in Attachment B, to the Project Coordinator within five (5) regular business days of the notification of the intent to award the Agreement. Certificates of Insurance shall provide a minimum of a thirty (30) day notice of cancellation to the City of Davenport and shall name the City of Davenport as an additional Insured.

(c) All insurance certificates shall remain valid and in full force for the term of the Agreement. Failure to maintain binding insurance policies for awarded services will be grounds for termination of awarded Agreement.

B10. Applicable Licensing:

(a) Local *Business Tax Receipt (as applicable):* If awarded the bid, the Tax Collector of Polk County requires the Bidder to obtain a Polk County Local Business Tax Receipt. Please contact the Tax Collector/Local Business Tax Receipt Office directly at (863) 534-4700 for information concerning this requirement. In accordance with section 205.065, Florida Statutes, a current Department of Professional Regulation certificate may be provided in lieu of a Local Business Tax Receipt, accompanied by a copy of the Local Business Tax Receipt of home state/county/city.

(b) Other Licenses and Permits: The Bidder, at its sole expense, shall obtain all required federal, state, and local licenses and/or permits required to successfully provide the services contained in a contractual agreement.

B11. Bid as Public Domain: All documents and other materials made or received in conjunction with this project will be subject to the public disclosure requirements of chapter 119, Florida Statutes. The bid will become part of the public domain upon opening. Bidders shall not submit pages marked "proprietary" or otherwise restricted.

B12. Relationship of the Parties: The Bidder shall act as an independent contractor and not as an employee of the City of Davenport. The Bidder will be required to indemnify, defend, hold, and save harmless the City, its officers, agents, and employees, from damages arising from the Bidder's performance of, or failure to perform, any task or duty required to be performed by the Bidder.

B13. Indemnification:

(a) The successful Bidder(s) agrees to be liable for any and all damages, losses, and expenses incurred by the City, caused by the acts and/or omissions of the Bidder, or any of its employees, agents, sub-contractors, representatives, or the like, in connection with the performance of obligations under a contractual agreement. The Bidder agrees to indemnify, defend, and hold the City harmless for any and all claims, suits, judgments or damages, losses, and expenses, including but not limited to court costs, expert witnesses, consultation services, and attorney's fees, arising from any and all acts and/or omissions of the Bidder, or any of its employees, agents, sub-contractors, representatives, or the like, in connection with an agreement.

(b) The City agrees to be liable for any and all damages, losses, and expenses incurred by the successful Bidder(s), caused by the acts and/or omissions of the City, or any of its employees, agents, servants, representatives, or the like, in assisting the successful Bidder(s) in the performance of obligations under a contractual agreement. The City agrees to indemnify, defend, and hold the Bidder harmless for any and all claims, suits, judgments or damages, losses, and expenses, including but not limited to court costs, expert witnesses, consultation services, and attorney's fees, arising from any and all acts and/or omissions of the City, or any of its employees, agents, servants, representatives, or the like, in

connection with an agreement.

B14. Bankruptcy or Insolvency: If the successful Bidder shall file a Petition in Bankruptcy, or if the same shall be adjudged bankrupt or insolvent by any Court, or if a receiver of the property of the successful Bidder shall be appointed in any proceeding brought by or against the creditors, or proceedings shall be commenced on or against the successful Bidders' operations of the premises, the City reserves the right to terminate any contractual agreement immediately.

B15. Assignment: The successful Bidder will not be permitted to assign its contract with the City, or to subcontract any of the work requirements to be performed, without obtaining prior written approval from the City.

B16. Waiver: Failure of the parties to insist upon strict performance of any of the covenants, terms, provisions, or conditions contained in a contractual agreement, or to exercise any right or option therein, shall not be construed as a waiver or a relinquishment for the future of such covenant, term, provision, condition, or right of election, but same shall remain in full force and effect.

B17. Changes: The City reserves the right to order, in writing, changes in the work within the scope of services of a contractual agreement, such as a change in quantity or delivery schedule.

B18. Modifications: In addition to modifications made under the changes clause, any agreement resulting from this solicitation may be modified (1) within the scope of services of the agreement upon the written and mutual consent of both parties, and (2) with approval by the appropriate legal body in the City of Davenport.

B19. Administrative Provisions: In the event the City issues a purchase order, memorandum, letter, or any other instrument addressing the services, work, and materials to be provided and performed pursuant to a contractual agreement, it is specifically agreed and understood that any such purchase order, memorandum, letter, or any other instrument is for the City's internal purposes only, and any and all terms, provisions, and conditions contained therein, whether printed or written, shall in no way modify the covenants, terms, and provisions of the contractual agreement and shall have no force or effect thereon.

B20. Taxes: The City of Davenport is tax exempt. As such, the City does not pay State of Florida Sales Tax or Federal Excise Tax. The City's State Sales Tax exemption number is 85-8012740110C-7 and the Federal Exemption Identification Number is 59-600032.

B21. Independent Pricing: By submission of this bid, the. Bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, that, in connection with this procurement:

(a) The prices in this bid have been arrived at independently, without consultation, communication, collusion, or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor;

(b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor; and,

(c) No attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition.

B22. Public Entities Crimes: A person or affiliate who has been placed on the convicted contractor list, following a conviction for public entity crime may not submit a bid on a contract to provide any goods or services to a public entity; may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work; may not submit a bid on a lease of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted contractor list. By signature on this solicitation, the Bidder certifies that it is qualified to do business with the City of Davenport in accordance with the Florida Statutes.

B23. Equal Opportunity: The City of Davenport recognizes fair and open competition as a basic tenet of public procurement and encourages participation by minority and women owned business enterprises. The City requests minority and women owned business enterprises to submit evidence of such certification with each submittal.

B24. Other Entity Use:

(a) All Bidders submitting a response to this Invitation to Bid agree that such response also constitutes a bid to all governmental agencies, under the same conditions, for the same contract price, and for the same effective period as this bid, should the Bidder feel it is in its best interest to do so.

(b) Each governmental agency desiring to accept these bids, and making an award thereof, shall do so independently of any other governmental agency. Each agency shall be responsible for its own purchases and each shall be liable only for materials and/or services ordered and received by it, and no agency assumes any liability by virtue of this bid.

(c) This solicitation in no way restricts or interferes with the right of any governmental agency to re-bid any or all items.

B25. Conflict of Interest: All Bidders must disclose, with the bid, the name of any officer, director, or agent who is also a City official or employee of the City of Davenport. Furthermore, all Bidders must disclose the name of any City of Davenport official or employee who owns, directly or indirectly, an interest of ten percent (10%) or more of the Bidder's firm or any of its branches. Failure to disclose in this manner will result in the disqualification of the bid or the cancellation of work. The City will seek damages for the recoupment of losses in having to re-bid or re-assign this solicitation.

B26. Additional Terms and Conditions: No additional terms and conditions included with the bid response shall be evaluated or considered, and any and all such additional terms and conditions shall have no force and effect and are inapplicable to this bid. If submitted either purposely through intent or design, or inadvertently appearing separately in transmitting letters, specifications, literature, price lists, or warranties, it is understood and agreed that the general and special conditions in this solicitation are the only conditions applicable to this bid, and the Bidder's authorized signature, affixed to the bid, attests to this.

B27. Force Majeure: Neither party to this agreement shall be liable to the other for any cost or damages if the failure to perform the agreement arises out of causes beyond the control and without the fault or negligence of the parties. Such causes may include, but are not limited to, the following: acts of God, fires, quarantine restriction, strikes, and freight embargoes. In all cases, the failure to perform must be totally beyond the control and without any fault or negligence of the parties.

B28. Public Emergencies: It is hereby made a part of this bid that before, during, and after a public emergency, disaster, hurricane, tornado, flood, or other acts of God, the City of Davenport shall require a "First Priority" for goods and services. It is vital and imperative that the majority of citizens are protected from any emergency situation that threatens public health and safety as determined by the City. The Bidder agrees to rent/sell/lease all goods and services to the City or governmental entities on a "first priority" basis. The City expects to pay contractual prices for all products and/or services under the awarded Agreement in the event of a disaster, emergency, hurricane, tornado, flood, or other acts of God. Should the Bidder provide the City with products and/or services not under the awarded Agreement, the City expects to pay a fair and reasonable price for all products and/or services rendered or contracted in the event of a disaster, emergency, hurricane, tornado, flood, or other acts of God.

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

SECTION C. SPECIAL PROVISIONS.

C1. **Minimum Standards:** Specifications listed herein describe the expected minimum standards. If any exceptions are taken, the Bidder is responsible for indicating on the bid form any deviations from the specifications, including an explanation, justification, or applicable literature for the deviation. The absence of this indication shall be considered complete compliance with the listed specifications. These specifications are intended to be descriptive in nature and are not intended to eliminate any Bidder from submitting a bid.

C2. **Bidder's Specifications:** Each Bidder shall make accurate statements in its bid.

C3. **Not Bidding:** If not bidding any or all items, please so state.

C4. **Firm Prices:** Prices for goods and services covered in the specifications shall be firm; net delivered to the ordering agency, F.O.B. DESTINATION, with the Bidder paying all delivery costs, and shall remain firm for the period of any agreement reached as a result of this solicitation. No additional fees or charges shall be accepted.

C5. **Estimated Quantities:** As stewards of public funds, the City maintains all adopted budgetary parameters in the performance of its contracts. The ability of the successful Bidder to maintain a sense of fiscal responsibility shall be favorably considered in the evaluation of submittals. Quantities noted in the Invitation to Bid are estimates only and are intended as a guide in submitting the bid and in no way obligates the City to purchase this amount. The actual quantities purchased under this bid may be more or may be less.

C6. **Pre-Award Inspection:** Prior to the award of any agreement, the City reserves the right to make a pre-award inspection of the Bidder's facilities to determine the capabilities of the Bidder to service the City.

C7. **Existing Permits and Identification Numbers:** Any and all permits, state licenses, including Department of Environmental Protection (DEP) and/or Environmental Protection Agency (EPA) identification numbers, registrations or permits are to be available for review by the City upon request.

C8. **Qualification of Bidder:** The Bidder must be a provider currently doing business with the general public and be properly licensed to do business in the State of Florida. The Bidder, under its current business name, must also have a minimum of two (2) consecutive years of verifiable experience servicing commercial accounts equal in size and scope to this project.

C9. **Additional Information:** The Project Coordinator for the City of Davenport reserves the right to request any additional information needed for clarification from any Bidder for evaluation purposes.

C10. Agreement:

(a) An agreement may be required for this service and must be signed by the Bidder prior to execution by the City, whereupon the Bidder becomes the Contractor upon approval.

(b) The provisions of said agreement contain similar language to the provisions contained in this Invitation to Bid.

(c) The agreement shall be used as a basis for negotiation and the City reserves the right to change, revise, or modify the agreement in its entirety, or any part thereof, prior to obtaining signatures from all parties.

(d) The successful Bidder(s) shall execute and return the agreement to the City, within ten (10) days after receipt all contractual documents, performance, and payment bonds (if applicable), insurance verifications and any other documents required by this bid.

(e) In no event shall an agreement be considered binding upon the City until it has been properly executed by all parties.

(f) In conjunction with the agreement, a purchase order may be issued by the City prior to the start of any project, service, or work by the Bidder.

C11. **Attachments:** All attachments are made an essential part of this bid and include the following:

(a) Attachment A — Statement of No Bid
(b) Attachment B — Insurance Requirements*
(c) Attachment C — Drug Free Workplace Certification
(d) Attachment D — Public Entity Crime Sworn Statement

(e) Attachment E — Experience of Bidder
(f) Attachment F — Non-Collusion Affidavit of Prime Bidder

The successful Bidder must comply with the insurance requirements set forth in Attachment B. If a Bidder chooses not to bid on this Invitation to Bid, the Bidder is asked to please complete and return Attachment A.

C12. Inadequate Service: In cases where materials, goods or services are not properly delivered, the Bidder will either remedy the defect or be responsible for reimbursement of the difference to the City for the subsequent contractor selected to remedy the defect. Acceptance of materials, goods or services shall remain in the City's sole discretion.

C13. Failure of Performance and/or Delivery: If the successful Bidder fails to perform as required per these specifications, or fails to deliver the item(s) or perform the work specified in these specifications, it shall compensate the City for any damages caused by the Bidder's failure to perform as stated.

C14. Protection of Property: At all times, the successful Bidder shall guard from damage or loss to property of the City, or of other Bidders or contractors, and shall replace or repair any loss or damage unless such damage is caused by the City, other Bidders, or contractors. The City may withhold payment, or make such deductions as it might deem necessary, to insure reimbursement for loss or damage to property through negligence of the successful Bidder or the Bidder's agents.

C15. Unsatisfactory Work: Unsatisfactory work shall be corrected by the Bidder within twenty-four (24) hours of notification by the City.

C16. Service Requirements: The successful Bidder shall provide sufficient staff, resources, and facilities to ensure that the City of Davenport's business is handled in a timely manner. If the Bidder is unable to perform the work in a timely manner as agreed upon, the City shall have the right to rescind the purchase order and award the project to another Bidder.

C17. New Product: Any and all products provided under this bid shall be new and unused.

C18. Non-Exclusivity Clause: Nothing herein is intended nor shall be construed as creating any all-encompassing arrangement with the successful Bidder. The awarded Agreement shall not restrict the City from acquiring goods and/or services outlined herein from other contractors, service providers, vendors, and/or sources.

SECTION D. AWARD OR REJECTION OF BIDS.

DI. Award of Contract/Purchase Order: Award will be made to the responsible Bidder most responsive to the solicitation with the lowest overall bid which meets the specifications.

D2. Delivery: Delivery may be a factor in the award. Failure to perform within the delivery deadline(s) set forth in the specifications, or any other contract document, shall constitute default.

D3. Split Award: The City reserves the right to make an award to one Bidder, to split the award between Bidders, or to not award some or all items, depending on the best interest of the City. The City may accept any item or group of items on any bid unless the Bidder qualifies the bid by specific limitations.

D4. Right to Reject: The City reserves the right to reject any or all bids, or any part thereof, with or without cause, without recourse, to waive technicalities or irregularities, and to accept or reject the bids, or any part thereof, which, in its judgment, best serve the interest of the City. The City also reserves the right to reject the bid from a Bidder who has previously failed to perform properly, or complete on time contracts of a similar nature, or who investigation shows is not in a position to perform the contract. The cost of submittal of this bid is considered an operational cost of the Bidder and shall not be passed on to or be borne by the City.

D5. Bid Results: The bid tabulation sheet should be available within forty-eight (48) hours of the bid opening.

D6. Best Prices: An award will be made without further negotiation based upon competitive bids; therefore, the Bidder's best price should be submitted in response to this Invitation to Bid.

D7. Reasonable Prices: A reasonable unit price must be submitted for each work element. In the event that any pay item unit price is determined to be unreasonably low or unreasonably high, the bid may be declared non-responsive and may not be considered.

D8. Debarred Bidders: The City reserves the right to withhold award, rescind award, or forego award to any Bidder or contractor who is found to have been debarred from doing business with the State of Florida or any other public entity. It shall be at the City's sole determination as to the desirability of contracting with a Bidder or contractor who has been debarred from doing business with any public entity.

D9. Drug-Free Workplace Preference: Whenever two or more bids, which are equal with respect to price, quality, delivery, and services, are received for procurement subject to the City of Davenport Code of Ordinances, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference, in accordance with section 287.087, Florida Statutes. Certification of an implemented drug-free workplace program must be included with the bid when the bid is submitted.

D10. Determining Responsibility: In determining responsibility, the following qualifications will be considered:

(a) The Bidder's ability, capacity, and skill to perform the contract or provide the service within the time specified.
(b) The reputation, judgment, and experience of the Bidder.
(c) The quality of performance of previous contracts or services, including previous performance with the City.
(d) Previous and existing compliance by the Bidder with laws and ordinances relating to the contract or service.
(e) Financial resources of the Bidder to perform the contract or provide the service.
(f) Ability to provide future maintenance and service for the use of the subject of the contract.
(g) Whether the Bidder is in arrears to the City on a debt or contract, or is in default on surety to the City, or whether the Bidder's taxes or assessments are delinquent.

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

SECTION E. SPECIFICATIONS FOR STORMWATER COLLECTION SYSTEM

EI. Scope of Services:

A. The Project consists of replacing the existing storm water collection system. Work includes installation of a new collection system, sawcut existing roadway for new pipe installation, repave disturbed roads and mill and resurface the entire road width in work area, install new curbing, remove and replace sidewalk and handicap ramps where indicated and as disturbed, replace existing driveways as disturbed, grout fill all existing storm pipe.

B. Furnish all materials, equipment, tools, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

C. Reference Section 01410 - Regulatory Requirements and Permits concerning permits secured by the Owner and permits to be secured by the Contractor. Other licenses or permits for construction facilities of a temporary nature that are necessary for the prosecution of the work shall be secured and paid for by the Contractor.

D. Repair, replace, or otherwise settle with the Owner, if damage to property or existing facilities occurs, including damage to pavements, utilities, lawns, structures, etc.

E. Construct the Project under a single, lump sum contract.

SECTION F. BID PRICE SCHEDULE.

The Bidder herby indicates the following total units and total prices which represent all mobilization/demobilization, all required materials, labor, equipment, performance of all operations relative to construction of the project, overhead, and costs of all kinds and profit to complete the work items in accordance with the Project Manual, plans, and permits. *Work for which there is not a listed item below shall be considered incidental to the Contract and shall be covered under the lump sum total price indicated in below table, and no additional compensation will be allowed.*

In accordance with the terms, conditions, and scope of services set forth above, the Bidder hereby submits the following prices for **The Maple Street Storm Pipe Replacement,** as follows:

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: [redacted] Email: [redacted]	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

SCHEDULE OF VALUES
Maple Street Stormpipe Replacement
City of Davenport
Project No. 2400788

Date 2/10/26
By ACL/CL

	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
General Conditions					
1	Mobilization, Demobilization, GM coordination, etc. (5%)	1	LS		$ -
2	Bond (5% of bid)	1	LS		$ -
3	Construction Survey and Layout	1	LS		$ -
4	Pre-construction video	1	LS		$ -
5	Certified As-builts	1	LS		$ -
6	Geotech Testing	1	LS		$ -
7	FDOT Silt Fence	7000	LF		$ -
8	Maintenance of traffic	1	LS		$ -
I Site Demolition					
9	Demo existing roadway	7130	SY		$ -
10	Demo existing curbing	7000	LF		$ -
11	Grout fill existing storm pipe	4477	LF		$ -
12	Remove existing storm pipe	871	LF		$ -
13	Remove existing storm inlets	18	EA		$ -
14	Grout fill existing storm inlets	10	EA		$ -
15	Tree Root Ball Removal	1	EA		$ -
	Sub total for Site Demolition				**$ -**
II Site Work					
16	Site grading and earthwork	500	SY		$ -
17	Sodding	6294	SY		$ -
18	Dewatering	1	LS		$ -
19	FDOT Type 4 inlet top	14	EA		$ -
20	FDOT Type 5 inlet top	20	EA		$ -
21	FDOT Storm Manhole	10	EA		$ -
22	FDOT Type C inlet	1	EA		$ -
23	"J" Inlet Bottom	29	EA		$ -
24	"J" Inlet Bottom (5'x5' and larger)	16	EA		$ -
25	18" RCP	836	LF		$ -
26	24" RCP	992	LF		$ -
27	30" RCP	752	LF		$ -
28	36" RCP	424	LF		$ -
29	42" RCP	1122	LF		$ -
30	38"x60" ERCP	1222	LF		$ -
31	FDOT U-Type endwall (cast in place)	1	EA		$ -
32	Inlet skimmer basket (sediment and debris collection)	4	EA		$ -
33	Water Main Relocation	100	LF		$ -
34	Bypass Pumping (standby for storm events)	1	LS		$ -
	Sub total for Sitework				**$ -**
III Proposed Pavement Improvements					
35	1.0 inch SP-9.5 Asphalt	7130	SY		$ -
36	8 inch Crushed Concrete Base	7130	SY		$ -
37	12 inch Stabilized Base	7130	SY		
38	FDOT Type F Standard Curb	8700	LF		$ -
39	Driveway replacement	19	Ea		$ -
40	Sidewalk repalcement/construction (including HC ramps)	3830	LF		$ -
41	Mill existing asphalt (12 foot width, intersections)	7610	SY		$ -
42	Overlay existing roads (24 foot width, 1.0 inch thick)	14313	SY		$ -
	Sub total for Pavement Improvements				**$ -**

Item	Totals	Cost
I	Subtotal Site Demo	$ -
II	Subtotal Site Work	$ -
III	Subtotal Pavement Improvements	$ -
	Sub-total	**$ -**
	Subtotal General Conditions	$ -
	Total, including Mobilization, Layout and Bonding	**$ -**

Item 1 - this total will be 5% of the construction budget
Item 2 - this will be 5 % of the construction budget
Item 9 - assumption is one half of roadway will be excavated as part of the storm pipe installation.
Item 15 - the quantity is shown as 1 to establish cost for root ball
The city will be responsible for cutting and removing the tree(s). The contrator will be responsible for removing the root ball.
Item 33 - cost is based on relocation of 6-inch water main. Cost shall be LF and shall be based on pipe replaced.
Item 34 - bypass pump on stand by in the event of large rain event dring construction

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

Lump Sum Price

The undersigned will construct this project for the Base Bid Lump Sum Price of $ _____ Dollars

Provided as number value $ _____

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

SECTION G. CERTIFICATION OF BIDDER.

To the Selection Committee:

By the signature(s) below, I/we, the undersigned, as authorized signatory to commit the firm, certify that this bid is genuine, not a sham or collusive or made on behalf of another person, firm, or corporation not herein named; that the undersigned has not directly or indirectly induced or solicited any other Bidder to submit a sham bid; that the undersigned has not directly or indirectly induced or solicited any other person, firm, or corporation to refrain from submitting a bid; and that the undersigned has not in any manner sought collusion to secure an advantage over any other Bidder. By submittal of this bid, the undersigned agrees to abide by all terms and conditions set forth herein, including, but not limited to, the specifications, bid security, prompt contracting, and timely delivery of the services and/or equipment to be procured hereby.

Have you supplied all the required submittal documents as outlined below? Please place a check mark (✓) next to each applicable item:

☐ Invitation to Bid cover page completed and signed (Page 1 of the solicitation document) - **REQUIRED**

☐ Completed and executed Certification of Bidder (Section G) - **REQUIRED**

☐ Proof of Insurance, (minimum limits set forth in Attachment B) - **REQUIRED**

☐ Business Tax Receipt, as applicable - **REQUIRED**

☐ All Attachments, as applicable

☐ Addendum Acknowledgement, if applicable

☐ Bid Bonds, if applicable

☐ Single reproducible diskette, CD-ROM or memory stick containing entire bid submittal

If the Bidder is not successful as Prime Supplier, will the Bidder be willing to serve in a Secondary Supplier capacity under the same terms and conditions contained herein? Yes _____ No ____

Prompt Payment Discount: % Days ***Discount for prompt payment of 30 days or longer may be considered in Evaluation of Award***	
Signature of Authorized Representative:	**Date:**
Printed Name:	**Title:**

ACKNOWLEDGMENT IS HEREBY MADE OF RECEIPT OF ADDENDA ISSUED DURING THE SOLICITATION PERIOD:
ADDENDUM#_____THROUGH ADDENDUM# _____

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT A
STATEMENT OF "NO BID"

If you do not intend to bid on this requirement, please complete and return this form, prior to the date shown for receipt of bids, to the **City of Davenport, Attn: City Clerk, 1 S. Allapaha Ave., Davenport, Florida 33837**

I/we have declined to bid on _____, for the following reasons:

_____ Specifications are too "restrictive" (i.e. geared toward one brand or manufacturer) as explained below.

_____ Insufficient time to respond to Invitation to Bid

_____ I/we do not offer this product or equivalent

_____ My/our product sheet would not permit us to perform the services required

_____ Unable to meet specifications

_____ Unable to meet bond requirements

_____ Specifications unclear as explained below

_____ Other as specified below

Remarks:_____

_____

_____

I/we understand that if the "No Bid" letter is not executed and returned, my/our name may be deleted from the list of qualified Bidders for the City of Davenport for future projects.

_____
Typed Name and Title

_____
Signature and Title

_____
Company Name

_____
Address

_____
Telephone Number

_____
Date

_____
Email Address

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT B
INSURANCE REQUIREMENTS

A. The successful Bidder/Contractor shall not commence any work in connection with an agreement until it has obtained all of the following types of insurance and has provided proof of same to the City, in the form of a certificate *prior* to the start of any work, nor shall the successful Bidder/Contractor allow any subcontractor to commence work on its subcontract until all similar insurance required of the subcontractor has been so obtained and approved. All insurance policies shall be with insurers qualified and doing business in Florida.

B. The successful Bidder/Contractor and/or subcontractor shall maintain the types of insurance, with the respective limits as outlined in the provided hereto sample Acord 25 Certificate of Liability Insurance.

C. City as Additional Insured: The successful Bidder/Contractor and/or subcontractor shall name the *"City of Davenport"* as an Additional Insured, to the extent of the services to be provided hereunder, on all required insurance policies, and provide the City with proof of same.

D. Certificates of Insurance: The successful Bidder/Contractor and/or subcontractor shall provide the Finance Department with a Certificate of Insurance evidencing such coverage for the duration of this Agreement. Said Certificate of Insurance shall be dated and show:

1. The name of the insured Contractor,
2. The specified job by name and job number,
3. The name of the insurer,
4. The number of the policy,
5. The effective date,
6. The termination date,
7. A statement that the insurer will mail notice to the City at least thirty (30) days prior to any material changes in the provisions or cancellation of the policy, and;
8. The Certificate Holders Box must read as follows:

City of Davenport
Attn: Accounts Payable
1 S. Allapaha Ave.
Davenport, FL 33844

Any other wording in the Certificate Holders Box shall not be acceptable.
Non-conforming certificates will be returned for correction.

E. Waiver: Receipt of certificates or other documentation of insurance or policies or copies of policies by the City, or by any of its representatives, which indicates less coverage than is required, does not constitute a waiver of the successful Bidder's/Contractor's obligation to fulfill the insurance requirements specified herein.

