PROJECT MANUAL

FOR

NW 105TH WAY (SW-0125) DRAINAGE IMPROVEMENTS

CIP PROJECT No. SW-0125

Town Council

Roberto Martell, Mayor

Ivan Pacheco, Vice-Mayor

Edgar Ayala

Griselia DiGiacomo

Jack Morrow

Stormwater Utilities Administration

Jorge C. Soto, Utilities Director

Jorge E. Corzo, PE, CFM, Town Engineer

Roy Dazinger, Finance Director

Prepared for:

Town of Medley

7777 NW 72nd Ave

Medley, FL 33166

Prepared by:

SRS Engineering, Inc.
5001 SW 74th Court, Suite 201
Miami, FL 33155 Phone: 305 662 8887

TOWN OF MEDLEY

"The perfect place for industrial development"

NW 105th Way (SW-0125) Drainage Improvements

CIP Project

SW - 0125

Invitation to Bid

Part 1 – General Bid Information

Supplementary Instruction to Bidders

Part 2 – Bid Documents, Forms & Contract

Part 3 – General Conditions

Supplementary Conditions

Construction Plans

Regulatory Approvals

Geotechnical Report

Prepared by:

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TOWN OF MEDLEY, FLORIDA
7777 N.W. 72nd Avenue, Medley, Florida 33166
Tel: 305-887-9541, Fax: 305-882-1491
www.townofmedley.com

BIDDER ACKNOWLEDGMENT OF INVITATION TO BID AND GENERAL CONDITIONS

SUBMIT BID TO: TOWN CLERK
TOWN OF MEDLEY, FLORIDA
7777 N.W. 72nd AVENUE
MEDLEY, FLORIDA 33166

THE FOLLOWING INSTRUCTIONS TO BIDDERS ARE STANDARD FOR ALL BIDS FOR COMMODITIES AND SERVICES ISSUED BY THE TOWN OF MEDLEY. THE TOWN MAY DELETE, SUPERSEDE OR MODIFY ANY STANDARD INSTRUCTIONS FOR A PARTICULAR CONTRACT BY INDICATING SUCH CHANGE IN SPECIAL INSTRUCTIONS TO BIDDERS OR IN THE BID SHEETS. ANY AND ALL SPECIAL CONDITIONS THAT MAY VARY FROM THE GENERAL CONDITIONS SHALL HAVE PRECEDENCE. BIDDER AGREES THAT THE PROVISIONS INCLUDED WITHIN THIS INVITATION FOR BID SHALL PREVAIL OVER ANY CONFLICTING PROVISION WITHIN ANY STANDARD FORM CONTRACT OF THE BIDDER REGARDLESS OF ANY LANGUAGE IN BIDDER'S CONTRACT TO THE CONTRARY.

BIDDER ACKNOWLEDGMENT MUST BE SIGNED AND RETURNED WITH YOUR BID

SEALED BIDS: This form must be executed and submitted with all Bid sheets in a sealed envelope. The face of the envelope shall contain the above address, the date and time of Bid opening and Bid number. Bids not submitted on attached Bid Form may be rejected. All Bids are subjected to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

BID TITLE: NW 105th Way (SW-0125) Drainage Improvements
BID No. (ITB): 2018-003

BIDS WILL BE OPENED 3:00 P.M. (EST), February 13, 2018 and may not be withdrawn during the 90 calendar days following such date and time.

_____
CORRECT LEGALNAME OF BIDDER

_____
(SIGNATURE OF BIDDER'S AUTHORIZED AGENT)

TITLE: _____

TYPED/PRINTED NAME OF
AUTHORIZED AGENT:_____

ADDRESS:_____

_____

PHONE NO.:_____

FEDERAL ID NUMBER OR SOCIAL SECURITY NUMBER OF BIDDER:_____

I certify that this Bid acknowledgement is made without prior understanding, Agreement or connection with any corporation, firm or person submitting a Bid for the same commodities/services, and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this Bid and certify that I am authorized to sign this Bid for the Bidder. By signature on this form, Bidder acknowledges and accepts without limitation, pages 1 through 15 inclusive of the Invitation to Bid as well as any special instructions if applicable.