F. Subcontractors: The successful Bidder/Contractor shall ensure that any sub-contractor(s), hired to perform any of the duties contained in the Scope of Services of an Agreement, maintain the same insurance requirements set forth herein. In addition, the successful Bidder/Contractor shall maintain proof of same on file and made readily available upon request by the City.

G. Loss Deductible Clause: The City 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 such deductible shall be the sole responsibility of the successful Bidder/Contractor and/or subcontractor providing such insurance.

Initials of Signatory:_____ Date:_____

The City reserves the unilateral right to modify the insurance requirements set forth at anytime during the process of solicitation or subsequent thereto.

>>>Failure to submit this form may be grounds for disqualification of your submittal.<<<

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT C
DRUG-FREE WORKPLACE CERTIFICATION

In case of tie bids, preference must be given to a Bidder submitting a certification with the bid response certifying that the Bidder has a drug-free workplace in accordance with section 287.087, Florida Statutes. The drug-free certification form below must be signed and returned with the bid.

In order to have a drug-free workplace program, 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 violations of such prohibition.

(2) Inform employees about the dangers of drug abuse in the workplace, the business' 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 contractual services that are under bid a copy of the statement specified in the first paragraph.

(4) In the statement specified in the first paragraph, notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

(5) Impose a sanction on, or require the satisfactory participation in, a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

(6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of the foregoing provisions.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

_____
Bidder's Signature, Title, Date

STATE OF _____
COUNTY OF _____

The foregoing instrument was executed before me by means of _____ physical presence or _____ online notarization this _____ day of _____, 20____, by _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this document and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

_____
NOTARY PUBLIC, State of _____

(stamp)

PLEASE COMPLETE AND SUBMIT WITH BID
>>>>Failure to submit this form with your Bid may disqualify your response.<<<<

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT D
SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. THIS SWORN STATEMENT IS SUBMITTED TO THE CITY OF DAVENPORT BY:

_____
(PRINT INDIVIDUAL'S NAME AND TITLE)

FOR:_____
(PRINT NAME OF ENTITY SUBMITTING SWORN STATEMENT)

WHOSE BUSINESS ADDRESS IS:_____
_____

AND (IF APPLICABLE) ITS FEDERAL EMPLOYER IDENTIFICATION NUMBER (FEIN) IS:
_____.

(IF THE ENTITY HAS NO (FEIN), INCLUDE THE SOCIAL SECURITY NUMBER OF THE INDIVIDUAL SIGNING THIS SWORN STATEMENT:_____).

2. I understand that a "public entity crime" as defined in Section 287.133(1)(b), 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 of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentations.

3. I understand that if "convicted" or "conviction" as defined in Section 287.133(1)(b), Florida Statutes, means a 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 record relating to charges brought by indictment or information after July 1, 1989, as a result of jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that and affiliate as defined in Section 287.133(1)(b), Florida Statutes, means:

   a.) A predecessor or successor of a person convicted of a public entity crime; or
   b.) 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, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or pooling of equipment or income among persons when not for fair market value under a arm's length agreement, shall be prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Section 287.133(1)(e), Florida Statutes, means any

natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts 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.

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

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who active in the management of the entity, nor any affiliate of the entity has 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 its officers, directors, executives, partners, shareholders, employees, members, or agents who active in the 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.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who active in the 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. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and a Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Attach a copy of the Final Order.)

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31, OF THE CALENDAR YEAR WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(Signature)

Sworn to and subscribed before me this _____ day of _____ 20_____

Personally Known _____

OR Produced Identification _____
Notary Public – State of _____

_____
My commission expires _____
(Type of Identification)

_____
(Printed, typed or stamped Commission name of notary public)

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT E
EXPERIENCE OF BIDDER

The following questionnaire shall be completed by the Bidder to assist in the evaluation of the bid submittals.

1. FIRM NAME:_____
Address:_____

City/State/Zip:_____

Phone:_____ Fax:_____

Name of primary contact responsible for work performance:_____

Phone:_____ Cell Phone:_____

Email address:_____

Name of alternate contact should primary not be available:_____

Phone:_____ Cell Phone:_____

2. PERSONNELL: Please provide the current composition of your workforce:

Description	Number
Total Number of Employees	
Management	
Technical	
Clerical	

3. EXPERIENCE:

Years in business:_____

Years in business under this name:_____

Years performing this type of work:_____

Value of Work now under contract:_____

Value of work in place last year:_____

Percentage (%) of work usually self-performed:_____

Name of subcontractors you may use:_____

Has firm: Failed to complete a contract:_____

Been involved in bankruptcy or reorganization:_____

Pending judgement claims or suits against firm:_____

What company do you sue for pre-employment criminal background checks?_____

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Bid Title:		

4. SAFETY:

Have you had any OSHA fines within the last three (3) years? YES ☐ NO ☐

Have you had any job related fatalities within the last five (5) years? YES ☐ NO ☐

If you have answered YES to either of the above questions, you MUST submit, on a separate sheet, the details describing the circumstances surrounding each incident.

5. INSURANCE AGENCY COMPANY NAME: _____

Agent Contact: _____ Phone: _____

Total Bonding Capacity: _____

Value of Work Presently Bonded: _____

6. LOCAL SERVICE FACILITY

Name of local service center: _____

Address of local service center: _____

_____

Telephone number: _____

Contact person: _____

7. WORK EXPERIENCE

List your three (3) most significant commercial projects where the contract was similar in scope and size to this Bid completed in the last three (3) years.

Reference #1:

Company/Agency Name: _____
Address: _____

Contact Person: _____

Phone: _____ Fax: _____

Project Description: _____

Contract $ Amount: _____

Date Completed: _____

Reference #2:

Company/Agency Name: _____
Address: _____

Contact Person: _____

Phone: _____ Fax: _____

Project Description: _____

Contract $ Amount: _____

Date Completed: _____

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

Reference #3:

Company/Agency Name:_____

Address:_____

Contact Person:_____

Phone:_____ Fax:_____

Project Description:_____

Contract $ Amount:_____

Date Completed:_____

SIGNATURES MUST BE PROPERLY WITNESSED BY A NOTARY

Affidavit:

By the signature(s) below, I/we, the undersigned, certify that the information as provided in Attachment D, Experience of the Bidder, is truthful and correct at the time of submission.

Authorized Signature_____

Name Printed_____

Title_____ Date_____

STATE OF _____
COUNTY OF _____

The forgoing instrument was executed before me this _____ day of _____, 20____, by ____ _____ as _____ of _____, who personally swore or affirmed that he/she is authorized to execute this Agreement and thereby bind the Corporation, and who is personally known to me OR has produced _____ as identification.

_____

NOTARY PUBLIC, State of _____

(stamp)

PLEASE COMPLETE AND SUBMIT WITH BID
>>>>Failure to submit this form with your Bid may disqualify your response.<<<<

Bid #:	Due Date & Time: WEDNESDAY, APRIL 1, 2026, 10:00 AM	Advertised Date: FRIDAY, FEBRUARY 20, 2026
Project Coordinator: Darryl Koon Email: dkoon@mydavenport.org	Submit to: City of Davenport, 1 S Allapaha Ave, Davenport, FL 33837 Phone:	
Bid Title:		

ATTACHMENT F
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____

County of _____

_____, being first duly sworn, deposes and says that:
Name

(1) He is _____ of _____, the
Title Company

Bidder that has submitted the attached bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of his officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or has refrained from bidding in connection with such Contract; nor 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 Bid or of any other Bidder; nor has fixed any overhead, profit or cost element of the Bid price, or the Bid price of any other Bidder; nor has secured through any collusion, conspiracy, connivance or unlawful agreement, any advantage against the City of Davenport or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid 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

_____
Title

Subscribed and sworn to before me this _____ day of _____, 20_____

Signature _____

Title _____

My commissioner expires _____.

PLEASE COMPLETE AND SUBMIT WITH BID
>>>>Failure to submit this form with your Bid may disqualify your response.<<<

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01 Section Includes

Summary of work, other contracts, work sequence, operation of existing facilities, use of premises, Owner furnished products, coordination, cutting and patching

1.02 Summary of Work

A. The Project consists of replacing the existing storm water collection system. Work includes remove storm inlets and pipes as called for on the plans, installation of a new collection system, sawcut existing roadway for new pipe installation, repave disturbed roads and mill and resurface the entire road width in work area, install new curbing, remove and replace sidewalk and handicap ramps where indicated and as disturbed, replace existing driveways as disturbed, grout fill all existing storm pipe and structure bases noted to remain on plans. Work also includes relocating water lines that are in conflict with proposed storm collection system.

B. Furnish all materials, equipment, tools, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

C. Reference Section 01410 - Regulatory Requirements and Permits concerning permits secured by the Owner and permits to be secured by the Contractor. Other licenses or permits for construction facilities of a temporary nature that are necessary for the prosecution of the work shall be secured and paid for by the Contractor.

D. Repair, replace, or otherwise settle with the Owner, if damage to property or existing facilities occurs, including damage to pavements, utilities, lawns, structures, etc.

E. Contractor will be responsible for supporting utility poles as part of the work. Contractor to notify the Utility Company as necessary.

F. In locations where excavations are 10 feet or greater, the Contractor will be responsible for providing trench boxes or other method for bank stabilization. If sheet piles are used, the must be temporary and removed one work is complete. Signed and sealed sheet pile calculations will be required to be submitted for City records.

G. Construct the Project under a single, lump sum contract.

1.03 Work Under Other Contracts – N/A

1.04 Work Sequence

The Contractor's sequence of work may be of his choosing in order to complete the work in the allowed time frame while accommodating other contractors on site.

1.05 Operation of Existing Facilities

The Owner shall be able to operate existing facilities 24 hours per day, 7 days per week.

1.06 Contractor Use of Premises

Confine operations at the site to areas permitted by applicable laws, ordinances, permits, and by the Contract Documents. Do not unreasonably encumber the site with materials or equipment. Do not load structures with weight that will endanger the structure. The Contractor shall assume full responsibility for protection and safekeeping of products stored on the job site.

1.07 Owner Furnished Products – N/A

1.08 Coordination

A. The Contractor shall be fully responsible for the coordination of his work and the work of his employees, subcontractors, and suppliers and to assure compliance with schedules.

B. The coordination requirements of this Section are in addition to the requirements of Section 00700, General Conditions, and 00800, Supplementary Conditions.

C. It is the Contractor's responsibility to coordinate with all the utilities regarding locates, testing, or relocations.

D. It shall be the Contractors responsibility to acquire the necessary equipment and material laydown area.

E. Contractor shall either a full time representative on site or provide the contact name and phone number for a representative. The representative will be required to coordinate with the City and the home owners to address any questions or complaints during construction.

1.09 Cutting and Patching

A. The Contractor shall, at no additional expense to the Owner, perform cutting and patching necessary to the completion of the Project. Perform cutting and patching in a manner to prevent damage to the structure or previously completed work.

B. Refinish surfaces as necessary to provide an even finish.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 Section Includes

Measurement and payment provisions, schedule of values

1.02 General Measurement and Payment Provisions

A. Payment for all work done in compliance with the Contract Documents, inclusive of furnishing all manpower, equipment, materials, and performance of all operations relative to construction of this project, will be made as a lump sum which will be complete payment for all work called for or reasonably inferable from the Contract Documents and other work will be considered incidental to the Contract and no additional compensation will be allowed.

B. The Owner reserves the right to alter the Drawings, modify incidental work as may be necessary, and increase or decrease the work to be performed to accord with such changes, including deductions or additions to the scope of work outlined in the Contract Documents. Changes in the work shall not be considered as a waiver of any conditions of the Contract nor invalidate any provisions thereof. Changes resulting in changes in the scope or quantities of Work or time or other conditions of work will be basis for consideration of a Change Order which is to be negotiated and executed before proceeding with the work. A supplemental agreement between the Contractor and the Owner will be required when such changes meet the conditions described in the Supplementary Conditions. Work which has not been authorized by a written Change Order will not be subsequently considered for additional payment.

C. The Contractor shall take no advantage of any apparent error or omission in the Drawings or Specifications, and the Engineer shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

D. If the Contractor makes a claim for an extra or additional cost and requests a Change Order be issued prior to performing the work, and the ENGINEER and/or OWNER renders a decision denying such request, the CONTRACTOR must notify the Engineer in writing within 3 days of the time that the CONTRACTOR is informed of the Engineer's decision. Otherwise the Owner will not consider any such difference as a claim for a Change Order or additional payment or time. Any such written notice received by the Engineer from the Contractor within the 3 day period shall be just reason for the Engineer to re-evaluate his previous decision.

E. Failure on the part of the Contractor to construct any item to plan or authorized dimensions within the specification tolerances shall result in: reconstruction to

acceptable tolerances at no additional cost to the Owner; acceptance at no pay; or, acceptance at reduced price, all at the discretion of the Engineer.

F. Work shall not be considered complete until all testing has been satisfactorily completed and the item of work has demonstrated compliance with plans and specifications.

G. A preliminary monthly application for payment shall be submitted to the Owner/Engineer for review five (5) days prior to the submittal for approval of the Contractor's monthly payment request.

1.03 Schedule of Values

Submit Schedule of Values for approval prior to commencing construction. As a minimum, include those values reported on the Bid Form. The Schedule of Values shall be the basis for making payment applications and establishing prices for Change Orders.

PART 2 PAY ITEMS

2.01 Mobilization & Demobilization (Pay Item 1)

A. Work Includes

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 field office, building and temporary facilities, safety equipment and first aid supplies, sanitary and other facilities, as required by these Specifications, and State and local laws and regulations; and any other preconstruction expense necessary for the start of the Work; the cost of field engineering, permits and fees, construction schedules, preparation of submittals and permit packages, shop drawings, construction aids, coordination with other contractors working concurrently in the project limits, work associated with Contractor support during Owner/Engineer testing, reviews and inspections, re-inspections and any rework resulting from same, cleaning, as-built survey, project record documents, and operating and maintenance data, and all other items not specifically identified under other pay items which are necessary for the construction, and compliance with administrative and regulatory requirements.

B. Unit of measurement is lump sum. The amount of this bid item shall not exceed five percent (5%) of the total base bid.

C. Payment of this item shall be 50 percent on the first pay application, 25 percent on a later pay application and 25 percent on the final pay application.

2.02 Bond (Pay Item 2)

A. Work Includes

Price and payment shall be full compensation for all Insurance requirements costs, the costs of all bonds, Indemnification, and all administrative costs associated with acquiring and maintaining the necessary coverage as described in the Contract Documents.

B. Unit of measurement is lump sum.

C. Payment for Bond will be made at the time of the first pay period at time of pay application to the nearest 10% complete. The total shall not exceed the Lump Sum Bid Pay Item Amount.

2.03 Construction Survey and Layout (Pay Item 3)

A. Work Includes

Survey, staking and layout of the work.

B. Unit of measurement is lump sum.

C. Payment for this item shall be made at the time of the pay application to the nearest 10% complete. The total shall not exceed the Lump Sum Bid Pay Item Amount.

2.04 Preconstruction Video (Pay Item 4)

A. Work Includes

Preconstruction documentation via digital recording plus digital color photographs necessary to pick up detail not easily visible or apparent on the DVD, in accordance with Section 01315 of the Contract Documents.

B. Unit of measurement is lump sum.

C. Payment for this item shall be made at the time of the first pay application. The total shall not exceed the Lump Sum Bid Pay Item Amount.

2.05 Certified As-Built Drawings (Pay Item 5)

A. Work Includes

The preparation and maintenance of as-built data on a set of Contract Documents to be available on-site as specified in Section 01780, the submittal of updated record drawings with each Application for Payment and final preparation of Record Drawing Documents in strict accordance with Section 01780.

B. Unit of measurement is lump sum.

C. Payment shall be paid with the Final Pay Request.

2.06 Geotech Testing (Pay Item 6)

A. Work Includes

The testing of the backfilled materials for the storm pipe, the road base and asphalt. Testing shall be in accordance with the Contract Documents, including sections 01450, 02315 and 02320. Contractor shall supply testing lab and furnish all results, passing or failing, to the City and City Engineer for review. Retesting of any failed area will be the responsibility of the Contractor ad no additional cost to the City.

B. Unit of measurement is lump sum.

C. Payment for this item shall be made at the time of the pay application to the nearest 10% complete. The total shall not exceed the Lump Sum Bid Pay Item Amount. Testing reports shall be included with the request for payment.

2.07 FDOT Silt Fence (Pay Item 7)

A. Work Includes

Preparation and implementation of stormwater pollution prevention control plan, including monitoring, inspecting, and reporting, providing erosion and sediment control measures, preparing and filing EPA NPDES NOI and NOT forms, and providing required contractor certifications. Also includes synthetic bales, filter bags, silt fence, filter fabric as needed for supplemental inlet protection and to supplement silt fence, including replacement and maintenance needed during construction. In the event temporary staging and storage areas are used, any required erosion and sediment control measures are to be included in this item.

B. Unit of measurement is lineal foot.

C. Payment will be made based on percentage of work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the Bid Pay Item Amount.

2.08 Maintenance of Traffic Plan (Pay Item 8)

A. Work Includes

The installation and maintenance of any necessary detour facilities; the providing of necessary facilities for access to the development during the project; the furnishing, installation and maintenance of traffic control and safety devices during construction; daily inspections of the traffic control devices (including nighttime inspections); replacement of all equipment and devices found not to be conforming with approved standards during the inspection; the control of dust, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term “Temporary Traffic Control“ (also referred to as “Maintenance of Traffic”) shall include all such facilities, devices, and operations as required for the safety and convenience of the City and residents, other contractors who may be working at the site as well as for minimizing impediments to potential emergency vehicles during the course of the work. This item

also includes any adjustments necessary to the traffic control devices under emergency conditions.

B. Unit of measurement is lump sum.

C. Payment will be made based on percentage of work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the Lump Sum Bid Pay Item Amount.

2.09 Demolition of existing infrastructure (Pay Items 9, 10, 11, 12, 13, 14, 15)

A. Work Includes

Saw cutting and/or milling, removal and disposal of existing pavement and base, removal of curbing, sidewalks, concrete, storm pipe, structures or portions thereof, grout filling storm pipes and structures, as called for on the plans.

B. Unit of measurement is as noted in the Schedule of Values.

C. Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount on the Schedule of Values.

2.10 Site Grading and Earthwork (Pay Item 16)

A. Work Includes

Soil preparation, furnishing and grading the site as part of the restoration of the site and work areas.

B. Unit of measurement is square yards.

C. Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Square Yard Pay Item Amount.

2.11 Sodding (Pay Item 17)

A. Work Includes

Soil preparation, furnishing and installing sod, sanding joints, fertilizing, watering, and mowing. See also, section 02920.

B. Unit of measurement is square yards. The quantity of sodding shown on the Bid Form is generally based on grassing the areas of construction. Should the Contractor disturb more areas for its convenience (construction access and stockpiling), then the Contractor shall restore (including grassing) these areas at no additional cost to the Owner.

2.12 Dewatering (Pay Item 18)

A. Work Includes

Providing the necessary equipment, setup and dewatering for the work.

B. Unit of measurement is Lump Sum.

C. The Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

2.13 FDOT Storm Inlets, Manholes and Tops (Pay Items 19, 20, 21, 22, 23, 24)

A. Work Includes

Providing the labor and equipment and materials to furnish and install the storm inlets as part of this work. Includes any sheeting, shoring or bracing as required for the installation. Includes the inlet tops, bases and structures.

B. Unit of measurement is Each.

C. The payment will be made based on the number of structures and/or inlet tops installed as part of the work.

2.14 Storm Pipe installation (Pay Items 25, 26, 27, 28, 29, 30)

A. Work Includes

Providing the labor and equipment and materials to furnish and install the storm pipe as part of this work. Includes any sheeting, shoring or bracing as required for the installation, backfill and compaction as required in other sections of these specifications. Includes wrapping all joints per the specifications, and completing the connection to the storm structures.

B. Unit of measurement is Linear Foot.

C. The payment will be based on the work completed during the pay period at time of pay application based on the lineal feet of storm pipe installed.

2.15 FDOT U-Type Endwall (Pay Item 31)

A. Work Includes

Providing the labor and equipment and materials to furnish and construct the cast in place U-Type endwall per the typical FDOT detail. Includes any sheeting, shoring, bracing and dewatering as required for the installation.

B. Unit of measurement is Each.

C. The payment will be based on the completed work for this structure.

2.16 Inlet Skimmer Baskets (Pay Item 32)

A. Work Includes

Providing the labor and equipment and materials to furnish and install the baskets in the noted structures.

B. Unit of measurement is Each.

C. The payment will be based on the number of baskets installed.

2.17 Water Main Relocation (Pay Item 33)

A. Work Includes

Survey, layout, dewatering, sheeting, shoring, bracing, excavation, furnishing and installing pipeline, fittings, identification and warning tape, locate wire, thrust restraint at joints, disposal of unsuitable or excess material, provide suitable backfill, compaction, connection and testing.

B. Unit of measurement is Linear Foot.

C. All pipe fittings are included in pipeline material cost.

2.18 Bypass Pumping (stormwater) (Pay Item 34)

A. Work Includes

Providing the necessary equipment, hoses, appurtenances for emergency storm water pumping during rain events to protect work area and remaining infrastructure. Pump may be on stand by and readily available upon need or request from City

B. Unit of measurement is Lump Sum.

D. If required, the Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

2.19 Construct Asphalt Pavement and Base (Pay Item 35, 36)

A. Work Includes

Furnishing, installing, grading and compacting the new pavement base course material. Hauling, sanding, prime, tack and surface courses, compaction, leveling, finishing, testing. Work includes construction of roadway to limits of pavement removed, and providing compaction testing.

B. Unit of measurement is square yards.

C. The Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

2.20 FDOT Type F Concrete Curb (Pay Item 37)

A. Work Includes

Constructing new curbing including saw cutting existing curbing as needed, subgrade preparation, compaction, grading, forming, furnishing and installing concrete, finishing and curing new concrete curbing, saw cutting joints, testing.

B. Unit of measurement is linear foot.

C. The Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

2.21 Replace Existing Concrete Driveways (Pay Item 38)

A. Work Includes

Concrete Driveways – Saw cutting existing driveway as needed, subgrade preparation, compaction, grading, forming, furnishing and installing, finishing and curing new concrete driveway, saw cutting joints, testing.

B. Unit of measurement is each.

C. Payment shall be for each driveway replaced.

2.22 Replace Concrete Sidewalk (Pay Item 39)

A. Work Includes

Saw cutting existing concrete as necessary, forming, furnishing and installing, finishing and curing new concrete sidewalk (including ramps and detectable warning surfaces at ramps), saw cutting joints.

B. Unit of measurement is square yards.

C. Payment shall be for linear foot of sidewalk installed and completed during the pay period at time of pay application to the nearest 10% complete.

2.23 Mill Existing Asphalt Pavement (Pay Item 40)

A. Work Includes

Furnishing all equipment and labor necessary to mill existing pavement to the limits shown on the plans. Cost also includes saw cutting the existing asphalt as necessary or where required.

B. Unit of measurement is square yards.

C. The Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

2.24 Overlay Existing Roadway (Pay Item 41)

A. Work Includes

Furnishing all equipment necessary to construct new pavement overlay over the full width of the road in the work areas and through intersections as call out on the plans. Cost also includes saw cutting the existing asphalt as necessary or where required.

B. Unit of measurement is square yards.

C. The Payment will be made based on the work completed during the pay period at time of pay application to the nearest 10% complete. The cumulative total shall not exceed the quantity of the Pay Item Amount.

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01315

PRECONSTRUCTION VIDEO

PART 1 GENERAL

1.01 Description

A. Provide continuous color audio and video recording along the entire length of all proposed work areas prior to construction to serve as a record of pre-construction conditions.

B. Supplement audio and video recording with digital color photos for areas which require details not ascertainable on the recorded video.

1.02 Definitions

Construction Area = All areas used for construction of the proposed improvements, temporary construction, stockpile areas, staging and storage areas, and entry and exit points used by equipment, delivery vehicles, service vehicles, and other vehicles used for transport of labor, equipment, and materials to the job site.

1.03 Qualifications

The preconstruction audio-video recording shall be of professional quality that will clearly log an accurate visual description of existing conditions. Any portion of the digital recording that is determined by the Owner to be not acceptable in the documentation of the existing condition shall be re-recorded at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 General

A. The digital recording equipment shall capture existing conditions as an individual movie file (.MP4, .MPG, .WMV, .MOV or approved equal). The files shall be saved in digital format on a portable USB hard/flash drive or approved equal. The files shall be able to be played back on any Windows compatible computer.

B. The video shall be recorded in real time and the date and time of the recording shall be displayed on the video.

C. The video file names shall be referenced in the recording report generated in PDF format. The report shall identify locations of where the video was recorded and the time location on the video at each recording location.

PART 3 EXECUTION

3.01 General

A. The recordings shall contain coverage of all surface features located within the construction area and extend outward a minimum of 30-ft outside the construction area plus all off-road access routes used to reach the construction area. The recording shall include all surface conditions supported by appropriate audio description.

B. The surface features documented in the recordings shall include, but not be limited to, all driveways, sidewalk, curb, gutter, buildings, walls, storage sheds, swales, culverts, headwalls, landscaping, trees, shrubbery, pull boxes, valve boxes, concrete pads, power poles, guy wires, mailboxes, and fences.

C. The recordings shall also document the existence or nonexistence of any faults, fractures, or defects, and existing man-made material such as debris, construction stockpiles, trash, and fuel containers.

D. Each video recording shall be a simultaneous recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the feature being shown in the video portion of the recording. The audio recording also shall be free from any conversations between the camera operator and any other production technicians.

E. Each video shall have a log of that video's contents. The log shall describe the various segments of coverage contained on that video in terms of the names of streets or easements, coverage beginning and end, and directions of coverage.

3.02 Recording Schedule

A. The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site. Coordinate the scheduling of the preconstruction video recording with the Owner.

B. The Contractor shall coordinate the video recording with the construction schedule so that those portions of the construction that will be completed first will be recorded first.

C. Off road access routes to and from the construction area shall be recorded prior to mobilizing to work areas.

D. The Contractor shall deliver the video recordings to the Owner upon their completion.

3.03 Visibility

All recordings shall be performed during times of good visibility. No recording shall be done during periods of significant precipitation, mist, or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject, and to produce bright, sharp video recordings of those subjects. No recording shall be performed when more than 10% of the area to be recorded contains debris or obstructions unless otherwise authorized by the Owner.