DATE: _____

TOWN OF MEDLEY, FLORIDA
7777 N.W. 72nd Avenue, Medley, Florida 33166
Tel: 305-887-9541, Fax: 305-882-1491
www.townofmedley.com

INVITATION TO BID

ALL INTERESTED PARTIES:

Notice is hereby given that the Town of Medley, Florida, hereinafter referred to as the Town, will receive sealed Bids at the Town Clerk's office at the Medley Municipal Services Facility, 7777 N.W. 72nd Avenue, Medley, Florida 33166, for:

CONSTRUCTION OF:

NW 105th Way (SW-0125) Drainage Improvements

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

Sealed Bids must be received and time stamped by the Town Clerk, either by mail or hand delivery, no later than 3:00 p.m. local time on February 13, 2018. A public opening will take place at or before 3:05 p.m. at the Council Chambers at the Medley Municipal Services Facility, 7777 N.W. 72nd Avenue, Medley, Florida 33166 on the same date. Any Bids received after 3:00 p.m. local time on said date will not be accepted under any circumstances and will be returned to the Bidder unopened. The stated time and date is solely and strictly the responsibility of the Bidder. The Town is not responsible for delays caused by mail, courier service, including United States Mail, or any other occurrence. Any uncertainty regarding the time a Bid is received will be resolved against the Bidder.

Bidders may inspect the applicable Bid requirements, drawings, specifications, and other contract documents at the office of the Town Clerk at the Medley Municipal Services Facility, 7777 N.W. 72nd Avenue, Medley, Florida 33166.

A Mandatory Pre-Bid Conference will be held on January 24, 2018 in the Council Chambers at the Medley Municipal Services Facility, 7777 N.W. 72nd Avenue, Medley, Florida 33166. The purpose of the Pre-Bid Conference is to discuss the contents of this Invitation to Bid and Bidder's inquires.

Copies of the RFP, Registered Plan Holder Information form and all other solicitation related documents will **only** be made available on the Town's website http://www.townofmedley.com, and selecting "Open Bid Invitation". All related questions regarding the RFP should be addressed to bidinfo@townofmedley.com. All interested plan holders MUST be registered prior to submittal of any RFIs.

A Bid Guaranty of five percent (5%) of the bid amount will be required with the Bid. The Successful Bidder will also be required to furnish Performance and Payment Bonds, each in the amount of one hundred percent (100%) of the Contract amount.

The Town reserves the right to reject any or all Bids, to re-advertise for Bids or take such other actions as the Town Council may deem to be in the best interests of the Town.

The Town of Medley is an Equal Opportunity Employer and encourages the participation of Disadvantaged Business Enterprises (DBE) and Minority Business Enterprises (MBE).

Pursuant to subsection (t) "Cone of Silence" of Section 2-11.1 "Conflict of Interest and Code of Ethics Ordinance" of Miami Dade County, public notice is hereby given that a "Cone of Silence" is imposed concerning this solicitation. The "Cone of Silence" prohibits communications concerning RFP's, RFQ's or Bids, until such time as the Town Engineer on behalf of the selection committee makes a written recommendation to the Town Council concerning the solicitation.

Failure to comply with the "Cone of Silence" may result in the rejection of a Response. For additional information concerning the "Cone of Silence please refer to Section 2-11.1 of Miami Dade County Code.

This Notice of Bid Invitation dated at Medley, Florida this 21 day of December, 2017.