3.04 Continuity of Coverage

A. In order to increase the continuity of the coverage, the coverage shall consist of a single, continuous, unedited recording which begins at one end of a particular construction area. However, where coverage is required in areas not accessible by conventional wheeled vehicles and smooth transport of the recording system is not possible, such coverage shall consist of an organized, interrelated sequence of recordings at various positions along that proposed construction area.

B. The average rate of travel during a particular segment of coverage (e.g., coverage of one side of the street) shall be directly proportional to the number, size, and value of the surface features within that construction area's zone of influence.

3.05 Camera Height and Stability

When conventional wheeled vehicles are used as conveyances for the recording system, the distance between the camera lens and the ground shall not be more than 10 feet. The camera shall be firmly mounted, such that transport of the camera during the recording process will not cause any unsteady picture.

3.06 Camera Control

Camera pan, tilt, zoom-in, and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video playback.

3.07 Viewer Orientation Techniques

The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views and visual displays of all visible house and building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent in the recorded video, highly visible yellow flags shall be placed in such a fashion as to clearly indicate the proposed centerline of construction.

3.08 Areas to be Video Recorded

A. When video recording on private property, the Contractor shall give the Owner sufficient prior notice of such entry so that property owners may be advised of, and their permission obtained for, the Work.

B. All video recording shall be done during regular business hours, unless otherwise specified by the property owner or the Owner. The Contractor shall enter and leave property in a professional and orderly, workmanlike manner.

END OF SECTION

SECTION 01320

PROJECT COMPLETION SCHEDULE

PART 1 GENERAL

1.01 Section Includes

Project completion scheduling

1.02 Submittals

A. Prior to construction, prepare a schedule showing all major activities needed to complete project. Include major material and equipment order and delivery times. Submit to Owner no later than the date of the preconstruction conference.

B. Schedule to utilize Critical Path Method formatted by establishing a precedence diagram which is time scaled. Include on schedule activity start dates, stop dates, and duration; critical path; float; delivery schedules. Include submittal dates and durations for components with extended lead times in schedule.

C. Include on the schedule a minimum float of 1 day every 3 weeks during construction.

D. Project substantial and final completion dates shown on schedule shall be same as or earlier than the contractual dates.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Monitoring and Updating of Schedule

A. Float shown on the schedule belongs to the project.

B. Progress data shall be accumulated to update the schedule on a monthly basis, prior to submittal of the application for payment. Progress data shall include:

1. Activities started
2. Activities completed.
3. Predicted activity starts
4. Predicted activity completions
5. Changes in original duration for specific activities
6. Changes in activity sequences
7. Percent complete on activities

C. Update of schedule to include effect of the progress projected for the next two (2) reporting periods.

END OF SECTION

SECTION 01410

REGULATORY REQUIREMENTS AND PERMITS

PART 1 GENERAL

1.01 Section Includes

Regulatory requirements, project permits

1.02 Requirements of Regulatory Agencies

A. All piping installed within the right-of-way of any city, county, state, or federal highway or railroad shall be in accordance with a permit to construct issued by the controlling agency and obtained by the Owner. In no case shall an open trench be constructed within a railroad right-of-way unless otherwise indicated.

B. Whenever the Drawings and Specifications conflict with the requirements of the permit, then the requirements of the permit shall govern and the cost of abiding by the provisions of the permit shall be considered incidental to the Contract.

C. All electrical apparatus and wiring pertaining to a piece of equipment or an appliance furnished and installed under this Contract shall comply with the National Electrical Code and shall be listed by Underwriters Laboratories or bear the approval of a recognized Testing Laboratory approved by the Engineer.

D. All construction projects 1 or more acres in size that discharge to offsite areas are required to abide by the provisions of the National Pollution Discharge Elimination System (NPDES) General Permit.

1.03 Project Permits

A. The following permits have been obtained for the construction of the project, and are contained in the Appendix of the Project Manual:

1. The Southwest Florida Water Management District has confirmed this work does not require a storm water permit.

B. Prior to construction, the Contractor shall apply for the following permits for the Project construction:

Permit Type	Permitting Agency	Permit Fee to be Paid By Contractor (Y/N)
Coverage Under the NPDES Generic Permit For Stormwater Discharge from Large and Small Construction Activities	FDEP	Yes
Dewatering	SWFWMD	Yes
Building Permit (Including Permits for all Subcontractor Work such as Electrical, structures, retaining walls, etc.)	N/A	
Right-of-Way Use Permit	City	No

Signed and sealed construction plans will be provided to the Contractor for its use in applying for the above permits. The Contractor is to coordinate with each permitting agency in order to determine the number of sets of signed and sealed construction plans that are required and the required sheet size (full size 22”x34” or half size 11”x17”).

C. The Contractor shall review and become familiar with all permits for the Project, complete with all conditions, attachments, exhibits and permit modifications. A copy of all permits for the Project shall be maintained by the Contractor at the project site, and shall be available for review upon request.

D. The Contractor shall be fully responsible to abide by all provisions of the permits. The Contractor is responsible for the selection, implementation and operation of all measures required by the permits, including the maintenance of said measures as necessary during construction. No additional compensation will be allowed for any work associated with permit requirements.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01415

STORMWATER POLLUTION PREVENTION / NPDES REQUIREMENTS

PART 1 GENERAL

1.01 Section Includes

Stormwater Pollution Prevention Plan requirements and recommendations under the NPDES program for construction projects located in Florida.

1.02 Purpose

The purpose of this section is to outline minimum requirements for stormwater pollution prevention as required under the NPDES program. There may be more stringent local government or Owner requirements for Erosion and Sediment Control, which would be located in the Specifications or on the Drawings. The more stringent requirement governs.

1.03 Related Sections

A. Section 01410 - Regulatory Requirements and Permits

B. Section 02370 - Erosion and Sediment Control

1.04 Abbreviations

A. NPDES - National Pollution Discharge Elimination System

B. SWPPP - Stormwater Pollution Prevention Plan

C. NOI - Notice of Intent

D. NOT - Notice of Termination

1.05 Definitions

The term “NPDES Generic Permit” means the State of Florida Department of Environmental Protection (FDEP) Generic Permit For Stormwater Discharge from Large and Small Construction Activities. The NPDES Generic Permit is also known as the NPDES) Construction Generic Permit (CGP).

1.06 Construction Projects Requiring Compliance with NPDES Generic Permit

A. All projects 1 or more acres in size that discharge to offsite areas.

B. Smaller projects that are in the same construction corridor as larger construction projects where the larger project is 1 or more acre in size and is required to comply

with the NPDES Generic Permit. In this case, even if the smaller project is less than 1 acre in size, the smaller project must comply with the NPDES Generic Permit.

1.07 General Requirements

A. Construction of this project is required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Generic Permit for Stormwater Discharge from Small and Large Construction Activities.

B. In order to meet NPDES requirements, the Contractor is responsible for preparing a Stormwater Pollution Prevention Plan (SWPPP), implementing, inspecting, maintaining, and reporting on all elements of the SWPPP, completing and submitting the required Notice of Intent (NOI) and Notice of Termination (NOT) forms as the Operator, and paying all associated fees. Copies of the NPDES Generic Permit, NOI, and NOT forms, and permit application fee information are available for download at dep.state.fl.us/water/stormwater/npdes/

C. The SWPPP shall list all the contractors or subcontractors who will be conducting construction activities at the site, and identify the areas of the site in which they will be working. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement contained at the end of this specification section before conducting any construction activities at the site. The certifications must have the name and title of the person signing the certification; the name, address, and telephone number of the contracting firm; and the signature date. These statements must be maintained in the SWPPP file on site.

D. The SWPPP shall describe and ensure the implementation of best management practices which will be used to reduce the pollutants in stormwater discharge associated with construction activity and to assure compliance with the terms and conditions of the NPDES Generic Permit. The erosion and sediment control measures shown on these Drawings are the minimum required and are to be installed prior to construction. The Contractor is responsible for complying with all applicable rules, regulations and water quality standards and may need to install additional controls to meet these requirements.

1.08 SWPPP Implementation and Submittal Requirements

A. The SWPPP shall be completed prior to submittal of the NOI and shall include the elements necessary to comply with the NPDES Generic Permit for construction activities administered by the FDEP and shall also include all local governing agency and Owner requirements. There may be more stringent local government or Owner requirements for Erosion and Sediment Control, which would be located in the Specifications or elsewhere on these Drawings.

B. The Contractor must file the NOI with FDEP and the Owner at least two (2) business days prior to the start of construction. The Contractor shall also submit a copy of the NOI to the MS4 operator for all projects that discharge stormwater

associated with construction activity to a municipal separate stormwater system (MS4). A copy of the NOI and a description of the project must be posted in a prominent place for public viewing at the construction site.

C. The SWPPP must be implemented at the start of construction. A complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept in the permanent project records for at least three years following submission of the NOT.

D. Final Stabilization means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover (evenly distributed, without large bare areas) with a density of at least 70% for all unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as geotextiles) have been employed. Once construction is completed and final stabilization has been achieved, the Contractor must file the NOT to FDEP, the Owner, and the MS4 operator within 14 days.

1.09 Inspections

A. It is the responsibility of the Contractor to assure the adequacy of site pollutant discharge controls. Between the time the SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater. The inspections are to be conducted by the Contractor's qualified designated representative.

B. All inspections shall be documented in an inspection report that summarizes the scope of the inspection, the names and qualifications of personnel making the inspection; the date of the inspection; rainfall data; major observations relating to the implementation of the SWPPP, and actions taken in order to ensure compliance with NPDES requirements and the SWPPP. Such reports shall identify any incidents of non-compliance and actions taken to bring the project into compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the NPDES requirements and the SWPPP. Each inspection report shall be signed and certified by each qualified inspector.

1.10 Updating and Modifying the SWPPP

A. Based on inspection results, any modifications necessary to increase effectiveness of the SWPPP to an acceptable level must be made within seven calendar days of the inspection.

B. The SWPPP must be updated each time there are significant modifications to the pollutant prevention system or a change of contractors working on the project who disturbs site soil. For construction activities where the operator changes, the new operator shall file an NOI for coverage under this permit at least two (2) days before

assuming control of the project and the previous operator shall file an NOT to terminate permit coverage in accordance with the NPDES Generic Permit. Amendments to the plan shall be prepared, signed, dated, and kept as attachments to the original SWPPP.

1.11 Minimum SWPPP Provisions

A. The following list contains the items that must be included in the SWPPP. The SWPPP must clearly identify the contractor(s) or subcontractor(s) that will implement each item.

1. Stormwater Team: Identify the personnel (by name or position) that are part of the stormwater team responsible for implementing the SWPPP, including the qualified inspector. List their individual responsibilities in developing or implementing the SWPPP.

2. Contractors /Subcontractors: List all the contractors or subcontractors who will be conducting construction activities at the site, and identify the areas of the site in which they will be working. All listed contractors and subcontractors must sign the certification contained at the end of this specification section.

3. Site/Construction Activities Description:
   a. Describe the nature of the construction activity.
   b. Describe the intended sequence and time table of major activities that will disturb soils.
   c. Include the scheduled starting and ending date for each major activity such as land clearing, grubbing, grading, cut and fill, dewatering operations, installation of erosion and sediment controls, installation of stormwater management systems, paving, final or temporary stabilization of exposed soil, and removal of construction equipment and vehicles.
   d. Estimate the total area of the site and the total area that is expected to be disturbed by excavation, grading, or other construction activity.
   e. Include existing data on soil types and the quality of any existing discharge from the site.

4. For each proposed discharge point provide the following:
   a. Latitude and Longitude
   b. Drainage Area
   c. Surface Waters or MS4
   d. Estimate the amount of land that will be cleared during the construction activity for each drainage area.

5. Include a site map showing all of the following:
   a. Boundaries of the property.
   b. Entrance/Exit Points

c. Locations where construction activities will occur.
d. Locations where dewatering operation will occur.
e. Drainage patterns and approximate slopes and elevations anticipated after major grading activities.
f. Areas of soil disturbance.
g. Areas which will not be disturbed.
h. Location of major structural and nonstructural controls.
i. Location of areas where stabilization practices are expected to occur.
j. Location of surface waters and wetlands.
k. Location where stormwater is proposed to be discharged during construction to a surface water or MS4.

6. List all non-stormwater discharges covered under the CGP and the pollution prevention procedures that will be implemented. The following types of non-stormwater discharges, if they are listed in the SWPPP and the SWPPP includes appropriate pollution prevention procedures as to not cause or contribute to a violation of water quality standards are to be considered to be covered (allowed) by the CGP:

a. Discharges from firefighting activities.
b. Fire hydrant flushings.
c. Waters without detergents used to spray off loose solids from vehicles.
d. Waters used to control dust.
e. Potable water sources such as waterline flushings.
f. Landscape irrigation water and drainage.
g. Routine external building washdown provided no detergents are used.
h. Pavement washwaters that do not contain detergents, leaks, spills of toxic or hazardous materials.
i. Air conditioning condensate.
j. Spring water.
k. Foundation or footing drain flows that are not contaminated with process material such as solvents.
l. Non-contaminated ground water associated with dewatering activities as described in Part 3.4 of the CGP.

7. The following non-stormwater discharges are prohibited by the CGP:

a. Wastewater from concrete washout.
b. Wastewater from washout or cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
c. Fuels, oils, or other pollutants from vehicle and equipment operation and maintenance.
d. Soaps, detergents, solvents, or other cleaners.
e. Hazardous substances or oil resulting from an on-site spill.
f. Solid materials, including building materials.

g. Any other non-stormwater discharge not specifically allowed by the CGP as identified above.

8. Dewatering Controls (If Applicable): Include a description of the BMPs that will be used to ensure that discharges of noncontaminated ground water from dewatering operations do not cause or contribute to violations of state water quality standards.

9. BMPs: Describe the BMPs that will be implemented for each major activity and the timing during the construction process that they will be implemented.

10. Permanent stormwater management controls: Describe the stormwater management controls or BMPs (e.g., stormwater detention or retention systems, vegetated swales, or velocity dissipation devices at discharge points) that will be installed during the construction process to control pollutants in stormwater discharges.

11. Inspections: Inspections must be 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 (even if it rains on the weekend or a holiday).

12. Maintenance: Describe the maintenance activities and schedules that will be followed to keep BMPs in good and effective operating condition.

13. Signed Certifications: Include all the signed contractors and subcontractors certifications in the SWPPP (Contained at the end of this specification is an example certification form).

1.12 Site Data

A. The following site data is provided to the Contractor for use in preparing the SWPPP and completing the NOI:

Total Site Area:	10 acres
Total Area Impacted by Construction:	10 acres
Existing Site Soils:	Candler Sand
Drainage Area Contributing to Each Discharge Point:	61.5 acres
Latitude and Longitude of Project Location:	28.1574388, -81.5924690
MS4 Operator Name:	City of Davenport
Receiving Waters:	N/A

1.13 Minimum Erosion and Sediment Control Construction Requirements

A. Stabilize all construction site exits with coarse aggregate or other approved materials, in accordance with details on the Drawings. Other minimum construction requirements that need to be implemented in order to comply with the NPDES Generic permit include installation of sediment barriers down slope from construction activities that disturb site soil; constructing rock surface temporary parking areas; installation of sediment barriers down slope prior to clearing and grubbing; installation of sediment barriers on the down slope side of utility construction and soil stockpiles; and the installation of sediment barriers on the down slope side of grading activities.

B. Stabilization measures shall be initiated as soon as practicable, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

C. The Owner has the authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, trenching, borrow and embankment operations. The Owner also has authority to direct Contractor to provide immediate permanent or temporary erosion and sediment control measures.

D. The Contractor shall respond to erosion and sediment control maintenance requirements or implement additional measures to control erosion ordered by Owner or governing authorities within 48 hours or sooner if required at no additional cost to the Owner.

E. The Contractor shall incorporate permanent erosion control features into project at earliest practical time to minimize need for temporary controls.

F. For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences, or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

G. Water trucks shall be used as needed during construction to reduce dust generated on the site. Dust control must be provided by the Contractor and shall be in compliance with applicable local and state dust control regulations.

1.14 Maintenance Requirements

A. Maintain all erosion and sediment control measures throughout construction. Repair or replace all damaged sediment barriers. Remove accumulated sediment along all silt fences where the height of the sediment exceeds one-third of the height of the silt fence. Inspect all temporary and permanent grassing areas and re-grass where there are bare spots, washouts, or unhealthy growth.

B. At the completion of construction, once final stabilization has been achieved, clean all accumulated sediment from all storm structures, pipelines, and stormwater ponds. Remove all temporary sediment controls upon receipt of authorization to remove has been received from the Owner or Engineer. Note that this may not occur for some time after construction activities have been completed, in order to ensure their removal has not occurred until final stabilization has been achieved to the satisfaction of the Owner and Engineer.

1.15 Stormwater Discharge Provisions

A. Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil in accordance with local and state regulations.

B. All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities shall be provided at the site throughout the construction phase for use by all construction personnel and shall be serviced by a commercial operator at least once a week.

C. Discharges resulting from groundwater dewatering activities at construction sites are permitted provided the groundwater is free of sediments, is not contaminated, and dewatering occurs in accordance with state and local governing agency regulations.

D. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed at an approved solid waste or chemical disposal facility.

E. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented. This does not relieve the operator of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading

to the release, and remedial steps to be taken. The SWPPP must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

CONTRACTOR / SUBCONTRACTOR CERTIFICATION

The SWPPP shall list all the contractors or subcontractors who will be conducting construction activities at the site, and identify the areas of the site in which they will be working.

All contractors and subcontractors identified in the SWPPP must sign a copy of the following certification statement before conducting any construction activities at the site. The certifications must have the name and title of the person signing the certification; the name, address, and telephone number of the contracting firm; and the signature date.

These statements must be maintained in the SWPPP file on site.

Name of Contractor / Subcontractor Conducting Construction at the site:

_____

Business Name

_____

Business Address

_____

_____

_____

Business Telephone Number

CERTIFICATION:

> **"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan."**

_____

Signature Date

_____

Printed Name Title

CONTRACTOR
CERTIFICATION

The SWPPP has been prepared by:

_____
Business Name

_____
Business Address

_____

_____

_____
Business Telephone Number

The Contractor who has prepared the SWPPP shall make the following 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."

_____
Signature Date

_____
Printed Name

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 01425

FDOT STANDARDS REFERENCE

PART 1 GENERAL

1.01 Section Includes

Instruction on the use and applicability of FDOT standards on the project

1.02 Requirements

A. The Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest non-metric edition ("Standard Specifications"), and Standard Plans for Road Construction, latest non-metric edition ("Standard Plans") are referenced herein as source documents for applicable technical specifications and construction details to be used in the construction of this project. The term “latest edition” refers to the latest edition implemented by FDOT and includes all FDOT implemented supplements.

B. Method of Measurement and Basis of Payment is to be in accordance with these Contract Documents rather than the Florida Department of Transportation Standard Specifications. Any item which is detailed in the Plans and for which material types, sizes and quality are also called out, the "Standard Plans" shall take preference over the plan detail unless otherwise directed by the Engineer.

C. Where the FDOT Standard Specifications use the reference "Department", replace "Department" with "Owner", except for when such reference is to Department Standards and evaluation criteria.

D. The Standard Plans are referenced herein as a source document for applicable construction items and details called for in the plans for which a specific plan detail is not provided. The Contractor shall construct the items called for in the plans in accordance with the "Standard Plans" unless otherwise defined or detailed in the plans or as directed by the Owner, Engineer or authorized representative.

E. The Standard Plans are available for download from the FDOT website at:

fdot.gov/design/standardplans

F. In case of conflict, the Project Manual takes precedence over FDOT specifications for a particular construction requirement.

G. Copies of the latest implemented edition and implemented supplements of the Florida Department of Transportation Standard Specifications are available for download from the FDOT website at:

http://www.fdot.gov/programmanagement/Implemented/SpecBooks/

H. The Contractor shall inform the Owner and Engineer in writing of any specification that the Contractor feels is ambiguous or conflicting with other plan notes and details prior to the construction of the associated item. The Engineer will determine which information is to be used for construction. The Contractor is responsible for the removal and replacement of any item improperly constructed resulting from a misinterpretation of the specifications at no additional cost to the Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 General

The Contractor shall use Divisions Two (II) and Three (III) of the FDOT Specifications as they relate to methods of construction and material types and quality for the appropriate construction items contained within this project.

END OF SECTION

SECTION 01450

QUALITY CONTROL

PART 1 GENERAL

1.01 Section Includes

Quality control, quality assurance

1.02 Quality Control

A. It is the Contractor's responsibility to perform all work in conformance with the Plans and Specifications. In order to fulfill this responsibility, the Contractor is required to have an approved Quality Control Program, including testing, as part of its Contract work in accordance with the Contract Documents and to submit details of its Program to the Engineer for review and approval prior to commencing any construction operations. The submittal shall include detailed information on locations and number of all tests, etc., that will be necessary for the Contractor to make its own determination that the work is being performed in compliance with the Project requirements.

B. As part of the Contractor's Quality Control Program included as part of its work, the Contractor shall employ and pay for an independent, approved soils testing laboratory to perform testing services outlined in these Contract Documents.

C. The Contractor's Quality Control Program shall include, but not be limited to, the following in addition to the type and frequency of tests as required by the technical specifications:

1. Piping and structural excavation, bedding and backfill materials and density quality control testing

2. Determination of compactive effort needed for compliance with the density requirements.

3. Portland cement concrete and asphalt paving quality control testing including design mix review, materials, field slump and air content, and field and lab cured strength samples and testing.

D. In addition to Quality Control Testing, the Contractor shall be responsible for required testing or approvals for any work (or any part thereof) if laws or regulations of any public body having jurisdiction specifically require testing, inspections or approval. The Contractor shall pay all costs in connection therewith and shall furnish the Engineer the required certificates of inspection, testing or approval. The Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with Owner or Engineer

acceptance of a supplier of materials or equipment proposed to be incorporated into the work.

E. Any design or testing laboratory utilized by the Contractor shall be an independent laboratory acceptable to the Owner and the Engineer, approved in writing, and complying with the latest edition of the "Recommended Requirements for Independent Laboratory Qualification", published by the American Council of Independent Laboratories.

F. Testing laboratories, whether provided by the Owner or the Contractor, shall promptly notify the Owner, Engineer and the Contractor of irregularities or deficiencies of work that are observed during performance of services. Laboratories shall submit two (2) copies of all reports directly to the Owner and Engineer and two (2) copies to the Contractor.

1.03 Quality Assurance

A. In addition to the services provided by the laboratory paid for by the Contractor as a part of its work, the Owner, at its sole discretion, may employ an additional independent soils laboratory as part of Owner's Quality Assurance Program to verify that the work meets the requirements of the Contract Documents. The Owner furnished Quality Assurance testing may include the type and frequency of tests as required by the technical specifications. The Owner reserves the right to have additional tests made beyond those specified in the Contract Documents. The Contractor shall cooperate with the Owner and make the work and samples available for Owner testing at no additional cost in case the Owner chooses to have additional Owner furnished testing performed. It is the sole responsibility of the Contractor to see that its work meets all provisions of the Contract Documents.

B. The Contractor shall cooperate with the soils laboratory personnel and provide access to the work to be tested. The Contractor shall notify the Engineer and Owner's testing laboratory sufficiently in advance of operations to allow scheduling of tests. The Contractor shall furnish casual labor and facilities to obtain and handle samples at the site and to store and cure test samples as required.

1.04 Testing of Materials

A. Unless otherwise specified, all materials shall be sampled and tested in accordance with the latest published standard methods of ASTM in effect at the time bids are received.

B. Test of materials shall be made by a representative of the Contractor, unless otherwise provided. Testing of equipment shall be the responsibility of the Contractor or an authorized manufacturer's representative. All test results shall be furnished to the Engineer in writing. The Contractor shall provide facilities required to collect and forward samples. The Contractor shall furnish the required samples without charge.

C. The Contractor shall not make use of or incorporate in the work, the materials represented by the sample until tests have been made and the material found to be in accordance with the requirements of the Specifications.

D. Materials to be tested and the applicable test procedure shall be as outlined in the individual sections of these Specifications.

1.05 Source and Quality of Materials and Equipment

A. The source of materials to be used shall be in accordance with the Contract Documents and as approved by the Engineer before delivery. The approval of the source of any material shall continue as long as the material conforms to the Specifications.

B. All material not conforming to the requirements of the Specifications shall be considered as defective and shall be removed from the work. If in place, faulty materials shall be removed by the Contractor at its expense and replaced with acceptable material unless permitted otherwise by the Owner. No defective materials that have been subsequently corrected shall be reused until approval has been given.

C. Upon failure of the Contractor to comply immediately with any order of the Owner to remove and replace defective material, the Owner shall have authority to remove and replace defective materials, and to deduct the cost of removal and replacement from any monies due or to become due to the Contractor. Failure to reject any defective materials or work at the time of installation shall in no way prevent later rejection when such defects are discovered, nor obligate the Owner to final acceptance.

1.06 Additional Testing

In addition to soils laboratory and materials testing, the Contractor shall perform other testing called for in the Contract Documents including but not limited to piping, pressure, leakage, infiltration and exfiltration, as required.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01520

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 Section Includes

Construction facilities, controls, temporary utilities, project identification signs, storage sheds, storage of materials and equipment.

1.02 Related Sections

Section 01550 - Temporary Traffic Control

1.03 Submittals

A. Prior to installation of construction facilities and temporary controls, submit the following items for review and approval:

B. Project identification sign - provide proposed text, layout, and sizing of all required signs

1.04 Construction Facilities and Temporary Controls

All construction facilities and temporary controls remain the property of the Contractor establishing them and shall be maintained in a safe and useful condition until removed from the construction site.

1.05 Removal of Temporary Construction

Remove the various temporary facilities, services, and controls and legally dispose of them as soon as the Owner deems permissible. Portions of the site and areas used for temporary facilities shall be restored to existing or better condition, including but not limited to fill replacement, regrading, compaction, and sodding.

1.06 Transportation and Handling

A. Manufactured materials and products shall be delivered to the project site as needed for installation, undamaged, in original packages, containers, or bundles, as packaged by the manufacturer with manufacturer's name, brand, seals, and labels intact.