Herlina Taboada, Town Clerk

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PART 1

SECTION I INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS

Terms used in these Instructions to Bidders are defined and have the meanings assigned to them. The term "Bidder" means one who submits a Bid directly to the Town, as distinct from a Sub-Bidder who submits a Bid to the Bidder, The term "Successful Bidder" means the lowest responsible and responsive Bidder whose Bid conforms to the requirements of the Bid Documents and is most advantageous to the Town and to whom the Town, on the basis of the Town's evaluation as hereinafter provided, makes an award. The term "Town" refers to the Town of Medley, a municipal corporation of the State of Florida, The term "Bid Documents" includes the Invitation to Bid, Instructions to Bidders, Special Conditions, Bid Form, Non-Collusive Affidavit, Certificate(s) of Insurance, Payment and Performance Bonds, Corporate Resolution, Bid Security, and the proposed Contract Documents, if any, including all Addenda issued prior to receipt of Bids and the General Conditions and Technical Specifications.

2. COPIES OF BIDDING DOCUMENTS

Complete sets of Bid Documents must be used in preparing Bids. The Town does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents. The Town, in making copies of Bid Documents available does so only for the purpose of obtaining Bids and does not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

3.1 Each Bidder shall complete the Qualifications Statement and shall submit the same with the Bid, together with other evidence of minimum qualifications, including satisfactory experience, past performance, ability to perform the Work, and financial stability. Failure to submit the Qualifications Statement and all documents required thereunder together with the Bid may constitute grounds for rejection of the Bid.

3.2 The Town reserves the right to make a pre-award inspection of the Bidder's facilities and equipment prior to award of Contract.

3.3 No Bid will be accepted from, nor will any contract be awarded to any person who is in arrears to the Town, upon any debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to the Town, or who is deemed unresponsive or unreliable by the Town.

3.4 As part of the Bid evaluation process, the Town may conduct a background investigation including a record check by the Medley Police Department. Bidder's submission of a Bid constitutes acknowledgment of the process and consent to such investigation. The Town shall be the sole judge in determining Bidders qualifications.

3.5 The Town reserves the right to consider a Bidder's history of citations and/or violations of environmental regulations in determining a Bidder's responsibility, and further reserves the right to

declare a Bidder not responsible if the history of violations warrant such determination. Bidder shall submit with Bid, a complete history of all citations and/or violations, notices and dispositions thereof. The non-submission of any such documentation shall be deemed to be an affirmation by the Bidder that there are no citations or violations. Bidder shall notify the Town immediately of notice of any citation or violation that Bidder may receive after the Bid opening date and during the time of performance of any contract awarded to Bidder.

4. EXAMINATION OF BID DOCUMENTS

4.1 Before submitting a Bid, each Bidder must (a) examine the Bid Documents thoroughly; (b) consider federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, performance, or provision of the commodities and/or services; (c) study and carefully correlate Bidders observations with the Bid Documents; and (d) notify the Town's Contract Administrator of all conflicts, errors and discrepancies in the Bid Documents.

4.2 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Paragraph, that without exception, the Bid is premised upon performing the services and/or furnishing the commodities and materials and such means, methods, techniques, sequences or procedures as may be indicated in or required by the Bid Documents, and that the Bid Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions of performance and furnishing of the goods and/or services.

5. SPECIFICATIONS

5.1 The apparent silence of the Specifications as to any detail, or the apparent omission from the Specifications of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of the Specifications shall be made on the basis of this statement.

5.2 Items shown on the Engineering Drawings but not noted in the Specifications, and items noted in the Specifications but not shown on the Engineering Drawings, are to be considered as both shown on the Engineering Drawings and noted in the Specifications. Any errors or omissions in the Specifications or on the Engineering Drawings, as to the standards of the Work, shall not relieve the Successful Bidder of the obligation to furnish a satisfactory first class job in strict conformity with the best practice found in structures or in the Work of a similar type. The failure of the Bidder to direct the attention of the Contract Administrator to errors or discrepancies will not relieve the Bidder, should Bidder be awarded the Contract, of the responsibility of performing the Work to the satisfaction of the Town.