B. Materials other than those designated within the Specifications or approved by the Owner shall not be delivered to the project site.

1.07 Storage and Protection

A. The Contractor shall be responsible for protection and preservation of all materials until final acceptance of the Project. Any damage to work prior to acceptance shall be remedied by the Contractor at no additional cost to the Owner.

B. Provide temporary weather-tight enclosures to protect work from damage by the elements, and protect finished surfaces to prevent any damage resulting from the work of any trade.

1.08 Security

A. Contractor shall, at all times, be responsible for the security required in all project areas and shall provide all reasonable protection to prevent damage, injury or loss to employees on the Work and all other persons who may be affected thereby; all the work materials and equipment to be incorporated therein, whether in storage on or off the project site, under the care, custody or control of the Contractor or any subcontractors; and any other property under the care, custody or control of the Contractor or any subcontractors. Contractor shall be responsible for such security and safety until final acceptance of the Work.

B. Full time watchmen will not be specifically required as a part of the Contract, but the Contractor shall provide inspection of work area daily and shall take whatever measures are necessary to protect the safety of the public, workmen, and materials, and provide for the security of the site, both day and night.

PART 2 PRODUCTS

2.01 Temporary Electric Service

A. Furnish and maintain temporary lighting and power required to perform the Work. Include in the Bid all costs for providing temporary electrical service.

B. Temporary service shall include protective enclosures, branch wiring, outlets, lamps, and grounding as required by NEC and Local Electrical Codes.

2.02 Temporary Heating

The Contractor shall furnish fuel or power and provide and operate all temporary heating units. Heat shall be provided as necessary to perform the Work. Temporary heating units shall be adequately vented and approved devices which will not damage finished areas. The Contractor shall also furnish all tarpaulins and temporary enclosures necessary to provide this protection.

2.03 Temporary Ventilation

The Contractor shall provide, operate, and furnish power for temporary ventilation required for the proper installation and curing of materials and safety of workmen.

2.04 Temporary Water

A. Provide a temporary water distribution system for all construction purposes and pay for all water used. Obtain temporary meters from the local water utility as required and pay all associated fees.

B. Furnish potable drinking water in suitable dispensers and with cups for use of all employees at the job.

C. Provide all temporary piping, hoses, etc., required to transport water to the point of usage by all trades.

2.05 Temporary Sanitary Facilities

Provide temporary toilet facilities as required. Maintain these during the entire period of construction under this Contract for the use of all construction personnel on the job. Enough chemical toilets shall be provided to conveniently serve the needs of all personnel. Chemical toilets and their maintenance shall meet the requirements of State and local health regulations and ordinances.

2.06 Temporary Pumping and Site Drainage

Keep the site free from water at all times to permit continuous access and to prevent damage to the work.

2.07 Material Hoists and Cranes

A. Provide material hoists required for normal use by all trades and employ skilled hoist operators. Provide all necessary guards, signals, safety devices, etc., required for safe hoist operation. The construction and operation of material hoists shall be in accordance with the applicable ANSI Standards, the "Manual Code of Accident Prevention in Construction" of the Associated General Contractors of America, OSHA, and of other Federal, State, and municipal codes or ordinances. The Contractor shall prohibit the use of hoists for transporting personnel. Hoists shall be located to avoid risk of damage to completed work.

B. Special rigging and hoisting facilities shall be provided by each trade requiring their use.

2.08 Temporary Runways, Scaffolding, and Ladders

A. Provide temporary ladders, ramps, and runways as required for performance and inspection of the work. The above facilities shall be constructed and maintained in accordance with the applicable Federal, State, and Municipal regulations and codes.

B. Furnish, erect, and maintain all scaffolding required for this work. Scaffolding shall be constructed and maintained in accordance with applicable State and Federal laws and local ordinances. Scaffolding shall be promptly removed after serving its purpose.

C. The structural strength and safety of scaffolding, runways, covers, railings, ladders, stairs, etc., and compliance with law shall be the sole responsibility of the Contractor.

2.09 Temporary Chutes

No materials shall be dropped from structures except through enclosed wooden or metal chutes which shall be provided and maintained as required for the performance of the work by the various trades.

2.10 Project Identification Sign

A. As soon as practicable after award of contract, but no later than twenty (20) days after the Notice to Proceed is issued, furnish and erect one sign for the project, placed at a location determined by Owner. The sign shall be erected when the work is started and shall be suitably supported, braced, and maintained, and shall be removed upon completion of the project or when directed by the Owner.

B. The sign shall be 4'x8'x1" exterior grade plywood. All surfaces shall be painted with three coats of white exterior grade enamel paint, and all lettering shall be black. The sign shall contain text including the following:

(Name of Owner)

(Name of Project)

Project Cost: $_____

Contractor: _____

C. Submit to the Owner for approval the proposed sign lettering (fonts, size) and text prior to fabricating the signs.

D. No other signs will be permitted.

E. Sign also is required to include verbiage or logos as required by the State of Florida DEP Grant contract with the City. The Contractor will coordinate with the City for the necessary information that needs to be added to the sign.

2.11 Contractor's Field Office and Storage Sheds

The Contractor shall provide storage sheds that it determines are required for the performance of the Work and protection of materials and equipment. A field office trailer is not required.

2.12 Owner / Engineer Field Office – N/A

PART 3 EXECUTION

3.01 Access Roads and Parking Areas

A. Construct temporary roadways and parking areas within the site as required to provide proper access to the site for delivery of material and equipment of all trades. It is up the Contractor to determine whether it needs to construct any temporary roads or parking areas to accommodate its construction (including delivery of materials, equipment, and manpower to the site).

B. At completion of the work or when directed by the Owner, surfacing and sub-base material used for the temporary road and parking areas shall be removed, unless otherwise approved by the Owner.

END OF SECTION

SECTION 01540

TEMPORARY BYPASS PUMPING

PART 1 GENERAL

1.01 Section Includes

General requirements for temporary bypass pumping for storm water collection system.

1.02 Submittals

Provide a bypass pumping plan for the work area. The plan will need to include a pump for bypassing the collection system in the event of a rain storm. The plan shall include any proposed pump(s), bypass piping, suction and discharge points, coffer dams, emergency bypass pipping, and proposed monitoring.

PART 2 PRODUCTS - Not Used

2.01 General

A. Have available an emergency storm water bypass pump in the event of a storm event while the overall collection system is being replaced.

B. The bypass pumping system shall consist of a primary pump to handle peak flows from a 1 inch storm event over the drainage basin area of 61 acres, totaling 33 cfs maximum flow.

C. The pumps can be either electrically powered or diesel powered. Diesel powered pumps shall be sound attenuated to have a maximum noise (sound) of 72 decibels (dB(A)) when measured at a distance of 23-ft from the bypass pumps when operating at night.

D. Bypass pumping shall be monitored 24 hours per day, 7 days per week and shall include audible alarms tied to an auto-dialer (the auto-dialer shall be capable of dialing a minimum of three phone numbers).

E. For other storm events, Contractor to provide and alternate, temporary connection to the existing collection system for emergency bypass. The bypass plan needs to include coffer dams, sand bags or other temporary approved structure and overflow pipe as a secondary overflow bypass. The pipe to be 25% of the host pipe. The outfall pipe is to provide an emergency overflow and discharge to assist with discharging the storm runoff to the site outfall area.

F. Contractor to submit to the City's Engineer for review.

PART 3 EXECUTION

3.01 General

A. The bypass pumping suction and discharge lines are to be located on the construction site. Where connections are made to offsite manholes, obtain approval to place discharge lines in public road right-of-way or utility easements by the City or easement owner and property owner as applicable.

B. Ingress and egress to adjacent properties shall be maintained at all times.

C. Ramps, steel plates or others methods shall be used to facilitate traffic over surface piping.

D. During bypass pumping, no water shall be leaked, dumped, or spilled in or onto any area outside of the existing work area. When bypass operations are complete, all bypass piping shall be drained and the bypass system disassembled.

END OF SECTION

SECTION 01550

TEMPORARY TRAFFIC CONTROL

PART 1 GENERAL

1.01 Section Includes

Traffic and dust control

1.02 Related Sections

Section 01520 - Temporary Facilities and Controls

1.03 Definitions

The term “Temporary Traffic Control” also known as "Maintenance of Traffic" as used herein, shall include all facilities, devices, traffic control personnel, and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.

1.04 References

A. Florida Department of Transportation Standard Plans for Road Construction

B. Manual on Uniform Traffic Control Devices

1.05 Submittals

Provide traffic control plan. Include proposed signs, markings, barricades, detour routes, sequencing, and phasing for vehicular and pedestrian traffic routes during construction. The MOT plan will need to be submitted to the City and Engineer. Contractor to provide MOT plan for the immediate work area, 2 weeks in advance of work taking place. The MOT plans will need to depict the streets and intersections proposed to be closed.

1.06 Qualifications

Provide at least one employee in the field (superintendent or foreman) who holds an IMSA (International Municipal Signal Association) Work Zone Traffic Control Safety Certification. This certified employee shall be on the job site when the traffic control measures are installed and when work is occurring within the zones.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Site Preparation

A. Contact property owners affected by construction. Coordinate temporary driveway closures and sequencing. Maintain access for all property owners during construction.

B. Remove existing pavement markings and remove or relocate existing signs as necessary to implement traffic control.

C. Install signs, markings, barricades in accordance with approved traffic control plan.

D. Implement lane closures in accordance with the parameters shown on the drawings and in the approved traffic control plan.

E. Perform work in a manner that will cause minimum interruptions to traffic.

F. Place excavated material outside roadway clear zones, and away from pedestrian facilities.

G. All trenches shall be backfilled each day prior to the completion of construction activities.

H. Where special hazards exist, install traffic control through the use of lighted concrete barriers, barricades, or other such traffic control facilities as needed to ensure public safety.

I. Typically, one lane of vehicle traffic will need to be maintained for resident access and mail delivery. Should the entire road need to be closed, the contractor will need to coordinate with the City for the length of time of closure. Contractor to notify the City 2 weeks in advance.

3.02 Maintenance

A. Inspect traffic control devices on a daily basis to ensure placement of barricades and function of lights is maintained throughout construction.

B. Wet unstabilized areas as necessary to control dust.

C. Adjust traffic control devices as required under emergency conditions.

END OF SECTION

SECTION 01770

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 Section Includes

Substantial completion requirements, clean-up, final completion requirements, closeout submittals

1.02 Clean-Up Operations

A. The entire Project site shall be thoroughly cleaned at the completion of the Work.

B. Clean all installed pipelines, structures, sidewalks, paved areas, accumulated silt in ponds, plus all adjacent areas affected by construction, as directed by the Owner or jurisdictional agency. Equipment to clean these surfaces shall be subject to approval by the Owner.

C. Restore to original condition or better all property not designated for alteration by the Contract Documents, including all areas used for staging and storage. Restoration includes but is not limited to fill replacement, regrading, compaction, and sodding. Conduct inspections of the completed restoration with the Owner, and conduct additional restoration as directed.

1.03 Substantial Completion Requirements

A. Complete the following before requesting the inspection for certification of substantial completion.

1. Submit record drawings in accordance with section 01780.
2. Complete required cleaning and testing of the completed construction in accordance with the specifications and the Owner's operating and maintenance personnel.

B. Work is not substantially complete until the following has occurred:

1. The Owner has inspected the work and has deemed the work to be satisfactorily complete per the plans and specifications.

1.04 Final Completion Requirements

A. Complete the following before requesting the inspection for certification of final completion.

1. All punchlist items identified during the substantial completion inspection.

2. Deliver tools, spare parts, extra stocks of material and similar physical items to the Owner.
3. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock-ups, and similar elements.
4. Clean all marred surfaces including touch up painting, pressure washing, or other measures as needed as directed by the Owner.
5. Broom clean paved driveways and parking areas.
6. Hose clean sidewalks, loading areas, and others contiguous with principal structures.
7. Fully restore all property not designated for construction including all areas used for staging and storage.
8. Provide Final Record Drawings in accordance with Section 01780.

1.05 Closeout Submittals

A. Upon completion of the project, or portions thereof, the Contractor shall transfer to the Owner all applicable items accumulated throughout construction. These include but are not limited to the following items:

1. Service manuals, installation instructions, maintenance and operating instructions, special tools, and specialties
2. Spare parts ordered as part of this Contract
3. Delivery of any salvaged or borrowed materials or equipment to the Owner
4. Checklist indicating satisfactory completion of all unfinished items from the final inspection
5. Certificate of Substantial Completion
6. Certificate of Final Completion
7. Submittal of the Material and Workmanship Bond
8. Submittal of manufacturers' guarantees, warranties, bonds, and letters of coverage extending beyond the time limitations of the Contractor's guarantee.
9. Contractor’s Final Release of Lien
10. Final Waivers of lien from all Subcontractors and Suppliers
11. Consent of Surety to Final Payment
12. Final record documents of completed facilities

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01780

RECORD DRAWINGS

PART 1 GENERAL

1.01 Section Includes

Record Drawing requirements including format requirements and submittal procedures.

1.02 General Requirements

A. As the Work progresses, the Contractor shall be responsible for recording information on the approved Contract Documents concurrently with construction progress.

B. Mark on the Contract Drawings all changes in location of structures, piping, sidewalks and other features that are part of this work

C. If requested, mark on the Specifications the manufacturer, trade name, catalog, and supplier of each product actually installed, and mark changes made by Change Order or Field Order.

D. Record Drawings shall depict surveyed as-built information including horizontal and vertical locations as required herein. All Record Drawings shall be prepared by the Contractor in ACAD format using construction plan sheets provided by the Engineer. As-built information shall be field verified, measured, added to the ACAD files of the construction plan sheets provided by the Engineer, and certified, signed and sealed by the Contractor's licensed Surveyor who will be responsible for the accuracy of all dimensions and elevations. Sheet sizes and the scale of the Record Drawings shall match sheet sizing and scale of the construction plans. Add blowup details if necessary.

E. Record Drawings shall clearly show all field changes of dimension and detail including changes made by field order or by change order.

F. The surveyed as-built information shall be vertically based on the North American Vertical Datum of 1988 (NAVD 88) and the coordinate system shall be based horizontally on the North American Datum 83 (NAD83) (1990 adjustment). The as-built survey shall be referenced to the project benchmarks and shall be referenced to the state plane coordinates.

G. All inlets, manholes, structures and pipes, edge of pavement, relocated water lines, existing or new hydrants, etc. shall be clearly shown. Vertical elevations shall be surveyed as follows: Valves (operating nut), utility pressure mains (top of center of pipe), hydrants (operating nut of hydrant and grade at the base of the hydrant), manholes (rim, inverts / flow lines, connecting pipe diameters), grate inlets (top of grate, flow lines, connecting pipe diameters), curb inlets (edge of pavement, top of

structure, connecting pipe diameters, flow lines), storm sewer (flow line and diameter), fittings (type, diameter, and top elevation), sidewalk ramps (top and bottom elevations and cross slopes at each ramp and cross slopes).

H. The surveyed as-built location of the newly constructed facilities shall be in an ACAD overall base drawing which is in State Plane. Providing “paper space” views that are not in State Plane of the constructed facilities is not acceptable. Providing northing and easting point tables on separate new sheets added to the construction plans is not acceptable. The as-built northing and easting data must be on the individual construction plan sheets to which the data applies.

I. Provide data at each as-built data point showing all required information in one location: Name of feature (such as valve, hydrant, manhole, edge of pavement), northing and easting, grade elevation, constructed as-built elevation(s) of the feature.

J. All water valves, water lines installed, existing or new hydrants, shall be horizontally referenced from at least two and preferably three permanent points.

K. The as-built information shown on the Record Drawings is to include, but not be limited to, the following:

1. Horizontal locations (state plane coordinates and stations and offsets) and vertical elevations for all utility and storm structures including but not limited to manholes, inlets, including structure top and invert elevations and invert elevations of all connecting pipes.
2. Distance along pipelines between structures, pipeline diameter and type of material, and finish grade elevations along the constructed pipeline.
3. Stormwater outfall structure dimensions and elevations, including all weirs, slots, orifices (including diameter and type of material), grates, and skimmers.
4. Stormwater conveyance systems including dimensions, elevations, contours, and cross sections.
5. Horizontal locations (state plane coordinates) and vertical elevations (top of pipe, fitting, and grade elevations) of all utility mains, valves, fittings, connection points, etc. Provide vertical elevations (top of pipe and grade elevation) at each end and along the utility main. Provide the utility main diameter and pipe material. Where pipe material changes, provide the horizontal and vertical information at each location.
6. Vertical elevations of all storm pipelines at crossings of potable water mains (whether the water main is existing or new) in order to document that the minimum required vertical separation has been met.
7. Horizontal offsets from adjacent potable water mains (whether the water main is existing or new) in order to document that the minimum required horizontal separation has been met.
8. Pavement width and elevations at the centerline and edge of pavement every 200 feet plus at all changes in longitudinal slope, cross slope, inlet locations, and at all driveway and street intersections.

9. All new sidewalks, sidewalk ramps, landing areas, and ramps designated for handicap access shall contain horizontal and vertical measurements in order to verify required widths, slopes, and cross slopes have been met. Provide building finish floor elevations at all building access points.
10. Horizontal and vertical data for any construction that deviates from the construction drawings.
11. Where the plans contain specific horizontal location data, such as station and offset, the as-built drawings are to reflect the actual horizontal location.
12. Where the plans contain specific vertical elevation data, the as-built drawings are to reflect the actual measured vertical elevation.

1.03 Submittal Requirements

A. Record Drawings are to be prepared by the Contractor, certified by the Contractor's licensed surveyor, and delivered to the Engineer for review. The Engineer will review the drawings for completeness in accordance with the requirements of this section within seven (7) full working days. For preliminary review, submittal in ACAD and PDF format is sufficient and signed and sealed copies are not necessary. Final submittal of complete Record Drawings shall consist of one set signed and sealed by the Contractor's licensed surveyor plus ACAD and PDF files of the Record Drawings delivered to the Engineer.

B. If the drawings are found to be incomplete or inaccurate, the drawings will be returned to the Contractor for correction.

C. In cases where the Owner determines partial clearances or final clearance from permitting agencies are beneficial to the Owner for completed portions of the project, provide preliminary record drawings (ACAD format) to the Engineer for its use in preparing the clearance applications for the Owner. These preliminary record drawings shall include the following:

1. Horizontal locations (state plane coordinates) and vertical elevations (top of pipe, fitting, and grade elevations) of all utility mains, valves, fittings, connection points, etc. Provide vertical elevations (top of pipe and grade elevation) at each end and every 100-ft along the utility main. Provide the utility main diameter and pipe material.
2. Temporary water main sample point locations (required for new water mains only)
3. Vertical elevations of all pipelines at crossings of potable water mains (whether the water main is existing or new) in order to document that the minimum required vertical separation has been met.
4. Horizontal offsets from adjacent potable water mains (whether the water main is existing or new) in order to document that the minimum required horizontal separation has been met.
5. Horizontal locations and vertical elevations for all utility and storm structures including but not limited to manholes, inlets and cleanouts, including structure top and invert elevations and invert elevations, pipe diameter and material of all connecting pipes.

6. Distance along pipelines between structures, pipeline diameter and type of material, and grade elevations along the constructed pipeline.
7. Vertical elevations of the top of casing and top of carrier pipe measured at each end of crossings that have been jack and bored.
8. Horizontal locations at each end of steel casing pipe (also provide distance from edge of pavement and adjacent right-of-way lines).
9. Pipeline that is directional bored is to be horizontally and vertically located every 20' along the bore. Provide this information by submitting boring logs and by drawing the as-built vertical and horizontal locations of the bored pipeline on the record drawings based on the boring logs.
10. New lift station wet well top and inside bottom elevations, plus inverts of all connecting pipelines (top of pipe at force mains), pipeline diameters, and pipe material.

D. Complete record drawings that are found to be satisfactory as a result of the Engineer's review will be used as the basis for the final project Record Drawings prepared by the Engineer using the Contractor provided record drawings plus Engineer added information.

E. Complete signed and sealed Record Drawings are required to be delivered to the Owner prior to final inspection of the project. Final inspections will only be scheduled upon receipt of signed and sealed record drawings that have been reviewed by the Engineer and delivered by the Engineer to the Owner.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 02220

SITE DEMOLITION

PART 1 GENERAL

1.01 Section Includes

A. Demolition of designated storm structures and storm pipes and removal of materials from project site.

B. Demolition and removal of pavements, curbs and gutters, sidewalks and driveways.

C. Disconnecting, capping and filling storm pipes and inlets with grout or flowable fill as identified on the plans.

D. Filling voids in subgrade created as a result of removals or demolition.

E. Disposal of demolished materials.

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02310 - Finish Grading

C. Section 02315 - Excavation and Fill

1.03 Regulatory Requirements

A. Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and runoff control.

B. Obtain required permits and licenses from appropriate authorities. Pay associated fees including disposal charges.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, or fire hydrants without appropriate permits.

E. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

F. Test soils around buried tanks for contamination.

1.04 Project Record Documents

Accurately record actual locations of capped utilities and subsurface obstructions that will remain after demolition.

1.05 Project Conditions

A. Structures to be demolished will be discontinued in use and vacated prior as part of this work.

B. Owner assumes no responsibility for condition of structures to be demolished.

C. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as practicable. Variations within structures may occur prior to start of demolition work.

D. Unless otherwise indicated in Contract Documents or specified by the Owner, items of salvageable value to Contractor shall be removed from site and structures. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified in Contract Documents.

E. Explosives shall not be brought to site or used to demolish structures.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Preparation

A. Provide, erect, and maintain erosion control devices, temporary barriers, and security devices at locations indicated on Construction Drawings.

B. Protect existing landscaping materials, appurtenances, and structures which are not to be demolished. Repair damage caused by demolition operations at no cost to Owner.

C. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as needed.

D. Mark location of utilities. Protect and maintain in safe and operable condition utilities that are to remain. Prevent interruption of existing utility service to occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities and Owner.

3.02 Salvage – N/A

3.03 Demolition Requirements

A. Conduct demolition to minimize interference with adjacent structures or pavements.

B. Cease operations immediately if adjacent structures appear to be in danger and notify the Owner. Do not resume operations until directed by the Owner.

C. Conduct operations with minimum of interference to public or private access. Maintain ingress and egress at all times.

D. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.

E. Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.

F. Comply with governing regulations pertaining to environmental protection.

G. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.

H. Demolition plan identifies major structures and items to be demolished. Include incidental demolition to completely demolish structures whether indicated on plan or not.

3.04 Demolition

A. Demolish those structures noted on the plans completely and remove from site using methods as required to complete work within limitations of governing regulations. Small structures may be removed intact when acceptable to the Owner.

B. Locate demolition equipment and remove materials so as to prevent excessive loading to surrounding areas.

C. For structures that are to be left in place with the top portion being removed, the base shall have a hole punched through and the base portion of the structure filled with sand (compacted), flowable fill or grout to the top of the base. The remaining area will backfilled as called for on the plans and specifications.

3.05 Filling Voids

A. Completely fill below grade areas and voids resulting from demolition or removal of structures and pipes using approved select fill materials consisting of flowable fill, grout, and sand, free from debris, trash, frozen materials, roots, and other organic matter.

B. Ensure that areas to be filled are free of standing water, frost, or unsuitable material, trash, and debris prior to fill placement.

C. Place fill materials in accordance with Sections 02315 or 02320 as applicable unless subsequent excavation for new work is required.

D. Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.

3.06 Disposal of Demolished Materials

A. Remove from site debris, rubbish, and other materials resulting from demolition operations.

B. No burning of any material, debris, or trash on-site or off-site will be allowed.

C. Transport materials removed from demolished structures with appropriate vehicles and dispose off-site to areas that are approved for disposal by governing authorities and appropriate property owners.

3.07 Cleanup

A. Clean the Project site to a condition satisfactory to the Engineer, free from demolished materials, rubbish or debris. Grade the site to meet adjacent contours and provide a positive flow for surface drainage.

B. Restore items intended to remain that have been damaged by demolition work at no cost to, and to the satisfaction of the Owner.

C. Return all interrupted utility services to their pre-demolition state and disconnect temporary services, unless otherwise specified.

END OF SECTION

SECTION 02230

SITE PREPARATION

PART 1 GENERAL

1.01 Section Includes

A. Layout of work and protection of bench marks.

B. Protection of structures, trees, or vegetation to remain.

C. Clearing and grubbing.

D. Stripping and storing topsoil.

1.02 Related Sections

A. Section 02220 - Site Demolition

B. Section 02370 - Erosion and Sedimentation Control

1.03 Coordination

A. Notify the following utility owners which may have utilities in the project area and coordinate with them to avoid service interruptions and/or safety hazards:

1. Florida Power & Light
2. Duke Energy
3. AT&T
4. CenturyLink
5. Florida Public Utilities
6. Teco Peoples Gas
7. City of Davenport
8. Polk County

B. Contact “Sunshine State, One-Call” by dialing “811”, to determine if there are other utilities in the area, and their location. For additional information: www.callsunshine.com.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 Bench Marks and Monuments

Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or

relocations without the prior written approval of the Owner. All benchmarks, property corners, and other survey monuments that are lost, damaged, or destroyed shall be replaced by a Licensed Surveyor at the Contractor's expense.

3.02 Laying Out Work

A. Base lines, property lines, and easement lines, are shown on the Drawings. Benchmarks utilized are also shown on the drawings.

B. Stake out the construction, establish lines and levels, temporary bench marks, batter boards, centerlines and reference points for the work, and verify all dimensions relating to interconnection with existing features.

C. Report any inconsistencies in the proposed grades, lines and levels, dimensions and locations to the Engineer before commencing work.

D. Contain all construction activities within the right-of-way, easements, and property secured by the Owner, as shown on the drawings. Do not disturb surrounding properties or travel on surrounding properties without written consent from the property owner. Repair or reconstruct damaged areas on an immediate basis. All costs for repairs shall be the responsibility of the Contractor.

3.03 Burning

Burning is not allowed.

3.04 Protection of Trees, Shrubs, and Lawns

A. Protect all trees and shrubs located outside the right-of-way, easements, and Owner secured property, particularly those trees and shrubs located adjacent to work areas.