5.3 Where there appears to be a conflict between the General Conditions, Technical Specifications and any amendment issued, the order of precedence shall be the last amendment, the Specifications and then the General Conditions.

6. BID FORMS

6.1 The Bid Forms are included with the Bid Documents and must be used by the Bidder. Failure to do so may cause the Bid to be rejected. The forms must be submitted in good order and all blanks must be completed.

6.2 The Bid must be signed by one duly authorized to do so and in cases where the Bid is signed by a deputy or subordinate, the principal's proper written authority to such deputy or subordinate must accompany the Bid.

6.3 Bids by corporations must be executed in the corporate name by the President or other corporate officers accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown below the signature.

6.4 Bids by partnerships must be executed in the partnership name and signed by a general partner whose title must appear under the signature and the official address of the partnership must be shown below the signature.

7. MODIFICATION AND WITHDRAWAL OF BIDS

7.1 Bids must be modified or withdrawn by an appropriate change or modification document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted at any time prior to the deadline for submitting Bids. A request for withdrawal or a modification must be in writing and signed by person duly authorized to do so and, in a case where signed by a deputy or subordinate, the principal's proper written authority to such deputy or subordinate must accompany the request for withdrawal or modification. Withdrawal of a Bid will not prejudice the rights of a Bidder to submit a new Bid prior to the Bid date and time. After expiration of the period for receiving Bids, no Bid may be withdrawn or modified.

8. REJECTION OF BIDS

8.1 To the extent permitted by applicable laws and regulations, the Town reserves the right to reject any and all Bids, to waive any and all informalities, irregularities and technicalities not involving price, time or changes in the commodities and/or services, and the right to disregard all nonconforming, non-responsive, unbalanced or conditional Bids. Bids will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alterations or irregularities of any kind.

8.2 The Town reserves the right to reject the Bid of any Bidder if the Town believes that it would not be in the best interest of the Town to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by the Town.

8.3 More than one Bid received for the same Work from an individual, firm, partnership, corporation or association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one Bid for the same Work will cause the rejection of such Bids in which the Bidder is interested. If there are reasonable grounds for

believing that collusion exists among the Bidders, the Bids of participants in such collusion will not be considered.

8.4 The foregoing reasons for rejection of Bids are not intended to be exhaustive.

9. OPENING OF BIDS

Bids will be opened publicly on the date at the location and time specified in the Invitation to Bid. Bids will be read aloud and an abstract of the amount of the base Bids will be made available after the opening of the Bid.

10. BIDS TO REMAIN OPEN

10.1 All Bids shall remain open for one hundred and twenty (120) days after the day of the Bid opening, but the Town may, at its sole discretion, release any Bid and return the Bid Security prior to that date. Each Bidder agrees to abide by the unit prices or lump sum amount quoted as the Total Base Bid in the Bid Forms for one hundred and twenty (120) days from the date of Bid opening.

10.2 Extensions of time when Bids shall remain open beyond the one hundred and twenty (120) day period may be made only by mutual written Contract between the Town, the successful Bidder and the surety, if any, for the successful Bidder.

11. AWARD OF CONTRACT

11.1 If the Contract is to be awarded, it will be awarded to the lowest responsible and responsive Bidder whose Bid conforms to the requirements of the Bid Documents and is most advantageous to the Town, and not necessarily to the lowest Bidder.

11.2 Criteria utilized by the Town for determining the qualifications of the Bidder and lowest responsible and responsive Bidder includes, but is not limited to the following:

A. Ability, capacity and skill of Bidder to meet published Specifications.

B. Bidder’s experience and references, including but not limited to, the reputation, integrity, character, efficiency, experience, skill, ability and business judgment of the Bidder, the quality of performance of Bidder under previous contracts, any Sub-Contractors and other persons providing labor or materials to Bidder.