B. Within the right-of-way, easements, and Owner secured property, the intent is to allow trees and shrubs to remain in accordance with the following schedule:

1. New roadway construction – trees and shrubs to remain where located more than 15 feet from the back of curb, or outside the limits of excavation or fill areas, whichever is further.
2. Utility pipeline construction – trees and shrubs to remain outside a 15 foot wide path, centered on the pipeline.

C. Protect branches, trunks, and roots of trees and shrubs that are to remain. Trees to remain in the construction area shall be boxed, fenced or otherwise protected before any work is started; remove boxing when directed by the Engineer. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks and cover scars with tree paint.

D. All lawn areas disturbed by construction shall be replaced with like kind to a condition similar or equal to that existing before construction. Where sod is to be

removed, it shall be carefully removed, and the same re-sodded, or the area where sod has been removed shall be restored with new sod in the manner described in the applicable section.

E. Where fencing, walls, shrubbery, grass strips or area must be removed or damaged incident to the construction operation, the Contractor shall, after completion of the work, replace or restore to the original condition.

F. The cost of all labor, materials, equipment, and work for restoration shall be deemed included in the appropriate Contract Item or items, or if no specific item is provided therefore, as part of the overhead cost of the Work, and no additional payment will be made therefore.

3.05 Public Nuisance

A. The Contractor shall not create a public nuisance including, but not limited to, encroachment on adjacent lands, flooding of adjacent lands, or excessive noise.

B. Sound levels shall not exceed 55 dBA 8 a.m. to 8 p.m. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence. Levels at the equipment shall not exceed 85 dBA at any time. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage by the Owner for excessive noise shall not relieve the Contractor from completing the Work on time.

C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

3.06 Existing Utilities

A. The Contractor shall conduct additional utility verification where needed to perform its work and protect existing utilities.

B. Utility lines that are damaged during construction shall be repaired by the Contractor and service restored within 4-hours of the breakage. The Owner retains the option of repairing any damage to utility pipes in order to expedite service to the customers. The Contractor will remain responsible for all costs associated with the repair.

C. Exploratory excavations shall be conducted by the Contractor for the purpose of locating underground pipelines or structures in advance of the construction. Test pits shall be excavated in areas of potential conflicts between existing and proposed facilities and at piping connections to existing facilities a minimum of two (2) full business days or 1,000-feet in advance of work. If there is a potential conflict, the Contractor shall notify the Owner immediately. Information on the obstruction to be furnished by the Contractor shall include: Location, Elevation, Utility Type, Material and Size. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Owner.

D. It is intended that wherever existing utilities must be crossed, deflection of the existing pipe within specified limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated on the Drawings. However, when in the opinion of the Owner this procedure is not feasible, the Owner may direct the use of fittings for a utility crossing or conflict transition as detailed on the Drawings.

3.07 Relocation of Utilities

A. Active utilities which do not interfere with the work shall be supported and protected from damage. After obtaining the Engineer's approval, relocate or remove active utilities which will interfere with work as indicated. Pay for all damage to active utilities and for relocation or removal of all interfering utilities which are ascertainable from Drawings, surveys, site inspection or encountered during construction.

B. Coordinate with each utility and pay all costs associated with the protection of existing facilities during construction. Also coordinate necessary relocations or other construction related matters with each utility.

C. Inactive or abandoned utilities and appurtenant structures encountered shall be removed to avoid interference as directed by the Engineer. Exposed ends of abandoned lines shall be plugged or capped in a water-tight manner.

3.08 Clearing and Grubbing

A. Areas to receive clearing and grubbing shall include all areas to be occupied by the proposed improvements, areas for fill and site grading, and borrow sites. Remove trees outside of these areas only as indicated on the Drawings or as approved in writing by the Engineer.

B. Clearing shall consist of removing trees and brush and disposal of other materials that encroach upon or otherwise obstruct the work.

C. Exercise extreme care during the clearing and grubbing operations. Do not damage existing structures, pipes or utilities.

D. Grubbing shall consist of removing and disposing of stumps, roots larger than 2" in diameter, and matted roots. Remove to a depth of not less than 18" below the original surface level of the ground.

E. All combustible debris and refuse from site preparation operations shall be removed to legal offsite disposal areas.

3.09 Topsoil Removal

A. All areas to be occupied by proposed improvements, and borrow sites shall be stripped of all brush, weeds, grass, roots and other material.

B. Remove all loamy, organic topsoil suitable for seeding and planting to whatever depth encountered and store separately from other excavated material. Stockpile in designated areas and provide for proper drainage. Cover storage piles as required to prevent windblown dust.

C. All removed topsoil shall be stockpiled within the project work area. Topsoil can be incorporated into the project in all areas that are to be grassed.

D. Dispose of unsuitable topsoil as specified under disposal of debris. Excess topsoil shall be removed from site unless specifically noted on Contract Drawings.

3.10 Disposal of Debris

A. All combustible debris and refuse from site preparation operations shall be removed to legal offsite disposal areas.

B. All non-combustible debris (not including acceptable fill material, fences, or other structures), resulting from site preparation operations shall become the property of the Contractor and shall be removed to legal offsite disposal areas.

END OF SECTION

SECTION 02240

DEWATERING

PART 1 GENERAL

1.01 Section Includes

Dewatering design and operation requirements

1.02 Related Sections

Section 02370 - Erosion and Sedimentation Control

1.03 General Requirements

A. Obtain the services of a qualified dewatering specialist to provide dewatering plan as may be necessary to complete the Work. Contractor shall be solely responsible for the design, installation, operation, maintenance, and any failure of any component of the system.

B. Dewatering discharge from the site shall comply with all NPDES general permit requirements and state water quality standards. Provide all testing and permitting required and comply with all treatment or disposal methods required to meet all local, state and federal requirements.

C. Design and provide dewatering system using accepted and professional methods consistent with current industry practice to eliminate water entering the excavation under hydrostatic head from the bottom and/or sides. Design system to prevent differential hydrostatic head which would result in floating out soil particles in a manner termed as a “quick” or “boiling” condition. System shall not be dependent solely upon sumps and/or pumping water from within the excavation where differential head would result in a quick condition, which would continue to worsen the integrity of the excavation’s stability.

D. Provide dewatering system of sufficient size and capacity to prevent ground and surface water flow into the excavation and to allow all Work to be installed in a dry condition.

E. No additional payment will be made for any supplemental measures to control seepage, groundwater, or artesian head.

F. If dewatering equipment needed exceeds any of the following: 1) 6" pump volute; 2) 100,000 GPD total 24 hour (1 day) dewatering, and; 3) 1,000,000 GPD pump capacity, the Contractor shall be required to permit the dewatering system with the water management district.

G. Contractor shall be responsible for and shall repair without cost to the Owner any damage to work in place, or other contractor's equipment, utilities, residences, highways, roads, railroads, private and municipal well systems, adjacent structures, natural resources, habitat, existing wells, and the excavation, including, damage to the bottom due to heave and including but not limited to, removal and pumping out of the excavated area that may result from Contractor's negligence, inadequate or improper design and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 General Requirements

A. Control, by acceptable means, all water regardless of source and be fully responsible for disposal of the water.

B. Confine discharge piping and/or ditches to available easement or to additional easement obtained by Contractor.

C. Control groundwater in a manner that preserves strength of foundation soils, does not cause instability or raveling of excavation slopes, and does not result in damage to existing structures. Where necessary to these purposes, lower water level in advance of excavation, utilizing wells, wellpoints, jet educators, or similar positive methods. Maintain the groundwater level to a minimum of 2 feet below excavations. Provide piezometers if directed by the Engineer to document the groundwater level is being maintained.

D. The Contractor, with his own equipment, shall do all pumping necessary to dewater any part of the work area during construction operations to insure dry working conditions. The Contractor shall take the necessary steps to protect on-site and off-site structures. Damage to any structures due to dewatering shall be repaired or the structures replaced at the Contractor's expense.

E. Commence dewatering prior to any appearance of water in excavation and continue until Work is complete to the extent that no damage results from hydrostatic pressure, flotation, or other causes.

F. Open pumping with sumps and ditches shall be allowed, provided it does not result in boils, loss of fines, softening of the ground, or instability of slopes.

G. Install wells and/or wellpoints, if required, with suitable screens and filters, so that continuous pumping of fines does not occur. During normal pumping, and upon development of well(s), levels of fine sand or silt in the discharge water shall not exceed 5 ppm. Install sand tester on discharge of each pump during testing to verify that levels are not exceeded.

H. Control grading around excavations to prevent surface water from flowing into excavation areas.

I. Remove subgrade materials rendered unsuitable by excessive wetting and replace with approved backfill material at no additional cost to the Owner.

J. Walls shall not be exposed to water pressure before structural work at the next higher level has properly cured and the cantilever action of walls is eliminated.

K. Any dewatering pumps within 1500-ft of private residences shall be equipped with satisfactory sound suppression.

L. Water from dewatering activities shall be disposed in a manner that does not cause flooding, erosion, or the transfer of sediments.

3.02 Maintaining Excavation in Dewatering Condition

A. Dewatering shall be a continuous operation. Interruptions due to power outages, or any other reason will not be permitted.

B. Continuously maintain excavation in a dry condition with positive dewatering methods during preparation of subgrade, installation of pipe, and construction of structures until the critical period of construction and/or backfill is completed to prevent damage of subgrade support, piping, structure, side slopes, or adjacent facilities from flotation or other hydrostatic pressure imbalance.

C. Provide standby equipment on site, installed, wired, and available for immediate operation if required to maintain dewatering on a continuous basis in the event any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional cost to Owner.

D. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components, and any other work required to maintain excavation in dewatered condition.

3.03 System Removal

Remove all dewatering equipment from the site, including wells and related temporary electrical service.

END OF SECTION

SECTION 02310

FINISH GRADING

PART 1 GENERAL

1.01 Section Includes

Topsoil placement, grading of site

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02315 - Excavation and Fill

C. Section 02320 - Trenching, Bedding, and Backfilling

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO T267 – Determination of Organic Matter in Soils by Loss on Ignition

PART 2 PRODUCTS

2.01 Topsoil

A. Topsoil shall be fertile, friable, natural topsoil typical of the area, free from subsoil, stones, plants, roots or other extraneous material and shall not be used while muddy or frozen.

B. Topsoil shall contain not less than 8% organic matter (AASHTO T267). The topsoil shall consist of either natural topsoils typical of the locality and free from coarse stone aggregate or surface soils stripped from the site and enriched with humus at a rate of 8% by volume. The soil mixture prepared by mixing surface soils and humus shall be free of oil, cinders, coarse stone, and woody root material.

PART 3 EXECUTION

3.01 General

Provide all topsoil placement and finish grading and filling to achieve the lines and grades indicated on the Drawings. All earthwork shall be done in a manner that provides drainage.

3.02 Topsoil Placement

Place topsoil in all areas of new grading. The compacted subgrade to receive topsoil shall be scarified to a depth of 3 inches. Topsoil shall be spread evenly and compacted to a thickness of not less than 6 inches, to the proposed elevations and grades. Grade flush with walks, curbs, and paving.

3.03 Finish Grading

A. All areas of the project including all previously grassed areas that have been disturbed, borrow sites, excavated and filled sections and adjacent transition areas shall be uniformly smooth-graded. Depressions from settlement shall be filled and compacted. Tops of embankments and breaks in grade shall be rounded. All surfaces shall be finished to provide adequate drainage. Finished surfaces shall be reasonably smooth, compacted, free from irregular surface changes and comparable to the smoothness obtained by blade-grader operations.

B. Slope grades to drain away from structures at a minimum of ¼-inch per foot for 10 feet.

C. Finished surfaces adjacent to paved or surfaced areas and within 10 feet of structures shall be within 1 inch of the proposed grade. All other areas shall be within 3 inches of the proposed grade.

D. Newly graded areas shall be protected from traffic and erosion. All settlement or washing away that may occur from any cause prior to seeding or acceptance shall be repaired and grades re-established to the required elevations and slopes at no additional cost to the Owner.

E. Unless otherwise indicated, dispose of all surplus material.

END OF SECTION

SECTION 02315

EXCAVATION AND FILL

PART 1 GENERAL

1.01 Section Includes

A. Excavation and fill for roads, ponds, general site work

B. Sheeting, shoring and bracing

C. Compaction

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02240 - Dewatering

C. Section 02310 - Finish Grading

D. Section 02320 - Trenching, Bedding, and Backfilling

E. Section 02370 - Erosion and Sedimentation Control

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO M145 - Classification of Soils and Soil Aggregate Mixtures
2. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort
2. ASTM D2487 - Classification of Soils for Engineering Purposes

C. Occupational Safety and Health Administration (OSHA) Regulations, including:

1. Part 1926 Subpart P – Excavations

1.04 Definitions

A. Backfill = material placed in newly excavated areas to the topsoil, paving sub-grade, or foundation level.

B. Influence Area = the area within lines sloped downward at 45 degrees from the outer edges of paving, foundations, and utility lines. As a minimum, the influence area shall extend 5 feet beyond the edge of pavement (where there is no curb) or 5 feet beyond the back of curb.

1.05 Quality Assurance

A. Field density testing frequencies:

1. One test for each 5,000 square feet or fraction thereof per lift of general backfilling, minimum 2 tests each layer.
2. One test per each lift of backfill around and under structures.
3. One test per lift per each change in type of fill.
4. One test per 1000 square feet of pavement subgrade, minimum of 2 tests.

B. Sheeting, shoring, and bracing used for the support of excavations over 20 feet deep shall be designed by a professional engineer licensed by the State of Florida.

1.06 Preconstruction Requirements

Precondition surveys and vibration monitoring are required for those areas where residential structures are within 100 feet of the proposed construction.

PART 2 PRODUCTS

2.01 General

It is intended that previously excavated materials conforming to the following requirements be utilized wherever possible.

2.02 Materials

A. Acceptable materials (suitable material): AASHTO M145 classification A-1, A-3, A-2-4, A-2-6; ASTM D2487 classification GW, GP, GM, SM, SW, SP; unless otherwise disapproved within the Soil and Subsurface investigation reports. No more than 12% of acceptable materials shall pass the number 200 sieve.

B. Unacceptable materials (unsuitable material): AASHTO M145 classification A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 classification GC, SC, ML, MH, CL, CH, OL, OH, PT; unless otherwise approved within the Soil and Subsurface investigation reports.

C. Flowable fill shall be “Excavatable” and shall meet the requirements of FDOT specification section 121, with a maximum 28-day compressive strength of 100 psi and a minimum 28-day compressive strength of 80 psi.

2.03 Sheeting, Shoring, and Bracing

A. The structural strength and safety of all sheeting, shoring and bracing shall be the sole responsibility of the Contractor. Repair any damage resulting from failure to provide adequate supports.

B. Provide timber work, shoring, bracing, sheeting, and sheet piling where necessary to retain banks of excavations, prevent cave-in of adjacent ground, prevent displacement of utilities and structures, and to protect public safety.

C. Contractor is solely responsible for the design, installation, and operation of dewatering systems and their safety and conformity with local codes and regulations.

PART 3 EXECUTION

3.01 General Construction Requirements

A. Provide suitable temporary drainage channels for any water that may flow along or across the work as specified hereafter.

B. Provide barriers, warning lights and other protective devices at all excavations.

C. Sidewalks, roads, streets, and pavements shall not be blocked or obstructed by excavated materials, except as authorized by the City or Engineer, in which case adequate temporary provisions must be made for satisfactory temporary passage of pedestrians, and vehicles. Minimize inconvenience to public travel or to tenants occupying adjoining property.

D. Where necessary to place excavated material adjacent to buildings, erect barriers to keep earth at least 4 feet from such buildings. Earth deposited on lawns shall be promptly and carefully removed to preserve the turf. All trees, shrubs, and landscaping shall be protected.

E. If open excavations cross existing rigid surfacing, the surfacing shall be removed for a width one foot beyond the anticipated edge of the excavation. The pavement break shall be sawed to insure a straight joint. Surface replacement shall match existing surfacing except as otherwise indicated on the Drawings. Where open excavation is allowed along or across public roadways, excavation, backfill, and surface replacement shall conform to the requirements of all permits applicable thereto. In no case shall surface replacement edges bear on less than 12" of undisturbed soil.

3.02 Preparation

A. Identify required lines, levels, contours, and datum.

B. Locate and identify existing utilities that are to remain and protect from damage.

C. Notify utility companies to remove or relocate utilities that are in conflict with proposed improvements.

D. Protect plant life, lawns, fences, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by licensed land surveyor and replaced, as necessary, by same.

F. Prior to placing fill in low areas, such as previously existing ditches, ponds, or lakes, perform following procedures:

1. Drain water out by gravity with ditch having flow line lower than lowest elevation in low area. If drainage cannot be performed by gravity ditch, use adequate pump to obtain the same results.
2. After drainage of low area is complete, remove mulch, mud, debris, and other unsuitable material by using acceptable equipment and methods that will keep natural soils underlying low area dry and undisturbed.
3. If proposed for fill, muck, mud, and other materials removed from low areas shall be dried on-site by spreading in thin layers for observation by Engineer. Material shall be inspected and, if found to be suitable for use as fill material, shall be incorporated into lowest elevation of site filling operation, but not under building or pavement subgrade or within 10'-0" of perimeter of building subgrade or paving subgrade. If, after observation by Engineer, material is found to be unsuitable, unsuitable material shall be removed from site.

3.03 Sheeting, Shoring, and Bracing

A. Furnish, install, and maintain, without additional compensation, sheeting, bracing, and shoring support required to keep excavations within the easement provided, to support the sides of the excavation, and to prevent any movement which may damage adjacent pavements or structures, damage or delay the work, or endanger life and health. Voids outside the supports shall be immediately filled and compacted.

B. Sheeting, where required, shall be driven below the bottom of excavation so the lowest set of wales and struts are above the bottom of the excavation to allow necessary working room.

C. All sheeting and supports are to be removed. The City and Engineer may direct in writing that supports in trenches be cut off at any specified elevation, in which case Contractor shall be paid for the supports left in place.

D. Only by approval of the City, the Contractor may leave in place, to be embedded in the backfill of the excavation, any or all supports for the purpose of preventing injury to persons or property, whether public or private. However, no supports which are within 4' of the ground or pavement surface may be left in place without

written permission of the Engineer. No extra payment will be made for supports left in place at the Contractor's option.

E. All supports not left in place shall be removed in such manner as to avoid endangering the piping, structures, utilities or property, whether public or private. All voids left by the withdrawal of sheeting shall be immediately filled and compacted.

F. The right of the Engineer to order supports left in place shall not be construed as creating an obligation on his part to issue such orders. Failure by the Engineer to exercise this right shall not relieve the Contractor from total liability for damages to persons or property resulting from the failure of the Contractor to leave in place sufficient supports to prevent any caving or moving of the ground adjacent to the excavation.

3.04 Excavation

A. Do not excavate for any structure until that structure is scheduled for construction. Excavate only to the depth and dimensions necessary for the construction. Slope sides of excavations in accordance with OSHA requirements and the recommendations contained within the project geotechnical report.

B. The bottom of all excavations shall be undisturbed earth unless otherwise indicated, and shall be approved by the Engineer before any subsequent work is started. Over excavate a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

C. Excavations carried below depths indicated on the Drawings without the previous approval of the Engineer shall be filled with 2500 psi concrete or flowable fill to the correct level at the expense of the Contractor.

D. Maintain excavations in good order. If the bearing capacity of the foundation soils is reduced because the excavation is allowed to remain open prior to commencing work, the weathered soil shall be removed and replaced with 2500 psi concrete or flowable fill at the Owner’s discretion at the expense of the Contractor.

E. All suitable materials removed from excavation areas shall be used for the project. Excess excavated suitable material shall be stockpiled on site at a location of the Owner’s choosing, and shall become the property of the Owner, unless otherwise indicated on the Drawings.

F. Suitable onsite excavated materials containing silty or slightly clayey to clayey fine sands shall be sufficiently dried by surface spreading and discing if necessary, or by mixing with cleaner fine sands prior to placement in fill areas.

G. Unsuitable materials within the influence area of construction shall be excavated, removed from the site, and disposed, unless otherwise indicated on the Drawings.

H. Excavations shall be kept dry, compacted, and stable to a depth two feet below the bottom of the excavation.

I. If portions of the bottom of excavations consist of material unstable to such a degree that, in the opinion of the Engineer, it cannot adequately support the construction, the bottom shall be over excavated and stabilized with approved coarse granular stabilization material. Depth of stabilization shall be as directed by the Engineer. The initial 50 tons of stabilization shall be incidental to the Contract. Compensation will be allowed only for such additional quantities as the Engineer shall direct in writing to be placed.

3.05 Filling

A. All fill material shall be suitable soils or flowable fill. Fill placed within 1 foot of structures shall not contain rock or stone larger than 2 inch diameter. If a sufficient quantity of suitable material is not available from other excavations within the site, provide additional suitable material or flowable fill.

B. Fill within the influence area of roadways, structures, foundations, or slabs, shall be placed in layers of 8 inch loose depth. In all other areas, place fill in layers of 12 inch loose depth.

C. Take necessary precautions not to cause settlement or damage to adjacent slabs, walls, structures, or foundations. Place fill materials evenly adjacent to structures, without wedging against structures.

D. Where filling is required on both sides of structures, fill and compact simultaneously on opposite sides in even layers.

3.06 Compaction

A. Unless otherwise indicated, the type of equipment and number of passes required to obtain the specified degree of compaction shall be determined at the site, subject to the approval of the Engineer.

B. Provide mechanical compaction for cohesive material and vibratory compaction for granular materials, unless otherwise approved by the Engineer. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

C. Noncohesive soils shall be compacted with vibrating roller or equivalent; cohesive soils shall be compacted with sheeps-foot roller, pneumatic tamping, or approved equivalent, unless otherwise indicated.

D. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.07 Testing and Cleanup

A. Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling.

B. All surplus excavated material shall be disposed of by the Contractor.

3.08 Field Quality Control

A. Minimum Density Requirement (ASTM D1557 or AASHTO T180):

1. Fill placed under and within the influence area of roadways, structures, slabs, foundations = 98 percent
2. Fill placed within road embankment = 95 percent
3. Fill placed within public road right-of-way and utility easements outside the road influence area = 95 percent
4. Fill placed within landscape areas = 85 percent
5. Fill placed within all other areas = 90 percent

Where fill is placed and differing density requirements are defined, the more stringent density requirement governs.

END OF SECTION

SECTION 02320

TRENCHING, BEDDING, AND BACKFILLING

PART 1 GENERAL

1.01 Section Includes

A. Trenching for piping and electrical work.

B. Excavation for manholes, junction boxes, meter vaults, and appurtenances.

C. Sheeting, shoring and bracing

D. Bedding, backfilling, and compaction.

1.02 Related Sections

A. Section 02230 - Site Preparation

B. Section 02240 - Dewatering

C. Section 02310 - Finish Grading

D. Section 02315 - Excavation and Fill

E. Section 02370 - Erosion and Sedimentation Control

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO M145 - Classification of Soils and Soil Aggregate Mixtures
2. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort
2. ASTM D2487 - Classification of Soils for Engineering Purposes

C. Occupational Safety and Health Administration (OSHA) Regulations, including:

1. Part 1926 Subpart P – Excavations

1.04 Definitions

A. Bedding = Area from bottom of trench to centerline of pipe

B. Backfill = material above the top of pipe to the topsoil, paving sub-grade, or foundation level.

C. Influence Area = the area within lines sloped downward at 45 degrees from the outer edges of paving, foundations, and utility lines. As a minimum, the influence area shall extend 5 feet beyond the edge of pavement (where there is no curb) or 5 feet beyond the back of curb.

1.05 Quality Assurance

A. Field density testing frequencies:

1. One test for each 300 linear feet of pipeline or fraction thereof per lift of general backfilling in the pipeline trench. Where less than 300 linear feet of pipeline is installed, one test per lift of backfill is required, staggered along the pipeline at locations determined by the Engineer
2. One test for each 100 square feet or fraction thereof of backfill around and under structures, with a minimum of two tests per lift.
3. One test per lift per each change in type of fill.

B. Sheeting, shoring, and bracing used for the support of excavations over 20 feet deep shall be designed by a professional engineer licensed by the State of Florida.

1.06 Preconstruction Requirements

Precondition surveys and vibration monitoring are required for those areas where residential structures are within 100 feet of the proposed construction.

PART 2 PRODUCTS

2.01 General

It is intended that previously excavated materials conforming to the following requirements be utilized wherever possible.

2.02 Materials

A. Acceptable materials (suitable material): AASHTO M145 classification A-1, A-3, A-2-4, A-2-6; ASTM D2487 classification GW, GP, GM, SM, SW, SP; unless otherwise disapproved within the Soil and Subsurface investigation reports. No more than 12 percent of acceptable materials shall pass the number 200 sieve.

B. Unacceptable materials (unsuitable material): AASHTO M145 classification A-2-5, A-2-7, A-4, A-5, A-6, A-7, A-8; ASTM D2487 classification GC, SC, ML, MH, CL, CH, OL, OH, PT; unless otherwise approved within the Soil and Subsurface investigation reports.

C. Flowable fill shall be “Excavatable” and shall meet the requirements of FDOT specification section 121, with a maximum 28-day compressive strength of 100 psi and a minimum 28-day compressive strength of 80 psi.

2.03 Sheeting, Shoring, and Bracing

A. The structural strength and safety of all sheeting, shoring and bracing shall be the sole responsibility of the Contractor. Repair any damage resulting from failure to provide adequate supports.

B. Provide timber-work, shoring, bracing, sheeting, and sheet piling where necessary to retain banks of excavations, prevent cave-in of adjacent ground, prevent displacement of utilities and structures, and to protect public safety.

C. Contractor is solely responsible for the design, installation, and operation of dewatering systems and their safety and conformity with local codes and regulations.

PART 3 EXECUTION

3.01 General Construction Requirements

A. Provide suitable temporary drainage channels for any water that may flow along or across the work as specified hereafter.

B. Provide barriers, warning lights and other protective devices at all excavations.

C. Sidewalks, roads, streets, and pavements shall not be blocked or obstructed by excavated materials, except as authorized by the City or Engineer, in which case adequate temporary provisions must be made for satisfactory temporary passage of pedestrians, and vehicles. Minimize inconvenience to public travel or to tenants occupying adjoining property.

D. Where necessary to place excavated material adjacent to buildings, erect barriers to keep earth at least 4 feet from such buildings. Earth deposited on lawns shall be promptly and carefully removed to preserve the turf. All trees, shrubs, and landscaping shall be protected. Boring and jacking shall be used, if necessary, except where written permission is granted to remove trees and shrubs.

E. If open excavations cross existing rigid surfacing, the surfacing shall be removed for a width one foot beyond the anticipated edge of the excavation. The pavement break shall be sawed to insure a straight joint. Surface replacement shall match existing surfacing except as otherwise indicated on the Drawings. Where open excavation is allowed along or across public roadways, excavation, backfill, and surface replacement shall conform to the requirements of all permits applicable thereto. In no case shall surface replacement edges bear on less than 12 inches of undisturbed soil.

3.02 Preparation

A. Identify required lines, levels, contours, and datum.

B. Locate and identify existing utilities that are to remain and protect from damage.

C. Notify utility companies to remove or relocate utilities that are in conflict with proposed improvements.

D. Protect plant life, lawns, fences, existing structures, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of the Owner. All benchmarks, property corners, and other survey monuments that are lost, damaged, or destroyed shall be replaced by a Licensed Surveyor at the Contractor's expense.

3.03 Sheeting, Shoring, and Bracing

A. Furnish, install, and maintain, without additional compensation, sheeting, bracing, and shoring support required to keep excavations within the easement provided, to support the sides of the excavation, and to prevent any movement which may damage adjacent pavements or structures, damage or delay the work, or endanger life and health. Voids outside the supports shall be immediately filled and compacted.

B. Sheeting, where required, shall be driven below the bottom of excavation so the lowest set of wales and struts are above the bottom of the excavation to allow necessary working room.

C. The City and Engineer may direct in writing that supports in trenches be cut off at any specified elevation, in which case Contractor shall be paid for the supports left in place.

D. If allowed by City, the Contractor may leave in place, to be embedded in the backfill of the excavation, any or all supports for the purpose of preventing injury to persons or property, whether public or private. However, no supports which are within 4 feet of the ground or pavement surface may be left in place without written permission of the Engineer. No extra payment will be made for supports left in place at the Contractor's option.

E. All supports not left in place shall be removed in such manner as to avoid endangering the piping, structures, utilities or property, whether public or private. All voids left by the withdrawal of sheeting shall be immediately filled and compacted.

F. The right of the Engineer to order supports left in place shall not be construed as creating an obligation on his part to issue such orders. Failure by the Engineer to exercise this right shall not relieve the Contractor from total liability for damages to persons or property resulting from the failure of the Contractor to leave in place sufficient supports to prevent any caving or moving of the ground adjacent to the excavation.

3.04 Trenching

A. All excavations shall be made by open cut unless otherwise indicated. Sides of trenches shall be kept as nearly vertical as possible from the trench bottom to a level of one foot above the top of the pipe. Slope sides of trenches in accordance with OSHA requirements and the recommendations contained within the project geotechnical report.

B. Excavation of trenches shall not advance more than 50 feet ahead of completed pipe installation except as approved by the Engineer.

C. Excavate trenches to depth indicated or required for indicated flow lines and invert elevations. Over excavate trenches a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

D. Where rock is encountered, carry excavation 6 inches below scheduled elevation and backfill with a 6 inch layer of crushed stone or gravel prior to installation of pipe.

E. For pipes or conduit 6 inches or larger, and other work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated, to 6 inches below bottom of work to be supported.

F. Except as otherwise indicated, excavate for pressure piping so top of piping is minimum 3 feet below finished grade.

G. Unsuitable excavated materials shall be removed from the site and disposed, unless otherwise indicated on the Drawings.

H. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

I. Trench bottoms shall be kept dry, compacted, and stable to a depth two feet below the bottom of the trench.

J. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 9 -12 inch clearance on each side of pipe.

K. If more than one pipe is to be installed in a trench, the pipes shall be spaced a minimum of one foot apart for pipes 4 inches and larger.

L. If portions of the bottom of trenches consist of material unstable to such a degree that, in the opinion of the Engineer, it cannot adequately support the pipe or structure, the bottom shall be over excavated and stabilized with approved coarse granular stabilization material. Depth of stabilization shall be as directed by the Engineer. The initial 50 tons of stabilization shall be incidental to the Contract. Compensation will be allowed only for such additional quantities as the Engineer shall direct in writing to be placed.

M. Do not backfill trenches until tests and inspections have been made.

3.05 Trench Backfilling

A. Following placement of pipe and inspection of joints, install tamped bedding material. Place bedding fill materials in layers of 6 inch loose depth.

B. All bedding and backfill material shall be suitable soils or flowable fill. Backfill material within 1 foot of pipe and appurtenances shall not contain rock or stone larger than 2 inch diameter. If a sufficient quantity of suitable material is not available from the trench or other excavations within the site, provide additional suitable material or flowable fill.

C. After completion of bedding and preliminary approval of piping and testing, the pipe shall be covered to a point one foot above the top of the pipe for the full trench width, placed in layers of 8 inch loose depth.

D. Place backfill over pipe. Where trench is within the influence area of roadways, structures, foundations, or slabs, place backfill in layers of 8 inch loose depth. In all other areas, place backfill in layers of 12 inch loose depth.

E. Take necessary precautions not to cause settlement or damage to adjacent slabs, walls, structures, or foundations. Place backfill and fill materials evenly adjacent to structures, without wedging against structures or displacement of piping or conduit.

3.06 Minor Structural Excavation and Backfilling

A. Minor structures are defined as manholes, junction boxes, inlets, and outfall structure. Do not excavate for any structure until that structure is scheduled for construction. Excavate only to the depth and dimensions necessary for the construction.

B. The bottom of all excavations shall be undisturbed earth unless otherwise indicated, and shall be approved by the Engineer before any subsequent work is started. Over excavate a minimum of 2 feet where excavations occur within unsuitable soils, and replace over excavated material with suitable soils.

C. Excavations carried below depths indicated on the Drawings without the previous approval of the Engineer shall be filled with 2500 psi concrete or flowable fill at the Owner's discretion to the correct level at the expense of the Contractor.

D. Maintain excavations in good order. If the bearing capacity of the foundation soils is reduced because the excavation is allowed to remain open prior to commencing work, the weathered soil shall be removed and replaced with 2500 psi concrete or flowable fill at the Owner's discretion at the expense of the Contractor.

E. Do not backfill until new concrete has properly cured, coatings have been approved, and any required tests have been accepted.

F. Fill within the influence area of roadways, structures, foundations, or slabs, shall be placed in layers of 8 inch loose depth. In all other areas, place fill in layers of 12 inch loose depth.

G. Exercise care during backfilling operations to avoid any puncture, break or other damage to waterproofing systems, if any. Backfill adjacent to waterproofing in the presence of the Engineer.

H. Where backfilling is required on both sides of structures, backfill and compact simultaneously on opposite sides in even layers. Other backfilling sequences shall be as specifically noted.

3.07 Compaction

A. Unless otherwise indicated, the type of equipment and number of passes required to obtain the specified degree of compaction shall be determined at the site, subject to the approval of the Engineer.

B. Provide mechanical compaction for cohesive material and vibratory compaction for granular materials, unless otherwise approved by the Engineer. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

C. Noncohesive soils shall be compacted with vibrating roller or equivalent; cohesive soils shall be compacted with sheeps-foot roller, pneumatic tamping, or approved equivalent, unless otherwise indicated.

D. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.08 Testing and Cleanup

A. Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling.

B. All surplus excavated material shall be disposed of by the Contractor.

3.09 Field Quality Control

A. Minimum Density Requirement (ASTM D1557 or AASHTO T180):

1. Backfill placed under and within the influence area of roadways, structures, slabs, foundations = 98 percent
2. Backfill placed within pond and road embankment = 95 percent
3. Backfill placed within public road right-of-way and utility easements outside the road influence area = 95 percent
4. Backfill placed within landscape areas = 85 percent
5. Backfill placed within all other areas = 90 percent

Where backfill is placed and differing density requirements are defined, the more stringent density requirement governs.

END OF SECTION

SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 Section Includes

Designing, providing, maintaining, removing temporary erosion and sedimentation controls.

1.02 Related Sections

A. Section 01415 - Stormwater Pollution Prevention / NPDES Requirements

B. Section 02230 - Site Preparation

C. Section 02240 - Dewatering

D. Section 02315 - Excavation and Fill

E. Section 02320 - Trenching, Bedding, and Backfilling

1.03 References

A. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, latest edition:

1. Specification 300 - Prime and Tack Coats for Base Course

B. State of Florida Erosion and Sediment Control Manual, latest edition.

1.04 Owner's Instructions / Sequencing

A. Owner has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, trenching, borrow and embankment operations. Owner also has authority to direct Contractor to provide immediate permanent or temporary erosion and sediment control measures.

B. Contractor shall respond to erosion and sediment control maintenance requirements or implement additional measures to control erosion ordered by Owner or governing authorities within 48 hours or sooner if required at no additional cost to the Owner.

C. Contractor will be required to incorporate permanent erosion control features into project at earliest practical time to minimize need for temporary controls.

PART 2 PRODUCTS

2.01 Erosion Control

A. Seeding and Mulching

B. Sodding

C. Hydro-seeding

D. Coarse Aggregate

E. Prime Coat - Per FDOT Specification 300

2.02 Sedimentation Control

A. Silt Fence - Per Details on the Drawings

B. Floating Turbidity Barriers - Per Details on the Drawings

PART 3 EXECUTION

3.01 Erosion Control

A. Maintain temporary erosion control systems as directed by Owner or governing authorities to control erosion and siltation during life of contract.

B. The erosion and sediment control measures shown on the plans represent a minimum requirement. The Contractor is responsible for determining additional erosion and sediment control measures needed in order to prevent the transfer of sediment from the project area and prevent the erosion of surfaces during construction, as needed to protect adjacent properties and water bodies.

C. Permanently grass cut slopes as excavation proceeds to extent considered desirable and practical as determined by the Owner.

D. Grass all disturbed areas within 7 days of initial disturbance. Type of grassing shall be as follows: temporary grassing to be sodding at all drainage structures, retention areas, swales and ditches, and where slopes are steeper than 5:1. Temporary grassing can be seed and mulch at all other locations unless otherwise indicated in the drawings or specifications.

E. Erosion control of areas to be paved shall meet the following:

1. Install subgrade and base course materials within 48 hours of the removal/open cutting of existing pavement consisting of streets, driveways, or sidewalk. Install final surface courses within 14 days after removal of existing pavement.

2. Areas to receive asphalt shall receive erosion control measures no later than 48 hours after installation of base course. Temporary erosion control consists of placement of a bituminous prime coat and sanding the surface. Permanent erosion control consists of placement of the structural course.
3. Areas to receive concrete paving shall be either protected with a layer of FDOT coarse aggregate material or shall be paved within 48 hours of installation of the subgrade.

F. Dirt roads are to be stabilized and compacted within 7 days of the completion of trenching and grading activities.

3.02 Sedimentation Control

A. Install prior to construction.

B. Inspect every two weeks during construction.

C. Remove any sediment build-up.

D. Repair and reinstall any damaged or missing sediment control measures. Install additional measures if inspection reveals additional sedimentation control is necessary.

E. Rough excavate and grade any proposed stormwater ponds at the start of site grading activities. Direct site runoff to the ponds to minimize runoff to offsite areas.

END OF SECTION

SECTION 02605

PRECAST STRUCTURES AND ACCESSORIES

PART 1 GENERAL

1.01 Section Includes

A. Precast storm structures

B. Precast structure grates, access covers, and accessories

C. Precast structure linings and coatings, if required

1.02 Related Sections

Section 02320 - Trenching, Bedding, and Backfilling

1.03 References

A. American Society for Testing and Materials (ASTM) latest edition:

1. A48 - Gray Iron Castings
2. A185 - Steel Welded Wire Reinforcement, Plain, for Concrete
3. C216 - Facing Brick
4. C270 - Mortar for Unit Masonry
5. C443 - Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
6. C478 - Precast Reinforced Concrete Manhole Sections
7. C923 - Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
8. C990 - Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
9. C1244 - Test method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test
10. D3753 - Glass Fiber Reinforced Polyester Manholes and Wetwells

1.04 Submittals

A. All gratings and castings

B. Precast structures

C. Coatings and Linings for precast structures

D. Connections to precast structures

E. Submit the name of the subcontractor that will be installing the interior coatings (spray on liner) and a list of references of past experience documenting successful

application of the spray on coating. Provide a minimum of three (3) references with project name, description of work, contact name and phone number for each reference.

PART 2 PRODUCTS

2.01 General

A. Concrete shall have minimum 4000 psi compressive strength.

B. Welded wire fabric shall conform to ASTM A185. Use 4 x 4 - W4 x W4 welded wire fabric unless otherwise indicated.

C. Integrally cast steps within precast structures are not allowed.

D. The date of manufacture and the name or trademark of manufacturer shall be clearly marked on each precast section.

2.02 Sewer Manholes

A. All new sewer manholes shall be precast, and shall conform to ASTM C478. Concrete shall be Class II and have a minimum compressive strength of 4,000 psi at 28 days. The minimum wall thickness shall be five inches. Precast manholes shall be constructed with a precast monolithic base structure and the minimum base thickness shall be eight inches as shown on the Standard Construction Detail. The top section shall be an eccentric riser. The barrel, top and base sections shall have tongue and groove joints. All jointing material shall be a cold adhesive preformed plastic gasket, conforming to ASTM C 443. All manholes shall be leak-free.

B. For sewer pipe sizes 24 inches in diameter and smaller, the minimum inside diameter of the manhole shall be 48 inches. For sewer pipe sizes between 24 and 36 inches, the minimum inside diameter of the manhole shall be 60 inches. For sewer pipe sizes larger than 36 inches in diameter, a 72 inch inside diameter manhole shall be provided.

C. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on each precast section after coating of the exterior surface. Lift rings or non-penetrating lift holes shall be provided for handling precast manhole sections.

2.03 Flow Channel – N/A

The flow channel shall be Portland Cement Type II concrete, minimum compressive strength of 2,500 psi. Fillers of any other material will not be accepted. Brick shall not be used to construct channels or benching. Flow channels shall be formed in the invert of the manhole and shall extend to the spring line of all connecting pipes, conforming to the dimension of the adjacent pipe and providing changes in size, grade and alignment evenly.

2.04 Manhole Drop Connections – N/A

In general, manhole drop connections are not allowed unless specifically shown on the Construction Plans. If allowed, an outside drop pipe shall be provided for a sewer entering a manhole where its invert elevation is 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer invert and the manhole invert is less than 24 inches, the manhole invert shall be filleted to prevent solids deposition.

2.05 Manhole Force Main Connections – N/A

Force mains shall be oriented to facilitate flow, and shall enter the manhole such that the force main invert is no more than 12 inches above the invert of the effluent sanitary sewer line.

2.06 Manhole External Seal – N/A

The top of manholes, cone, riser rings, iron frame, cover and all joints shall be encapsulated with a heat shrink-wrap with a minimum thickness of 98 mils (2.5mm). The wrap shall have a cross-linked polyolefin backing coated with a protective heat activated adhesive. The wrap should effectively bond to the substrate via primer provided by the manufacturer, providing corrosion and moisture protection. The wrap shall be applied with a high intensity propane torch. Heat Shrink wrap for all barrel section joints of manholes shall be a minimum 9-inch width wrap and a minimum of 12-inch width wrap shall be applied to the top section, riser rings, and manhole ring and cover. Adhesive tape materials are not be allowed.

2.07 Manhole Linings and Coatings – N/A

A. New sewer manholes shall be coated inside and out with two (2) coats of water based polyamine epoxy coating, installed at a minimum thickness of 8 mils per coat. Coatings shall be applied by the manhole manufacturer in strict accordance with the paint manufacturer's recommendations.

B. Manholes that receive force main discharge shall be lined. For new manholes, the interior liner shall be HDPE, minimum thickness of 2 mm, as manufactured by Agru America (Sure Grip liner) or approved equal. For existing manholes, the interior shall be coated with Raven 155 primer (min. 8 mils) and Raven 405 Liner (min. of 125 mils), or equal.

2.08 Lift Station Wet Well – N/A

A. Base, riser, and top shall be in accordance with details on the Drawings.

B. All precast construction shall be in accordance with ASTM C-478, minimum wall thickness of 6 inches.

C. New wet wells shall be lined with HDPE, minimum thickness of 5 mm, as manufactured by Agru America (Sure Grip liner) or approved equal.

D. Existing wet wells that are required to be re-lined shall be coated with Raven 155 primer (min. 8 mils) and Raven 405 Liner (min. of 125 mils), or equal.

E. The exterior of new wet wells shall be coated with two (2) coats of water based polyamine epoxy coating, installed at a minimum thickness of 8 mils per coat. Coatings shall be applied by the manufacturer in strict accordance with the paint manufacturer's recommendations.

2.09 Lift Station Valve Vault – N/A

A. Valve vaults shall be precast with concrete and reinforcement conforming to ASTM C478.

B. Exterior coatings coated with two (2) coats of water based polyamine epoxy coating, installed at a minimum thickness of 8 mils per coat. Coatings shall be applied by the manufacturer in strict accordance with the paint manufacturer's recommendations.

C. The interior coating shall be Raven 155 primer (min. 8 mils) and Raven 405 Liner (min. of 125 mils), or equal.

2.10 Manhole Frames and Lids

A. Frames and covers shall be gray iron per ASTM A48, Class 30B and shall be US Foundry Type 227AS, traffic bearing (AASHTO H-20 loading), unless otherwise noted in the Drawings. Raised lettering on covers shall be "STORM SEWER", or as detailed on the drawings.

B. Castings shall be smooth, clean, free from blisters, blowholes, shrinkage.

C. Manhole covers shall have non-penetrating pick holes.

2.11 Catch Basin Inlets, Frames, and Grates

A. Provide cast iron inlets, frames, and grates in accordance with details on the Drawings.

B. All frames and inlet grates shall be products of U.S. Foundry & Manufacturing Corporation, or equal.

C. All inlet grates shall be secured by chain and eyebolt to the top of the structure.

2.12 Wet Well and Valve Vault Access Covers – N/A

A. The access covers shall be traffic bearing (AASHTO H-20 loading), hinged on the long side, with 0.25 inch thick diamond plate, with a flush lifting handle, and T-316 stainless steel hold open arms and heavy duty hinges, T-316 tamper proof

attaching hardware, automatic T-316 hold open arm with aluminum latch. All bolts, locknuts, and accessories shall be stainless steel.

B. Doors shall open to 90 degrees and automatically lock with a T-316 stainless steel hold open arms with release handles. The doors shall be equipped with stainless steel compression springs, a locking bar for a padlock (padlock to be supplied by the Owner), and fixed inside handle. Doors shall close flush with the frame.

C. Castings shall be smooth, clean, free from blisters, blowholes, shrinkage.

D. All access covers shall be watertight.

PART 3 EXECUTION

3.01 Confined Space

Provide all necessary safety equipment and training required for work done in structures such as, but not limited to, Wet Wells, Valve Vaults, and Manholes. The equipment will include, but not be limited to, ventilation systems, gas detection devices, and safety harnesses. It is the Contractor's responsibility to determine if a structure is a confined space and supply the required safety equipment and training.

3.02 Manhole, Inlet Installation

A. The Contractor shall be completely responsible for any manholes, inlets or other similar structures that may become buoyant during the construction and modification operations due to the ground water or floods and before the structure is put into operation. The Contractor may employ methods, means and techniques during construction which may affect the buoyancy of structures. The Contractor shall take the necessary steps to protect structures. Damage to any structures due to floating or flooding shall be repaired or the structures replaced at the Contractor's expense.

B. Install required bedding.

C. Install base to proper elevation and alignment. Handle precast sections by lift rings only. Remove lift rings and fill all holes with non-shrink grout after erection.

D. Pour invert immediately after setting first section of barrel.

E. Prior to setting subsequent barrel sections, apply primer to tongue and groove ends and allow to set in accordance with manufacturer's recommendations. Add additional material on exterior joint if necessary for watertight joint.

F. Apply coatings and liners as required.

G. Backfill in accordance with Section 02320.

H. Completed manholes and inlets shall be watertight.

3.03 Installation of Castings

A. Manhole castings to be fully embedded in mortar with adjustment brick courses placed between the frame and manhole, minimum of 2 courses, maximum of 4 courses. Mortar shall conform to ASTM C270, type M, brick to conform to ASTM C216, grade SW.

B. Top of manhole castings in paved areas, including driveways and sidewalks to be flush with grade. Top of manhole castings outside paved areas to be 2 inches above grade, unless otherwise noted on the Drawings.

3.04 Pipe Connections

A. Connection of ductile iron or PVC pipe to the manhole shall provide a watertight connection per ASTM C923. The use of adhesives or lubricants for installation of rubber connectors is prohibited.

B. Connection of concrete pipe to the manhole shall be made with non-shrink metallic grout.

3.05 Manhole and Wet Well Testing – N/A

A. There shall be no visible leakage through the structure walls or connections.

B. All manholes are to be tested in accordance with ASTM C1244 and are required to pass this test.

END OF SECTION

SECTION 02630

STORM DRAINAGE PIPE SYSTEMS

PART 1 GENERAL

1.01 Section Includes

Storm sewer pipe, culverts, box culverts, accessories

1.02 Related Sections

A. Section 02320 - Trenching, Bedding, and Backfilling

B. Section 02605 - Precast Structures and Accessories

1.03 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO M196 - Corrugated Aluminum Pipe for Sewers and Drains
2. AASHTO M252 - Corrugated Polyethylene Drainage Pipe
3. AASHTO M294 - Corrugated Polyethylene Pipe, 12 to 48-inch diameter

B. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM C76 - Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
2. ASTM C443 - Joints for Circular Concrete Pipe and Manholes, Using Rubber Gaskets
3. ASTM C507 - Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
4. ASTM C1433 - Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers
5. ASTM D2321 - Underground Installation of Flexible Thermoplastic Pipe for Sewers and Other Gravity Flow Applications
6. ASTM D3212 - Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
7. ASTM D3350 - Polyethylene Plastics Pipe and Fittings Material
8. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe
9. ASTM F758 - Smooth Wall PVC Plastic Underdrain Systems for Highway, Airport, and Similar Drainage
10. ASTM F2306 - 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications
11. ASTM F2487 - Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene Pipelines

C. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction and Standard Plans for Road Construction, latest implemented editions:

1. Index No. 430-001 - Geotextile Criteria
2. Index No. 430-001 - Miscellaneous Drainage Details
3. Index No. 400-291 - Supplemental Details for Precast Concrete Box Culverts
4. Index No. 400-292 - Standard Precast Concrete Box Culverts
5. Specification Section 400 - Concrete Structures
6. Specification Section 410 - Precast Concrete Box Culvert
7. Specification Section 430 - Pipe Culverts and Storm Sewer
8. Specification Section 440 - Underdrains
9. Specification Section 449 - Precast Concrete Drainage Products
10. Specification Section 901 - Coarse Aggregate
11. Specification Section 945 - Corrugated Aluminum Pipe and Pipe Arch
12. Specification Section 948 - Optional Drainage Products and Repair Systems
13. Specification Section 985 - Geosynthetic Materials

1.04 Submittals

A. Provide shop drawings and product data for all pipes and joints.

B. Provide manufacturer's certificate of compliance or certified analysis in accordance with applicable standards for each shipment of materials.

1.05 Product Delivery, Storage and Handling

A. Exercise care in transporting and handling pipe and fittings in order to avoid damage to pipe materials, coatings or joints.

B. Lifting of materials shall be by hoist or on skids.

C. Dropping pipe and fittings while unloading or handling is not permitted.

D. Pipe shall be stored as recommended by the manufacturer.

E. Damaged pipe shall be replaced at Contractor's expense.

PART 2 PRODUCTS

2.01 Concrete Pipe and Joints

A. Round concrete pipe shall comply with ASTM C76 and FDOT specification section 449, and shall be Class III pipe, unless otherwise noted on the Drawings.

B. Elliptical concrete pipe shall comply with ASTM C507.

C. Pipe joints shall comply with ASTM C443 and FDOT specification section 430, and rubber gaskets shall comply with FDOT specification section 942.

D. Pipe shall not be shipped from manufacturer until the compressive strength of the pipe has reached 4000 psi and a minimum of 5 days have passed since the manufacturing or repair of the pipe has been completed.

2.02 High Density Corrugated Polyethylene Pipe and Joints – N/A

A. Pipe 4 inch through 10 inch diameter shall comply with AASHTO M252, Type S.

B. Pipe 12 inch through 48 inch diameter shall comply with AASHTO M294, Type S, and ASTM F2306.

C. Pipe 54 inch through 60 inch diameter shall comply with FDOT specification section 948 (Class II pipe) and shall comply with AASHTO M294

D. Virgin material for the production of pipe and fittings shall be high density polyethylene conforming to the minimum requirements of cell classification 424420C for 4-inch through 10-inch diameters and 435400C for 12-inch through 60-inch diameters per ASTM D3350. The 12-inch through 60-inch virgin pipe material shall comply with the notched constant ligament-stress (NCLS) test as specified in ASTM F2306.

E. Bell joints for 4 inch through 10 inch diameter pipe shall be push-on sleeve.

F. Bell joints for 12 inch through 60 inch diameter pipe shall be integrally formed on pipe.

G. Pipe joints shall be watertight per ASTM D3212. Gaskets shall be installed by pipe manufacturer and shall comply with ASTM F477.

H. Fittings shall comply with AASHTO M294.

2.03 Filter Fabric

Filter fabric used for wrapping drainage pipe joints shall type D-3 in accordance with FDOT specification section 985.

2.04 Underdrain Systems – N/A

A. Underdrain pipe shall be perforated polyvinyl chloride pipe in accordance with ASTM F758.

B. Non-perforated underdrain pipe shall be polyvinyl chloride pipe in accordance with ASTM F758.

C. Underdrain cleanouts shall be PVC pipe per ASTM F758 and shall consist of an in-line wye fitting, riser, and threaded cap.

D. Underdrain filter material shall be coarse aggregate per FDOT specification section 901. Fine aggregate such as silica sand is not an acceptable underdrain filter material.