C. The character, integrity, reputation, judgment, experience and efficiency of the bidder and/or its principals and/or officers.

D. Whether or not the Bid is within the budget for the Project for which the Bid is submitted as contemplated by the Town.

E. Bidder’s qualifications and capabilities, including but not limited to, the size, financial history, strength and stability of the business to perform the Work of the Contract, the possession of necessary facilities and equipment and the quality, availability and adaptability thereof to the particular use(s) required.

F. Past performance record and the quality and performance of Bidder on previous contracts of a similar nature.

G. Whether Bidder can perform the Contract promptly or within the time specified, without delay or interference.

H. Previous and existing compliance by Bidder with laws, ordinances and regulations of the Town relating to a similar Contract or Work.

I. The sufficiency of the financial resources and capabilities and the ability of the Bidder to perform the Contract or provide the Work requested.

J. Bidder possesses and holds all required licenses, permits and certifications required to perform the Work, including a State of Florida general contractor's license, and shall submit evidence of same with its Bid.

K. Price.

L. Such other information as deemed by the Town to be reasonably related to the ability of the Bidder to provide the service requested or undertakes the Work required.

11.3 The Town Mayor and/or Town Engineer will appoint a Selection Committee to review and evaluate all Bids received and establish a ranking and/or short list of qualified Bidders deemed to be qualified and the lowest responsive and responsible bidders to perform the Work in accordance with the criteria set forth in these Bid Documents. The Selection Committee during its evaluation process reserves the right to contact references and to verify information submitted by any Bidder. The Selection Committee may also request oral presentations as well as clarification or information from the Bidders. The Town Engineer may submit a recommended firm or short list or a combination of a recommended firm and the short list to the Town Council and the Town Council shall make the final selection of the Bidder and Contract award. The Town Engineer may request oral presentations to the Town Council from the Bidders

11.4 In awarding a Contract pursuant to a Bid, the Town Council shall consider all of the foregoing criteria and in addition thereto may consider other facts or circumstance in awarding a Contract. The Town Council shall not be required to award a Contract to the lowest Bidder nor shall it be required to award a Contract at all. The Town Council at all times shall have the right, in its sole and absolute discretion, to waive any informality in any Bid proposal, to increase or decrease the quantities shown in the Bid Form, or the Town may reject any and/or all Bids. The Town reserves the right to reject any or all Bids prior to award. Reasonable efforts will be made to either award the Contract or reject all Bids within one hundred and twenty (120) days after Bid opening date. A Bidder may not withdraw its Bid unilaterally nor change the Contract Price before the expiration of one hundred and twenty (120) days from the date of Bid opening. A Bidder may withdraw its Bid after the expiration of one hundred and twenty (120) days from the date of Bid opening by delivering written notice of withdrawal to the Town prior to award of the Contract by the Town Council.

11.5 Notwithstanding the foregoing, if the Project is funded, in whole or in part, by federal or Florida Department of Transportation or other federal and/or state administered funds, then the

federal and state provisions for awarding a Contract shall apply.

11.6 The Successful Bidder must execute the required contracts prior to award by the Town Council. After the Town Council award, the Successful Bidder will be issued a Notice of Award. Within fifteen (15) days thereafter, the Successful Bidder must deliver the required Bonds and certificate of insurance to the Town. Within ten (10) days thereafter, if practical, the Town shall deliver one (1) fully executed contract to Successful Bidder along with Notice to Proceed. The fully executed Contract will be accompanied by a complete set of drawings (if required).

11.7 If applicable, the Bidder to whom award is being recommended shall execute a written contract prior to contract award. If the Bidder fails to enter into a contract as herein provided the recommended award will be to the next lowest Bidder who is responsible and responsive in the opinion of the Town. Such Bidder shall fulfill every stipulation embraced herein as if it were the original party to whom the award was made.