E. Filter fabric used in the underdrain trench shall be type D-3 in accordance with FDOT specification section 985.

2.05 Aluminum Coated Corrugated Steel Pipe and Pipe Arch – N/A

A. Pipe shall comply with AASHTO M196 and FDOT specification section 945.

B. Corrugations and pipe gage shall be as indicated on the Drawings.

C. Two rolled annular corrugations shall be provided on each end of pipe to facilitate connections. Connecting bands shall be a minimum thickness of 16 gage.

2.06 Concrete Box Culvert

A. Precast concrete box culvert shall comply with ASTM C1433, FDOT specification section no. 410, and FDOT Index No. 400-292. Where there is conflict between these standards, the more stringent requirement applies.

B. Cast in place concrete box culvert shall comply with FDOT specification section no. 400.

PART 3 EXECUTION

3.01 General Installation Requirements

A. Perform work in accordance with plans and standard guidelines in a neat and accurate manner.

B. All lengths of pipe and culvert shall be dimensioned accurately to measurements established at the site, and shall be worked into place without springing or forcing.

C. Cut all pipe and culvert as necessary. The pipe and culvert interior and joints shall be thoroughly cleaned before being installed and kept clean during construction.

D. Trenching, bedding and backfilling for all piping shall be in accordance with Section 02320.

E. Establish survey control. Line and grade of pipe and culvert shall be checked continuously on a joint by joint basis.

F. Pipe and culvert shall be laid progressively up grade, with bell upstream, in a manner to form close, concentric joints with smooth bottom inverts.

G. All pipe and culvert joints shall be wrapped with filter fabric.

H. Installed piping and culvert systems shall be temporarily plugged at the end of each day's work, or other interruption to progress on a given line. Plugging shall be adequate to prevent entry of small animals or persons into the pipe or the entrance or insertion of deleterious materials.

3.02 Separation of Storm Sewer Lines and Potable Water Mains

A. The outside of non-pressurized storm sewer lines shall be separated horizontally a minimum of three feet from the outside of any existing or proposed water main.

B. Wherever possible, storm sewer shall cross under existing or proposed water mains, so the outside of the storm sewer is at least six inches below the outside of the water main. Where it is not possible for the sewer to cross under existing or proposed water mains, then the sewer can cross over the water main provided the outside of the sewer is at least 12 inches above the outside of the water main. At the crossing, the proposed pipe joints shall be arranged so that all water main joints are at least three feet from storm sewer joints.

C. The following are acceptable alternative construction features to be considered for cost evaluation with no guarantee they will be approved for implementation where it is not possible to meet the separation requirements. Exceptions from meeting the pipe separation requirements, without mitigation, shall be allowed only by FDEP if technical or economic justifications for each exception provided by the Engineer are acceptable to FDEP and are only to be implemented upon receipt of expressed written consent from the Engineer and approval from FDEP on a case by case basis. All possible measures to achieve compliance with the pipe separation requirements shall be considered first along with design changes to meet the requirements before the Engineer submits a justification of an exception to FDEP for approval. Implementation of these measures without the expressed written consent of the Engineer and approval by FDEP could result in the requirement that the installed unapproved measures be removed and replaced at no cost.

1. Where sewer is less than the required minimum horizontal distance from a water main and or where the sewer crosses a water main and joints in the sewer are less than the minimum required distance between the joints in the water main:

    a. Use of pressure rated pipe conforming to AWWA standards for a gravity or vacuum type pipeline.
    b. Use of welded, fused, or otherwise restrained joints for either pipeline.
    c. Use of watertight casing pipe or concrete encasement at least four inches thick for either pipe.

2. Where sewer is less than three feet horizontally from a water main and or where a sewer crosses a water main at less than the required minimum separation:

a. Use of pipe or casing pipe, having high impact strength (at least equal to 0.25 inch thick ductile iron pipe), or concrete encasement at least four inches thick for both the sewer and the water main.

3.03 Concrete Pipe and Culvert

A. Before making joint, clean the pipe end and the bell thoroughly. Insert the O-Ring gasket, making certain it is properly oriented. Lubricate the spigot well with an approved lubricant; do not lubricate the bell or o-ring. Insert the spigot end of the pipe carefully into the bell until the reference mark on the spigot is flush with the bell.

B. Field cut pipe shall have a reference mark applied the correct distance from the end.

C. On field cut pipe, provide homing mark in accordance with manufacturer's recommendations.

D. All pipe laid shall be retained in position to maintain alignment and joint closure until backfill has been placed.

E. Multi-celled box culverts shall be installed with a 4-inch gap between culverts. Fill gap with non-shrink grout upon completion of installation.

F. Minimum cover over the pipe (outside top to finish grade), including cover over the bell of the pipe where applicable, shall be 24 inches.

3.04 High Density Corrugated Polyethylene Pipe – N/A

A. Install in accordance with ASTM D2321.

B. Backfill and compact evenly on each side to prevent displacement, meeting the requirements of ASTM D2321 and Section 02320.

C. Minimum cover over the pipe (outside top to finish grade) shall be 30 inches.

3.05 Filter Fabric

Install at pipe joints in accordance with FDOT index No. 430-001. Provide minimum 12 inches overlap.

3.06 Underdrain Systems – N/A

A. Install Type II underdrain in accordance with FDOT specification Index No. 440-001 and Specification section 440. Install cleanouts at locations shown on the Drawings. Terminate the riser cap at the finished grade flush with the ground surface.

B. Install perforated underdrain pipe in all areas except at driveway aprons and at cleanouts. At driveway aprons and cleanouts, install non-perforated underdrain pipe.

3.07 Aluminum Coated Corrugated Steel Pipe and Pipe Arch – N/A

A. Pipe gasket and coupling band shall be centered over joint with coupling band bolts securely tightened without cutting gasket.

B. Minimum cover over the pipe shall be 36 inches.

3.08 Visual Inspection and Testing

A. Prior to inspection and testing, clean all installed lines and structures.

B. After backfill has been placed, the Engineer will visually inspect all storm lines to check joints, alignment and grade. All obstructions shall be removed.

C. Provide light source and mirrors for lamping of storm sewer. Any sewer in which the direct light of a lamp cannot be viewed in either direction, full circle, between adjacent structures shall be considered unsatisfactory, and shall be repaired by the Contractor without additional compensation.

D. For pipe 48 inches or less in diameter, conduct a video inspection in accordance with FDOT Standard Specification Section 430. Provide a video DVD and report using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software that provides the following: actual recorded length and width measurements of all cracks within the pipe; actual recorded separation measurement of all pipe joints; pipe ovality report; deflection measurements and graphical diameter analysis report in terms of x and y axis; flat analysis report; representative diameter of pipe; pipe deformation measurements, leaks, debris, or other damage or defects; deviation in pipe line and grade, joint gaps, and joint misalignment; a video record of the actual speed at which the camera is traveling; through the pipe, ensuring that the rate of travel does not exceed the limit defined in FDOT specification section 430.

END OF SECTION

SECTION 02710

STABILIZED SUBGRADE

PART 1 GENERAL

1.01 Section Includes

Stabilized subgrade for asphalt pavement

1.02 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

B. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition:

1. Section 914 - Materials for Subgrade Stabilization

1.03 Quality Assurance

Field compaction density, stability, and thickness testing frequencies of the subgrade shall be tested once every 300 linear feet of paving per 24-ft wide strip, staggered left, center and right of centerline. Where less than 300 linear feet of asphalt is placed in one day, provide minimum of one test for each per day's construction at a location designated by the Engineer.

1.04 System Description

A. Stabilize the roadbed below the proposed base to provide a firm and unyielding subgrade.

B. Provide a finished roadbed section that meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added.

PART 2 PRODUCTS

2.01 General

A. The Contractor may choose the type of stabilizing material, Commercial or Local.

B. Materials may be either limerock, shell rock, cemented coquina or shell base sources approved by FDOT.

2.02 Limerock

For limerock, carbonates of calcium and magnesium shall be at least 70%. Materials having a plasticity index of more than ten or a liquid limit greater than 40 shall not be used as a stabilizer. The gradation of limerock shall be such that 97% of these materials will pass a 3½ -inch (90 mm) sieve.

2.03 Crushed Shell

A. Crushed shell for this use shall be mollusk shell (i.e., oysters, mussels, clams, cemented coquina). Steamed shell will not be permitted.

B. Material having a plasticity index of more than ten or a liquid limit greater than 40 shall not be used as a stabilizer.

C. At least 97% by weight of the total material shall pass a 3½ -inch (90 mm) sieve and at least 50% by weight of the total material shall be retained on the No. 4 [4.75 µm] sieve.

D. Not more than 20% by weight of the total material shall pass the No. 200 [75 µm] sieve. The determination of the percentage passing the No. 200 [75 µm] sieve shall be by washing only.

2.04 Local Materials

A. Local materials used for this stabilizing may be soils or recyclable materials such as crushed concrete, roof tiles and asphalt coated base or reclaimed pavement. However, no materials that deteriorate over time, cause excessive deformations, contain hazardous substances, contaminates, or do not improve the bearing capacity of the stabilized material may be used in accordance with FDOT Specification Section 914.

B. At least 97% by weight of the total material shall pass a 3½ -inch (90 mm) sieve. Material having a plasticity index greater than ten or a liquid limit greater than 40 shall not be used as a stabilizer.

PART 3 EXECUTION

3.01 General

A. Prior to the beginning of stabilizing operations, construct the area to be stabilized to an elevation such that, upon completion of stabilizing operations, the completed stabilized subgrade will conform to the lines, grades, and cross-section shown in the plans. Prior to spreading any additive stabilizing material, bring the surface of the roadbed to a plane approximately parallel to the plane of the proposed finished surface.

B. Process the subgrade to be stabilized in one course, unless the equipment and methods being used do not provide the required uniformity, particle size limitation, compaction, and other desired results, in which case, the Engineer will direct that the processing be done in more than one course.

C. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

3.02 Application of Stabilizing Material

A. When additive stabilizing materials are required, spread the designated quantity uniformly over the area to be stabilized.

B. When materials from an existing base are to be used in the stabilizing at a particular location, place and spread all of such materials prior to the addition of other stabilizing additives.

C. Spread commercial stabilizing material by the use of mechanical material spreaders, except that where use of such equipment is not practicable, use other means of spreading, but only upon written approval of the proposed alternate method.

3.03 Mixing

A. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Contractor may mix the materials in a plant of an approved type suitable for this work. Thoroughly mix the area to be stabilized throughout the entire depth and width of the stabilizing limits.

B. Perform the mixing operations, as specified, (either in place or in a plant) regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

3.04 Maximum Particle Size of Mixed Materials

At the completion of the mixing, ensure that the gradation of the material within the limits of the area being stabilized is such that 97% will pass a 3½-inch sieve and that the material does not have a plasticity index greater than eight or liquid limit greater than 30. Note that clay balls or lumps of clay size particles (2 microns or less) cannot be considered as individual particle sizes. Remove any materials not meeting the plasticity requirements from the stabilized area. The Contractor may break down or remove from the stabilized area materials not meeting the gradation requirements.

3.05 Compaction

Compact the materials at a moisture content permitting the specified compaction. If the moisture content of the material is improper for attaining the specified density, either add water or allow the material to dry until reaching the proper moisture content for the specified compaction.

3.06 Finish Grading

Shape the completed stabilized subgrade to conform with the finished lines, grades, and cross-section indicated in the plans. Check the subgrade using elevation stakes or other means approved by the Engineer.

3.07 Condition of Completed Subgrade

A. After completing the stabilizing and compacting operations, ensure that the subgrade is firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by the plans.

B. Remove all soft and yielding material, and any other portions of the subgrade which will not compact readily, and replace it with suitable material so that the whole subgrade is brought to line and grade, with proper allowance for subsequent compaction.

3.08 Maintenance of Completed Subgrade

After completing the subgrade, maintain it free from ruts, depressions, and any damage resulting from the hauling or handling of materials, equipment, tools, etc. The Contractor is responsible for maintaining the required density until the subsequent base or pavement is in place including any repairs, replacement, etc., of curb and gutter, sidewalk, etc., which might become necessary in order to recompact the subgrade in the event of underwash or other damage occurring to the previously compacted subgrade. Perform any such recompaction at no expense to the Owner. Construct and maintain ditches and drains along the completed subgrade section.

3.09 Field Quality Control

When proper moisture conditions are attained, compact the material to not less than 98% of maximum density determined by AASHTO T180, and a minimum Limerock Bearing Ratio of 40.

END OF SECTION

SECTION 02715

LIMEROCK BASE COURSE

PART 1 GENERAL

1.01 Section Includes

Limerock base for asphalt pavement

1.02 References

A. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb Rammer and 18-in Drop

1.03 Quality Assurance

Field compaction density and thickness testing frequencies of the base shall be tested once every 300 linear feet of paving per 24-ft wide strip, staggered left, center and right of centerline. Where less than 300 linear feet of asphalt is placed in one day, provide minimum of one test for each per day's construction at a location designated by the Engineer.

PART 2 PRODUCTS

2.01 Composition

A. The minimum of carbonates of calcium and magnesium in the limerock material shall be 70%. The maximum percentage of water-sensitive clay mineral shall be 3%.

B. The liquid limit shall not exceed 35 and the material shall be non-plastic.

C. Limerock material shall not contain cherty or other extremely hard pieces, or lumps, balls or pockets of sand or clay size material in sufficient quantity as to be detrimental to the proper bonding, finishing, or strength of the limerock base.

D. The use of removed limerock base for construction of new limerock base is prohibited.

2.02 Gradation and Size Requirements

At least 97% (by weight) of the material shall pass a 3½ inch sieve and the material shall be graded uniformly down to dust. The fine material shall consist entirely of dust of

fracture. All crushing or breaking-up which might be necessary in order to meet such size requirements shall be done before the material is placed on the road.

2.03 Limerock Bearing Ratio

Limerock material used in construction of limerock base shall have an average LBR value of not less than 100. The average LBR value of material produced at a particular source shall be determined in accordance with an approved quality control procedure.

PART 3 EXECUTION

3.01 General

A. Use mechanical rock spreaders, equipped with a device that strikes off the rock uniformly to laying thickness, capable of producing even distribution. For crossovers, intersections and ramp areas; roadway widths of 20 feet [6 m] or less; the main roadway area when forms are used and any other areas where the use of a mechanical spreader is not practicable; the Contractor may spread the rock using bulldozers or blade graders.

B. Transport the limerock to its point of use, over rock previously placed, if practicable, and dump it on the end of the preceding spread. Hauling and dumping on the subgrade will be permitted only when, in the Engineer's opinion, these operations will not be detrimental to the subgrade.

3.02 Spreading Limerock

A. Spread the rock uniformly. Remove all segregated areas of fine or coarse rock and replace them with properly graded rock.

B. When the specified compacted thickness of the base is greater than 6 inches, construct the base in multiple courses of equal thickness. Individual courses shall not be less than 3 inches. The thickness of the first course may be increased to bear the weight of the construction equipment without disturbing the subgrade.

3.03 Compacting and Finishing Base

A. After spreading, scarify the entire surface, then shape the base to produce the required grade and cross-section after compaction.

B. Vibratory compaction is not allowed within 100 feet of existing structures. In these areas, compaction shall be accomplished by static means only. If compaction difficulties arise, the Engineer shall be consulted to review and possibly modify compaction procedures.

C. Clean the first course of foreign material, then blade and bring it to a surface cross-section approximately parallel to the finished base. Before spreading any material for the upper courses, conduct density tests for the lower courses to determine that the required compaction has been obtained. After spreading the

material for the top course, finish and shape its surface to produce the required grade and cross-section, free of scabs and laminations, after compaction.

D. When the material does not have the proper moisture content to ensure the required density, wet or dry it as required. When adding water, uniformly mix it in by disking to the full depth of the course that is being compacted. During wetting or drying operations, manipulate, as a unit, the entire width and depth of the course that is being compacted.

E. Where base construction consists of widening strips and the trench width is not sufficient to permit use of standard base compaction equipment, compact the base using vibratory compactors, trench rollers or other special equipment which will achieve the density requirements specified herein.

3.04 Correction of Defects

A. If, at any time, the subgrade material becomes mixed with the base course material, dig out and remove the mixture, and reshape and compact the subgrade. Replace the materials removed with clean base material, and shape and compact as specified herein.

B. If cracks or checks appear in the base, either before or after priming, which, in the opinion of the Engineer, would impair the structural efficiency of the base, remove the cracks or checks by rescarifying, reshaping, adding base material where necessary, and recompacting.

3.05 Acceptance of Surface

Check the finished surface of the base course with a template cut to the required crown and with a 15 foot straightedge laid parallel to the centerline of the road. Correct all irregularities greater than ¼ inch to the satisfaction of the Engineer by scarifying and removing or adding rock as required, and recompact the entire area as specified herein.

3.06 Priming and Maintaining

A. Apply the prime coat only when the base meets the specified density requirements and when the moisture content in the top half of the base does not exceed 90% of the optimum moisture of the base material. At the time of priming, ensure that the base is firm, unyielding and in such condition that no undue distortion will occur.

B. Maintain the true crown and template, with no rutting or other distortion, while applying the surface course.

3.07 Acceptance Requirements

Correct all areas of the completed base having a deficiency in thickness in excess of ½ inch by scarifying and adding additional base

3.08 Field Quality Control

A. Perform at least three density determinations on each day's final compaction operations on each course, and at more frequent intervals, if deemed necessary.

B. During final compacting operations, blade any areas necessary to obtain the true grade and cross-section before making the Engineer the density tests on the finished base.

C. When proper moisture conditions are attained, compact the material to not less than 98% of maximum density determined by AASHTO T180.

END OF SECTION

SECTION 02740

PAVING

PART 1 GENERAL

1.01 Section Includes

A. Asphalt pavement, including binder and surface course.

B. Repair and restoration of existing paving, curbing, driveways, and sidewalks.

C. Paving and temporary paving timing requirements.

1.02 References

A. Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction, latest edition:

1. Section 334 - Superpave Asphalt Concrete

1.03 Submittals

Submit proposed design mix for review and approval. Submit for each proposed mix the following: Gradation analysis; proposed asphalt binder.

1.04 Quality Assurance

A. Field compaction density and thickness testing frequencies of the asphalt shall be tested once every 200 linear feet of paving per 24-ft wide strip, staggered left, center and right of centerline. Where less than 200 linear feet of asphalt is placed in one day, provide minimum of one test for each per day's construction at a location designated by the Engineer.

B. Asphalt extraction gradation shall be tested from grab samples collected once every 1800 square yards of asphalt delivered to the site, or a minimum of once per day. Obtain the results in a timely manner (no later than the end of the day) so that adjustments can be made if necessary.

C. All other testing requirements and acceptance criteria shall be in accordance with FDOT specifications.

1.05 Project Conditions

A. Apply asphalt in accordance with FDOT requirements. Do not apply when the base is wet, contains excess moisture, or during rain.

B. Do not spread the mixture when the wind is blowing to such an extent that proper and adequate compaction cannot be maintained or when sand, dust, etc., are being deposited on the surface being paved to the extent that the bond between layers will be diminished.

PART 2 PRODUCTS

2.01 General

The superpave mix and thickness shall be in accordance with the construction plans.

PART 3 EXECUTION

3.01 General

All installation and testing procedures shall be in accordance with FDOT requirements, except for the frequency of testing outlined herein and measurement and payment requirements of section 01270.

END OF SECTION

SECTION 02920

GRASSING

PART 1 GENERAL

1.01 Section Includes

Soil preparation, sodding, seeding, mulching, fertilizing, watering, and maintenance of grassed areas

1.02 References

Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest implemented edition.

1.03 Submittals

A. All sod shall have a valid and current state of Florida, Division of Plant Industry (DPI) inspection certification prior to being transported to the construction site. Submit the DPI certification to the Owner and maintain a copy of the certification onsite with the construction records.

B. Tickets from each sod pallet of sod delivered to the site shall be provided to the Owner. The tickets are to identify the sod type, the sod farm (source) of the sod, and the date the sod was cut.

C. Provide 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 6 months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed.

1.04 Quality Assurance

A. Sod shall be no more than 10% brown per piece of sod when delivered to the site and shall be free of weeds and other grass contamination.

B. Sod shall be delivered to the site no more than 48 hours after it has been cut and shall be installed upon delivery. Sod shall be fresh and uninjured.

C. Sod shall have a soil mat of sufficient thickness adhering firmly to the roots in order to withstand all necessary handling.

1.05 Delivery, Storage, and Handling

A. Sod delivered to the site shall be in pallets, with sod pieces generally 16-inches by 24-inches (+/-) with no sod piece smaller than 12-inches on any side.

B. Sod delivered to the site shall be kept out of direct sunlight and shall be kept moist until installation.

C. Sod not meeting these specifications upon delivery as determined by the Owner shall be removed from the project site and not installed.

1.06 Warranty

All seeding shall be warrantied by the General Contractor to be true to name and in a vigorous growing condition through one growing cycle including one summer and one winter season.

1.07 Certification

Sod shall have a valid and current State of Florida, Division of Plant Industry (DPI) inspection certification prior to being transported to the construction site.

1.08 Maintenance

A. Maintenance for lawns shall begin immediately after seeding or sodding. Provide fertilizing, watering, mowing and replanting and continue as necessary until a close healthy stand of specified grasses is established.

B. Mowing and watering shall be continued until project completion as directed by the Owner.

PART 2 PRODUCTS

2.01 Lime

Lime shall be agricultural grade dolomitic limestone, ground sufficiently fine so that at least 80 percent will pass through a No. 8 sieve, and it shall contain not less than 80 percent calcium carbonate equivalent. Moisture content at time of delivery shall not exceed 8 percent.

2.02 Fertilizer

Fertilizer shall be a composition recommended by a local County Agricultural Agent or State Agricultural Extension Service or a preformulated 10-6-4 mixture.

2.03 Water

Water shall be free from oil, acid, alkali, salts, and other harmful substances.

2.04 Sod

A. Sodding is to match existing adjacent lawns and shall be well matted with grass roots.

B. Sod shall be either field or nursery grown sod that is native to the locality of the Project. The Contractor shall obtain the Owner's approval of the source of the sod prior to cutting the sod.

C. Sod grown on soil high in organic matter, such as peat, will not be acceptable. The consistency of sod shall be such that it will not break, crumble or tear during handling and placing. Sod shall be reasonably free of stones, crab grass, noxious weeds, and other objectionable plants or substances injurious to plant growth.

D. Sod shall have at least 1 inch of soil adhering firmly to the roots and cut in rectangular pieces with the shortest side not less than 12 inches. At the time of cutting sod the grass shall be mowed to a height not less than 2 inches nor more than 4 inches.

E. Sod cut for more than 48 hours shall not be used without the approval of the Owner.

F. Bermuda Sodding shall be 419 Tifway Bermuda.

G. Bahia Sodding shall be Argentine Bahia Sod.

H. If so designated on the drawings, Bahia Sodding along coastal areas subject to high salt content shall be Seashore Paspalum Bahia (Paspalum vagination), such as Sea Isle 1, as produced by Turfgrass America, or approved equal.

I. St. Augustine sodding is to be provided in those areas where the adjacent sod is St. Augustine sod.

2.05 Seed and Mulch

A. Permanent grass seed shall be scarified argentine bahia, in accordance with FDOT specification 981.

B. Temporary grass seed shall be annual rye grass in accordance with FDOT specification 981.

C. Mulch shall be dry mulch in accordance with FDOT specification 981.

PART 3 EXECUTION

3.01 General

A. All grassing, whether temporary or permanent, will be inspected by the Owner or the Owner's representative at the time of installation or shortly thereafter to determine whether it is acceptable in accordance with these specifications. Any

sod found to be unacceptable shall be removed and replaced with new sod within 48 hours (prior to root establishment) as directed by the Owner.

B. Grassed areas will be inspected by the Owner or the Owner's representative throughout the construction period, not just at project completion. Any established sod subsequently found to be unacceptable shall be removed and replaced with new sod within 7 calendar days as directed by the Owner.

3.02 Timing Requirements

A. Grass all disturbed areas, whether temporary or permanent grassing, within 7 days of initial disturbance.

B. Permanently grass disturbed areas after all required testing is complete.

3.03 Regrading of Topsoil

Topsoil shall be graded reasonably smooth and level after final settlement. All humps shall be removed and depressions or eroded areas filled in with additional topsoil before proceeding with seeding or sodding.

3.04 Preparation for Sodding or Seeding

A. Preparation shall not be started until all other site and utility work and finished grading within the areas to be seeded have been completed.

B. Loosen topsoil by tilling it to a depth of at least 3 inches and smooth out all surface resulting irregularities. Leave area free of rocks or hard soil clods that will not pass through the tines of a standard garden rake.

C. At least 7 days before applying fertilizer, spread lime uniformly in sufficient quantity to produce a soil pH of 6.5. Work lime thoroughly into topsoil to a depth of 3 inches.

D. Apply fertilizer uniformly at a rate of 20 pounds per 1000 square feet. Work fertilizer into soil prior to seeding or sodding.

E. The area over which sod is to be placed shall be scarified or loosened to a depth of 2 inches and then raked smooth and free of debris.

F. The area shall be graded as needed to ensure the new sod matches the existing sod grade.

3.05 Sodding

A. Sodding operations shall follow immediately behind operations for the preparation of the areas for sodding and shall generally take place on the same day.

B. Provide sod in areas indicated on the Drawings. Generally, all disturbed areas are to be sodded except for those areas specifically identified to be seeded and mulched or hydroseeded. Sodding shall also be used in ditches and drainage swales and on all embankment slopes steeper than 3 to 1 unless protection is provided against erosion of seeding.

C. Sod which has been cut for more than 72 hours prior to installation shall not be used unless specifically authorized by the Owner.

D. Place sod with the edges in close contact and alternate courses staggered. Lightly tamp or roll to eliminate air pockets. On slopes 2 to 1 or steeper, stake sod with not less than 4 stakes per square yard and with at least one stake for each piece of sod. Stakes shall be driven with the flat side parallel to the slope.

E. Do not place sod when the ground surface is frozen or when air temperature may exceed 90 degrees F. Sodding shall not be performed when weather and soil conditions are, in the Owner's opinion, unsuitable for proper results.