11.8 The Town may award a Contract based on initial offers received, without discussions. Therefore, each initial offer should contain the Bidder's best efforts. The Town, at its sole discretion, reserves the right to enter into Contract negotiations with qualified and lowest responsive and responsible Bidder. If the Town and said Bidder cannot negotiate a successful Contract, the Town may terminate said negotiations and begin negotiations with the next qualified and lowest responsive and responsible Bidder. This process will continue until a Contract acceptable to the Town has been executed or all Bids are rejected. No Bidder shall have any rights against the Town rising from such negotiations or termination thereof.

12. INSURANCE

12.1 Bidders should submit copies of their current certificate(s) of insurance together with the Bid. Failure to do so may cause rejection of the Bid.

12.2 AT THE TIME OF EXECUTION OF THE CONTRACT, THE SUCCESSFUL BIDDER SHALL SUBMIT A CURRENT CERTIFICATE OF INSURANCE EVIDENCING THE REQUIRED COVERAGES AND SPECIFICALLY PROVIDING THAT THE TOWN OF MEDLEY IS AN ADDITIONAL NAMED INSURED WITH RESPECT TO THE REQUIRED COVERAGE AND THE OPERATIONS OF THE SUCCESSFUL BIDDER UNDER THE CONTRACT. Insurance Companies selected must be acceptable to the Town. All of the policies of insurance so required to be purchased and maintained shall include the interests of the Town, the Successful Bidder and all subcontractors at the work site (all of whom are to be listed as insured or additional insured parties) and contain a provision or endorsement that the coverage afforded shall not be canceled, materially changed or renewal refused until at least thirty (30) days written notice has been given to the Town by certified mail.

12.3 The Successful Bidder shall procure and maintain at its own expense and keep in effect during the full term of the Contract a policy or policies of insurance that must include the following coverage and minimum limits of liability:

A. Worker's Compensation Insurance for statutory Obligations imposed by Worker's Compensation or Occupational Disease Laws, including, where applicable, the United

States Longshoremen's and Harbor Worker's Act, the Federal Employer's Liability Act and the Homes Act. Employer's Liability Insurance shall be provided with a minimum of One Hundred Thousand Dollars ($100,000.00) per accident. Successful Bidder shall agree to be responsible for the employment, conduct and control of its employees and for any injury sustained by such employees in the course of their employment.

B. Comprehensive Automobile Liability Insurance for all owned, non-owned and hired automobiles and other vehicles used by the Successful Bidder in the performance of the Work with the following minimum limits of liability:

$1,000,000 Combined Single Limit, Bodily injury and Property Damage Liability per occurrence

C. Comprehensive General Liability with the following minimum limits of liability:

$2,000,000 Combined Single Limit, Bodily Injury and Property Damage Liability per occurrence

Coverage shall specifically include the following with minimum limits not less than those required for Bodily Injury Liability and Property Damage:

a. Premises and Operations;

b. Independent Contractors;

c. Product and Completed Operations Liability;

d. Broad Form Property Damage;

e. Broad Form Contractual Coverage applicable to the Contract and specifically confirming the indemnification and hold harmless agreement in the Contract; and

f. Personal Injury coverage with employment contractual exclusions removed and deleted.

g. Builder's Risk, if applicable.

12.4 The required insurance coverage shall be issued by an insurance company authorized and licensed to do business in the State of Florida, with the following minimum qualifications in accordance with the latest edition of A.M. Best's Insurance Guide, Financial Stability B+ -A+.

12.5 The Successful Bidder shall require each of its Sub-Contractors of any tier to maintain the insurance required herein (except as respects limits of coverage for employers and public liability insurance which may not be less than One Million ($1,000,000) Dollars for each category), and the Successful Bidder shall provide verification thereof to the Town upon request of the Town.

12.6 All required insurance policies shall preclude any underwriter's rights of recovery or subrogation against the Town with the express intention of the parties being that the required

insurance coverage protects both parties as the primary coverage for any and all losses covered by the above described insurance.

12.7 The Successful Bidder shall ensure that any company issuing insurance to cover the requirements contained in this Contract agrees that they shall have no recourse against the Town for payment or assessments in any form on any policy of insurance.

12.8 The clauses “other Insurance Provisions” and “Insurers Duties in the Event of an Occurrence, Claim or Suit” as it appears in any policy of insurance in which Town is named as an additional named insured shall not apply to the Town. The Town shall provide written notice of occurrence within fifteen (15) working days of the Town’s actual notice of such an event.

12.9 The Successful Bidder shall not commence the Work under the Contract until after it has obtained all of the minimum insurance herein described.

12.10 The Successful Bidder agrees to perform the Work under the Contract as an independent contractor, and not as a sub-contractor, agent or employee of the Town.

12.11 Violation of the terms of this Paragraph and its subparts shall constitute a breach of the Contract and the Town, at its sole discretion, may cancel the Contract and all rights, title and interest of the Successful Bidder shall thereupon cease and terminate.

12.12 The Bidders liability insurance policies shall be endorsed to add the Town of Medley as an additional insured. The Bidder’s liability insurance shall be primary to any liability insurance policies carried by the Town. The bidder shall be responsible for all deductibles and self-insured retentions on Bidder’s liability insurance policies. All of the policies of insurance so required to be purchased and maintained shall contain a provision or endorsement that the coverage afforded shall not be cancelled, materially changed or renewal refused until at least thirty (30) calendar days written notice has been given to the Town by certified mail. The Town reserves the right to make any changes additions to any insurance requirements as may be appropriate during the course of the contract.

13. PUBLIC ENTITY CRIMES INFORMATION STATEMENT

A person or affiliate who has been placed on the convicted vendor 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 Bids on leases of real property to public entity, may not be awarded or perform Work as a contractor, supplier, sub-contractor 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, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list. Each Bidder shall complete the Form included with these Bid Documents.

14. CONTRACT TIME

14.1 The Work to be performed under the Contract shall be commenced upon issuance of

Notice to Proceed by the Town.

14.2 The number of days, which the Work is to be completed or goods are to be provided, is 150 consecutive calendar days for Substantial Completion and 180 consecutive calendar days for Final Completion from the date of issuance of the Notice To Proceed.

14.3 By virtue of the submission of its Bid, Bidder agrees and fully understands that the completion time of the Work of the Contract is an essential and material condition of the contract and that time is of the essence. The Successful Bidder agrees that all work shall be prosecuted regularly, diligently and uninterrupted at such rate of progress as will ensure full completion thereof within the time specified. Failure to complete the Work within the time period specified shall be considered a default.

14.4 All Bidders shall agree that a liquidated damages provision will be required in the Contract.

15. SAFETY

15.1 The Successful Bidder shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Successful Bidder shall comply with the rules and regulations of the Florida Department of Commerce regarding industrial safety (Fla Statutes Section 440.56) and with the standards set forth in the Occupational Safety and Health Act of 1970 (OSHA) and its Amendments.

15.2 The Successful Bidder shall take all reasonable precautions for the safety of and shall provide all reasonable protection to prevent damage, injury or loss to:

A. All employees on the Work site and all other persons who may be affected thereby.

B. The Work and all materials and equipment incorporated therein.

C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, structures and utilities not designated for removal, relocation or replacement in the course of the Work.

15.3 All open excavations made in the earth shall be performed in compliance with the State of Florida Trench Safety Act, OSHA 29 CFR 1926.650, Subpart P (Chapter 90-96, Laws of Florida). The Contractor shall appoint a **competent person**, in accordance with Subpart P, who shall be present at the jobsite. **Competent person** shall mean one who is capable of identifying existing and predictable hazards I the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

16. WARRANTIES

16.1 Warranty of Title: The Successful Bidder warrants to the Town that all goods and materials furnished under the Contract will be new unless otherwise specified and that Successful Bidder possess good, clear, and marketable title to said goods and there are no pending liens,

claims or encumbrances whatsoever against said goods. All Work not conforming to these requirements, including substitutions not properly approved and authorized may be considered defective.