F. In ditches, the sod shall be placed with the longer dimension perpendicular to the flow of water in the ditch. On slopes, starting at the bottom of the slope, the sod shall be placed with the longer dimension parallel to the contours of the ground. In order to prevent vertical edges at the outer limits, the outer pieces of sod shall be tamped into place.

G. Any voids shall be sanded prior to watering and rolling.

H. Upon completion of the sodding, the entire area shall be rolled thoroughly with the equipment specified. The area shall be rolled, then watered, and then rolled a second time providing a total of two trips over the entire area that has been sodded.

3.06 Seeding and Mulching

A. Scatter seed uniformly over the grassing area while the soil is still loose and moist at the rate of 100 pounds per acre.

B. Seed of quick growing species of grass, such as rye, Italian rye, millet or other cereal grass, shall be spread in conjunction with the permanent type seed mixture. The type of quick-growth seed used shall be appropriate to provide an early ground cover during the particular season when planting is done. The rate of spread shall be 30 pounds per acre, unless otherwise specified.

C. Apply approximately 2 inches, loose thickness, of the mulch material uniformly over the seeded area, and cut into the soil so as to provide an early ground cover during the particular season when planting is done. The rate of spread shall be 30 pounds per acre, unless otherwise specified.

D. Roll thoroughly the entire seeded area immediately after completion of the seeding.

3.07 Hydroseeding – N/A

3.08 Watering

Immediately after placing erosion control or mulch, water seeded areas thoroughly with a fine mist spray. Keep soil thoroughly moist until seeds have sprouted and achieved a growth of 1 inch. For sod, immediately begin watering and continually keep moist until the sod has firmly knit itself to the topsoil.

3.09 Protection of Work

Protect newly seeded and sodded areas from all traffic by erecting temporary fences and signs. Protect slopes from erosion. Properly and promptly repair all damaged work when required.

3.10 Application of Fertilizer

Six weeks after completion of seeding or sodding apply granular fertilizer over all areas at the rate of two pounds of nitrogen nutrients per 1000 square feet of area.

3.11 Turf Establishment

A. Any sod that is more than 10% brown and has not become green within 14 calendar days of installation shall be re-sodded as directed by the Owner.

B. Any sod that does not have root establishment (can be pulled up by hand) 14 calendar days or more after installation shall be re-sodded as directed by the Owner.

C. All bare spots larger than 1 square foot shall be re-grassed as directed by the Owner.

D. Any bare areas compromising more than 1% of any given 1000 square foot area shall be re-grassed as directed by the Owner.

E. For the re-grassing, areas that were sodded are to be re-sodded and areas that were seeded are to be re-seeded.

F. Scattered bare spots, none of which is larger than one square foot, will be allowed up to a maximum of 3% of the total area.

G. Except for factors caused by a third party (other than the Contractor, subcontractor or supplier for the project), all re-grassing or repair of washed out and eroded areas shall be at no additional cost to the Owner.

H. Grassed areas not showing a close uniform stand of healthy specified grasses at the time of substantial completion shall be replaced and maintained until final payment is made to the Contractor.

3.12 Clean-Up

At the time of final inspection of work, but before final acceptance, remove from seeded and sodded areas all debris, rubbish, excess materials, tools, and equipment.

END OF SECTION

SECTION 03100

CONCRETE FORMS

PART 1 GENERAL

1.01 Section Includes

General formwork, forms, form liners, and coatings, form ties.

1.02 Related Sections

Section 03150 - Concrete Accessories

1.03 References

A. American Concrete Institute (ACI) latest edition:

1. ACI 301 - Structural Concrete for Buildings
2. ACI 318 - Building Code Requirements for Reinforced Concrete
3. ACI 347 - Guide to Formwork for Concrete
4. ACI SP-4 - Formwork for Concrete

1.04 System Description

Provide formwork to produce members of the size, shape, and exterior finish required, for the structural adequacy of the forms to carry construction loads without excessive deflection, and for the safe use of forms in connection with completion of the concrete work. The Contractor shall be responsible for any injury or damage arising from inadequate forms or from premature removal of formwork.

1.05 Submittals

Submit samples of patterned concrete form liner panels and form ties.

PART 2 PRODUCTS

2.01 Formwork

A. Form ties shall be a watersealing snap-in type. For patterned concrete, use stainless steel snap ties.

B. Plywood forms and liners shall be minimum grade B-B High Density Overlay Concrete Form Panels, Class I.

C. Formwork lumber shall be straight and clean. All nails shall be withdrawn and surfaces in contact with concrete shall be thoroughly cleaned before reuse

D. Metal forms shall be in accordance with ACI SP-4.

2.02 Patterned Concrete Form Liners

A. The special liners shall be configured in such a manner as to produce patterned finish concrete that will duplicate the surface appearance of the cut limestone building panels. The location, extent, and configuration of the surface treatment shall be as indicated on the Drawings. In addition to form release agents, rustication may be slightly beveled, approximately 1 to 8 maximum, to facilitate form release.

B. Produce the patterned concrete with a smooth finish by using either plywood and/or tempered hardboard, complying with requirements for Grade A Forms, in conjunction with finished lumber, or approved fiberglass liners; or an approved equal liner. Liner joint marks shall not be apparent.

PART 3 EXECUTION

3.01 General

A. Coordinate with other trades and properly place and locate in position all necessary dowels, bolts, anchors, anchor slots, inserts, sleeves, openings, hangers, metal ties and other fastening devices required for attachment and support of adjacent work. Securely anchor all embedded items.

B. Formwork shall comply with ACI 347 and to shape, lines and dimensions of the members as indicated on the Drawings. Joints in forms shall be horizontal or vertical. Forms shall be properly braced or tied to maintain position and shape under all dead and live loads and to prevent leakage. Forms shall be assembled so their removal will not damage the concrete. Tolerances for formed surfaces shall be in compliance with ACI 301.

C. Lumber formwork may be used for surfaces which will not be exposed to view. Use plywood or metal forms for exposed surfaces.

D. Provide temporary openings at the base of forms greater than 4 feet high, if necessary, to facilitate cleaning and inspection immediately before depositing concrete.

E. All external corners of concrete exposed to view shall be chamfered by using 3/4 inch by 3/4 inch by 45 degree wood stripping, except as otherwise indicated on the Drawings.

3.02 Grade A Forms

A. Unless otherwise indicated, Grade A forms shall be used for all exposed concrete.

B. Grade A forms shall consist of steel forms lined with 3/16 inch thick tempered hardboard or 1/4 inch thick plywood, or by using plywood forms.

C. Full sized sheets shall be used wherever possible. The edges of all sheets shall be straightened to insure tight, close fitting joints. Bulges or depressions more than 1/8 inch in 4 feet will not be permitted. Open joints which would permit leakage shall be sufficient cause for rejection of forms. Other tolerances shall be as allowed by ACI 347.

3.03 Grade B Forms

A. Use lumber, plywood or metal forms. All joints shall be solidly backed, aligned and made leakproof.

B. Unless otherwise indicated, Grade B Forms are intended for use where concrete will not be exposed to view, such as below grade, below normal liquid levels in water-retaining structures, or inside manholes, boxes, vaults, etc.

3.04 Surface Treatment of Formwork

The inside surface of lumber forms shall be soaked with clean water prior to placing concrete. All other forms shall be treated with an approved form oil or lacquer. If oil is used, all excess oil shall be wiped off.

3.05 Inspection of Formwork

Concrete shall not be placed until the forms have been inspected by the E/A to assure surfaces in conformance with the Drawings and Specifications. The inspection of formwork by the E/A does not relate to the structural adequacy or the safety of the formwork.

3.06 Removal of Forms

Forms shall be removed in accordance with requirements of ACI 318, without damaging the concrete. Leave shoring in place until concrete will safely support its own weight plus any live loads that may be placed upon it.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 Section Includes

General requirements for formwork, reinforcement, accessories and cast-in-place concrete.

1.02 References

A. American Concrete Institute (ACI) latest edition:

1. ACI 301 - Structural Concrete for Buildings
2. ACI 305 - Hot Weather Concreting
3. ACI 306 - Cold Weather Concreting
4. ACI 315 - Detailing Manual
5. ACI 318 - Building Code Requirements for Structural Concrete
6. ACI 347 - Formwork for Concrete

B. American Association of State Highway and Transportation Officials (AASHTO) latest edition:

1. AASHTO T152 - Air Content of Freshly Mixed Concrete by the Pressure Method

C. American Society for Testing and Materials (ASTM) latest edition:

1. ASTM A185 - Steel Welded Wire Reinforcement, Plain, for Concrete
2. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
3. ASTM C31 - Making and Curing Concrete Test Specimens in the Field
4. ASTM C33 - Concrete Aggregates
5. ASTM C39 - Test Method for Compressive Strength of Cylindrical Concrete Specimens
6. ASTM C94 - Ready-Mixed Concrete
7. ASTM C138 - Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
8. ASTM C143 - Test Method for Slump of Hydraulic Cement Concrete
9. ASTM C150 - Portland Cement
10. ASTM C173 - Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
11. ASTM C231 - Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

12. ASTM C260 - Air-Entraining Admixtures for Concrete
13. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete
14. ASTM D1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Bituminous Types)

1.03 Submittals

A. Submit reinforcement steel shop drawings prepared in accordance with ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures. Drawings shall indicate bending diagrams, shapes, dimensions, clearances, splicing and laps, accessories, and installation notes.

B. Submit manufacturer's literature for all admixtures proposed for the work.

C. Submit delivery tickets in accordance with ASTM C94 for each batch of ready-mixed concrete. Information on the ticket shall include class of concrete, water content, time of loading, truck number, admixtures, and quantity.

D. At least 35 days prior to placing of concrete, the Contractor shall submit proposed mix proportions and samples of proposed materials.

1.04 Quality Control

A. Materials and methods of mixing and placing concrete shall conform to ACI 318, Building Code Requirements for Reinforced Concrete.

B. Tests for slump shall be made when directed by the Engineer in accordance with ASTM C143.

C. Air content tests shall be made, when directed by the Engineer, in accordance with ASTM C138, C173, C231, or AASHTO T-152.

PART 2 PRODUCTS

2.01 Formwork

Formwork lumber shall be straight and clean. All nails shall be withdrawn and surfaces in contact with concrete shall be thoroughly cleaned before reuse.

2.02 Reinforcement

A. Reinforcement bars shall be ASTM A615, Grade 60 deformed bars, except as otherwise indicated.

B. Welded wire fabric shall conform to ASTM A185. Where welded wire fabric is shown but not sized on Drawings, use 6" x 6" x W2.9 x W2.9 WWF.

C. Accessories for proper installation of reinforcement shall conform to CRSI "Manual of Standard Practice for Reinforced Concrete Construction". Bar supports at exposed surfaces shall be Class C-Plastic Protected.

D. Reinforcement fabrication shall conform to ACI 315 and ACI 318, and approved shop drawings.

E. Where the Drawings require Fibermesh concrete, the reinforcement shall be polypropylene fibers engineered and designed for secondary reinforcement of concrete slabs, complying with ASTM C 1116 Type III, as manufactured by Fibermesh Co., or approved equal.

2.03 Joint Fillers

A. Joint fillers shall be products of the following manufacturers, or equal:

1. W. R. Meadows, Inc., Elgin, Illinois
2. W. R. Grace and Co., Cambridge, Massachusetts.

B. Preformed bituminous fiber joint filler shall be non-extruding type conforming to ASTM D1751.

C. Control joint strips shall have a minimum depth of 25 percent of slab thickness and a minimum thickness of 1/8 inch.

2.04 Concrete Materials

A. Water shall be clean and potable

B. Portland cement shall be ASTM C150 Type I, II or III.

C. Fine and coarse aggregate shall be clean, hard, natural, or manufactured material conforming to ASTM C33.

D. The nominal maximum size of the aggregate shall not be larger than three-fourths of the minimum clear spacing between individual reinforcing bars. Coordinate with maximum aggregate sizes specified hereafter for classes of concrete.

E. Admixtures shall conform to ASTM C260 (air entrainment) or C494 (water reduction) and shall be products of one of the following manufacturers, or equal.

1. Dewey and Almy Chemical Div., W. R. Grace and Co.
2. Euclid Chemical Co.
3. Master Builders Co.
4. Sika Chemical Corp.

2.05 Miscellaneous Materials

A. Vapor barrier shall be polyethylene film 0.006 inches thick and shall conform to Product Standard PS-17.

B. Liquid membrane curing compound shall conform to ASTM C309, Type 1 or Type 2. Type 2 compound shall be used for P.C.C. pavement only. All permanently exposed exterior slabs shall receive clear acrylic curing and sealing compound. Moisture loss shall not be more than 0.055 gr./sq. cm when applied to 200 sq. ft./gal.

C. Liquid membrane curing compound shall be products of one of the following manufacturers, or equal:

1. W.R. Meadows "Curettard"
2. Sonneborn-Contech "Sonsil"
3. Burke Co. "Res-Xnu"
4. Lambert Corp. "Gardseal"

D. Chemical hardener shall be colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, conforming to Federal Specifications TT-C-800A and Corps of Engineers Specification CE 204.

E. Chemical hardener shall be products of one of the following manufacturers, or equal:

1. Euclid Chemical Co. "Surfhard"
2. Sonneborn-Contech "Lapidolith"
3. Master Builders "Saniseal"
4. Lambert Corp. "Solidus"

2.06 Concrete Mixtures

A. Concrete not indicated otherwise shall be Class A concrete.

B. The proportions of cement, aggregate, and water shall be selected by the Contractor in accordance with ACI 318 to provide a plastic and workable mix. Coarse aggregate shall be limited to prevent harshness and honeycombing. Coarse aggregate size shall not be greater than the maximum listed for the various classes of concrete and as previously specified under aggregate.

C. Class A structural concrete shall have a 28 day strength of 4000 psi, shall contain not less than 540 pounds (5-3/4 bags) of cement per cubic yard of concrete, shall have a water-cement ratio of not more than 0.47 (5-1/4 gallons per bag of cement), and shall contain 4 percent to 6 percent entrained air, by

volume, except interior slabs subject to abrasion shall not contain more than 3 percent entrained air. In addition, Class A concrete shall contain a water-reducing, densifying admixture and have a maximum slump of 4 inches. The maximum aggregate size for slabs shall be 1 inch.

D. Class B lean concrete shall have a 28 day strength of 3000 psi, it shall contain not less than 420 pounds (4-1/2 bags) of cement per cubic yard of concrete, shall have a water-cement ratio of not more than 0.71 (8 gallons per bag of cement), and shall have a 5 inch maximum slump. The maximum aggregate size shall be 2 inches.

E. Water-reducing densifying admixture added to Class A concrete shall reduce the water-cement ratio while maintaining slump and compressive strength. Use as manufacturer recommends.

F. Other admixtures may be proposed by the Contractor or requested by the Engineer and shall be provided at no additional cost to the Owner. Subject to approval, admixtures may be used for the following:

1. To increase slump up to 50 percent while maintaining compressive strength and water-cement ratio.
2. To retard set during hot weather

G. Calcium chloride, admixtures containing calcium chloride, or admixtures not approved, in writing by the Engineer, are prohibited.

PART 3 EXECUTION

3.01 General

A. Comply with ACI 305 or 306 for hot or cold weather concreting.

B. Do not mix salt, chemicals, or other foreign materials with the concrete to prevent freezing without approval of the Engineer. Maintain the temperature of concrete above 50 degrees F for 5 days after placement. When high early strength Portland cement concrete is used, the temperature shall not be less than 70 degrees F for 2 days or 50 degrees F for 3 days.

C. In no case shall the temperature of concrete exceed 90 degrees F at the time of placement.

3.02 Preparation

A. Remove existing concrete and provide openings for installation of new work as indicated on Drawings. Repair all damage to existing work caused by concrete removal.

B. Coordinate with other trades and properly place and locate in position all necessary dowels, bolts, anchors, anchor slots, inserts, sleeves, openings, hangers, metal ties and other fastening devices required for attachment and support of adjacent work. Securely anchor all embedded items.

C. The subgrade and/or bedding shall be compacted and free of frost. If placement is allowed at temperatures below freezing, provide temporary heat and protection as required to remove all frost. Saturate the subgrade approximately 8 hours before placement and sprinkle ahead of the placement of concrete in areas where vapor barrier is not used. Remove all standing water, ice, mud, and foreign matter before concrete is deposited.

D. On porous subgrade or beddings, or where indicated on the Drawings, provide vapor barrier. Lay vapor barrier sheets with 6 inch edge laps and tape or seal with mastic. Stretch and weight edges and laps to maintain their positions until concrete is placed. Coordinate with placement of reinforcement.

3.03 Formwork Requirements

A. Formwork shall comply with ACI 347 and to shape, lines and dimensions as indicated on the Drawings. Forms shall be properly braced or tied to maintain position and shape under all dead and live loads and to prevent leakage. Forms shall be assembled so their removal will not damage the concrete. Tolerances for formed surfaces shall be in compliance with ACI 301.

B. Lumber formwork may be used for surfaces which will not be exposed to view. Use plywood or metal forms for exposed surfaces.

C. The inside surface of lumber forms shall be soaked with clean water prior to placing concrete. All other forms shall be treated with an approved form oil or lacquer. If oil is used, all excess oil shall be wiped off.

3.04 Reinforcement

A. The placement of reinforcing steel shall conform to "Placing Reinforcing Bars", as published by the Concrete Reinforcing Steel Institute except as noted.

B. Provide continuous reinforcement or dowels through construction joints. One half of reinforcement shall be discontinued across control joints unless otherwise indicated. All reinforcement shall be discontinued across expansion joints.

C. Splice laps shall be as indicated on the Drawings.

D. Fabric reinforcement for slabs shall be overlapped at splices not less than the spacing of the cross wires plus 2 inches. Fabric shall extend to within 4 inches of concrete edges.

E. Unless otherwise shown, place reinforcement 2 to 3 inches below the top of the finished slab. Mesh shall either be sandwiched between two layers of fresh concrete or supported on mesh supports. Supports that may puncture the vapor barrier, if any, shall not be used.

F. Where reinforcing is fibermesh, incorporate polypropylene fibers fully into the concrete prior to placement.

3.05 Joints

A. Provide construction joints with shear transfer keyways as indicated.

B. Tops of edge forms and screeds shall be set to the finished elevations and to provide uniform pitch to drains as indicated on Drawings.

C. For drives, pavements, parking areas, walks and slabs on grade, provide preformed non-extruding asphalt strip or bituminous fiber joint filler set 1/8 inch below finished surface unless otherwise indicated. Tool concrete edges on each side of joint. No sealant is required.

3.06 Batching

A. Materials for concrete shall be proportioned and batched according to the approved design mix.

B. Water shall be measured to within 1 pint of the total amount required per batch. Admixtures shall be measured by weight or volume to an accuracy of 3 percent.

3.07 Mixing and Transporting Concrete

A. Concrete shall be ready-mixed or job-mixed at the Contractor's option. Ready-mixed concrete shall be mixed and delivered to the project in accordance with ASTM C94. Job-mixed concrete shall be in accordance with the requirements of ACI 318.

B. Concrete shall be in its final position within one hour after the water and aggregate have been added to the cement, except in cool weather (50 degrees F or less).

C. Concrete shall be transported from the mixer to place of final deposit in such manner to prevent separation or loss of ingredients.

3.08 General Concrete Placement Schedule

A. All structural concrete shall be Class A Concrete.

B. Sidewalks, curbing, and driveways shall be Class B Concrete.

3.09 Depositing Concrete

A. Concrete shall be placed in accordance with the requirements of ACI 318 and within 10 feet of its final position. Place concrete only during normal working hours unless the Engineer is notified at least 24 hours in advance. Concrete shall not be placed until the Engineer has approved the formwork, reinforcement, and embedded items and debris has been removed.

B. Whenever new concrete is to be placed against existing surfaces, roughen and clean the surface to improve bond.

C. Provide runways and chutes to discharge concrete close to final position to minimize spreading and segregation.

D. Place slabs-on-grade using formed construction joints. Maximum size of pour shall be 40 feet each way for slabs with wire mesh reinforcement and 75 feet each way for slabs with bar reinforcement. Allow 24 hours between pours of adjacent slabs. Provide joints as specified or shown. Set continuous joint strips between slabs and abutting vertical surfaces as indicated on the Drawings.

3.10 Finishing Slabs and Flatwork

A. Unless otherwise indicated, provide the following slab finishes:

Description	Concrete Finish
Class B concrete surfaces	Float
Submerged slabs	1 Troweling
Exposed slabs	3 Trowelings
Ramps and walks	Float and broom finish

B. Concrete shall be within ¼ inch of a 10 foot straightedge in all directions except where slabs are dished for drains. Deviations from the elevation indicated shall not exceed ¼ inch.

C. Slabs sloped for drainage shall not have depressions that retain water.

D. Immediately after placement, screed concrete with straightedges or power strikeoffs. Do not use roller screeds or vibrating screeds.

E. Stakes for wet screeds shall be driven down flush with subgrade or pulled out as work progresses to avoid disturbing screeded concrete.

F. Unless otherwise indicated on the Drawings, slabs sloped for drainage shall be uniformly pitched as called for on the plans and details.

G. Immediately after screeding, darby surface with wood or magnesium darby to eliminate ridges and to fill in voids left by screeding.

3.11 Float Finish

A. Float concrete using magnesium or aluminum hand floats or power floats after the concrete has stiffened to a point where only a ¼ inch indentation can be imparted by normal foot pressure.

B. Float finish shall result in a uniform, smooth, granular texture. After floating, check slab tolerances with 10-foot straightedge. Fill low spots with fresh concrete; do not sprinkle with dry cement.

3.12 Trowel Finish

A. Where scheduled, or indicated, trowel with steel trowels after floating.

B. Initial troweling shall be done either by power or by hand with the trowel blade kept as flat as possible against concrete surface to prevent washboard or chatter effect.

C. Second troweling may be done by power if three trowelings are scheduled. If two trowelings are specified, second troweling shall be done by hand.

D. Third troweling shall be done by hand and shall continue until the concrete is consolidated to a uniform, smooth, dense surface free of trowel marks and irregularities.

E. Allow sufficient time between successive trowelings to allow the concrete to become harder. Each successive troweling shall be done with trowels that are progressively smaller and are tipped more to increase compaction of the concrete surface.

3.13 Brooming

Broom at right angles to direction of traffic to give a non-skid finish. Use a fine, soft-bristled broom for pedestrian ramps and walks, and a coarse, hard-bristled broom for vehicular pavement.

3.14 Control Joints

A. Control joints for non-structural slabs shall consist of partial depth plastic strips set flush with finished surface or 1/8 inch wide joints cut with a diamond saw. Control joints shall be one- quarter to one-third the depth of the slab unless otherwise indicated.

B. Saw joints as soon as concrete has hardened sufficiently so aggregate will not be dislodged but before shrinkage stresses develop cracks. Sawn joints shall be filled with approved joint sealant.

C. Unless otherwise indicated on the Drawings, spacing of control joints shall not exceed 25 feet in each direction.

3.15 Protection and Curing

A. Comply with ACI 305 and 306 for protecting and curing concrete in hot and cold weather. Fresh concrete shall be protected from rain, premature drying and excessively hot or cold temperatures, and shall be maintained with minimal moisture loss for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Cure all concrete for a minimum period of 7 days (3 days for high early strength concrete) after placing.

B. Immediately after finishing, begin curing by covering with constantly saturated moisture retaining fabrics, impervious sheeting, or membrane curing compounds. Surfaces shall be thoroughly wetted with a fine spray before they are covered with sheeting.

C. Sheeting shall provide complete surface coverage with all joints lapped at least 4 inches and shall be placed and secured in a manner that will not mar or damage the concrete surface.

D. Apply membrane-curing compound in accordance with manufacturer's recommendations. Apply by spraying in a two coat continuous operation. Apply the coats at right angles to each other with a coverage of 200 square feet per gallon per coat. Begin application not later than 4 hours after finishing of the surface. The application shall result in an uninterrupted adherent film free of defects.

E. On surfaces scheduled to receive sealants, paint, seamless flooring, or other adhesive bonded finishes, either the membrane curing compound shall be compatible with the bonding agent or the curing compound shall be removed with sandblasting, acid etching or grinding, to the satisfaction of the installer of the finish surfacing. Bonded surfaces that fail to adhere to the concrete shall be removed and replaced at no additional cost to the Owner.

F. Apply hardener to floors of mechanical and electrical rooms and in other areas as required. Application shall be in strict accordance with the manufacturer's recommendations and as follows:

1. Hardener shall be applied at original container consistency without dilution to dry, clean surfaces no sooner than 30 days following completion of curing. NOTE: Hardener shall not be applied over surfaces covered with membrane curing agent.

2. Application shall generally be a three-coat process adjusted to accommodate extreme concrete densities only if prior review has been obtained from the Engineer. Application coverage shall be made at the approximate rate of one gallon to 100 square feet.
3. Apply first and second coats generously to surface, mop or squeegee standing water to leave a uniformly wet surface, allow to dry. Apply third coat in a manner similar to first two, except that surplus must be scrubbed with stiff bristled broom and flushed from floor surface with clear water. Scrubbing and flushing shall remove all traces of effervescence. Remove excess water and allow to dry.

3.16 Defective Concrete

A. All concrete not formed as indicated on the Drawings within tolerances specified in ACI 347 shall be removed and replaced.

B. Temperature and shrinkage cracks which develop prior to final acceptance of the work shall be repaired.

3.17 Miscellaneous Concrete Work

Provide concrete equipment pads and supports as indicated and conforming to approved shop drawings. Fastening devices and accessories shall be located by templates or setting diagrams furnished by the manufacturer.

3.18 Clean-Up

A. All concrete surfaces shall be thoroughly scrubbed and cleaned with clear water.

B. Clean all surfaces affected by the Concrete Work. No extraneous concrete or discoloration shall be left on any construction.

3.19 Concrete Testing

A. Compressive Strength Tests: Conform to ASTM C31 and ASTM C39. One set of four cylinders for each 50 cubic yards or fraction thereof, of each strength concrete placed in any one day. Test one specimens at seven days; test two specimens at 28 days. One specimen shall be retained for 56 days and tested only at the direction of the Engineer.

B. Slump Tests: Conform to ASTM C143. Perform one test for each load point of discharge and one for each set of compressive strength test specimens.

END OF SECTION