16.2 Warranty of Specifications: The Successful Bidder warrants that all goods, materials and workmanship furnished, whether furnished by the Successful Bidder or its subcontractors and suppliers, will comply with the specifications, drawings and other descriptions supplied or adopted.

16.3 Warranty of Merchantability: The Successful Bidder warrants that the goods to be supplied pursuant to the Contract are merchantable, of good quality and free from defects, whether patent or latent in material or workmanship.

16.4 Warranty of Material and Workmanship: The Successful Bidder warrants all material and workmanship for a minimum of one (1) year from date of project completion and acceptance by the Town, if within one (1) year after acceptance by the Town, or within such larger period of time as maybe prescribed bylaw any of the Work is found to be defective or not in accordance with the Contract Documents, the Successful Bidder shall after receipt of a written notice from the Town to do so, promptly correct the Work unless the Town has previously given the Successful Bidder a written acceptance of such condition.

16.5 The Successful Bidder warrants to the Town that it will comply with all applicable federal, state and local laws, regulations and orders in carrying out its obligations under the Contract, and holds and possesses all required licenses, certifications and permits to perform the Work.

16.6 The Successful Bidder warrants to the Town that it is not insolvent, it is not in bankruptcy proceedings or receivership, nor is it engaged in or threatened with any litigation, arbitration or other legal or administrative proceedings or investigations of any kind which would have an adverse effect on its ability to perform its obligations under the Contract.

16.7 The Successful Bidder warrants to the Town that the consummation of the Work provided for in the Contract Documents will not result in the breach of any term or provision of, or constitute a default under any indenture, mortgage, contract, or agreement to which the Successful Bidder is a party.

16.8 The Successful Bidder warrants that there has been no violation of copyrights or patent rights either in the United States of America or in foreign countries in connection with the Work of the Contract.

16.9 All warranties made by the Successful Bidder together with service warranties and guarantees shall run to the Town and the successors and assigns of the Town.

17. RISK OF LOSS

The risk of loss, injury or destruction, regardless of the cause of the casualty, shall be on the Successful Bidder until the completion of the Project, and inspection and acceptance thereof by the Town.

18. PERMITS, FEES AND NOTICES

18.1 In accordance with the Public Bid Disclosure Act, Section 281.80, Florida Statutes, the Town shall disclose all Town permit fees associated with the Work. The Town will not charge for any building permits required from the Town for the Work. The Successful Bidder shall secure and be responsible for any and all permits and licenses, and pay all fees that may be required for the proper execution and completion of the Work, as may be required from Miami-Dade County, State and federal agencies. The Successful Bidder shall use their best efforts to obtain all necessary permits as soon as possible after the date of Contract award. Any delays in obtaining permits must be brought to the attention of the Contract Administrator without delay.

18.2 The Successful Bidder shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. The Town shall not be responsible for monitoring the Successful Bidder's compliance with any laws or regulations.

18.3 All notices or other documents or papers required to be delivered by the Contractor to the Town shall be delivered to an address provided to the Contractor at the preconstruction conference.

18.4 The Successful Bidder shall secure, complete and file with the Clerk of Courts of Miami-Dade County, a Certified Notice of Commencement required Chapter 713, Florida Statutes. This notice must be on file with the Town, and be displayed on the job site prior to the first inspection.

19. DELAYS AND EXTENSIONS OF TIME

19.1 The Contract time may only be changed by a Change Order or a written Amendment. Any claims for an extension or shortening of Contract time shall be based upon written notice delivered by the party making the claim to the other party not more than three (3) days after the occurrence of the event giving rise to the claim and stating the general nature of the claim otherwise it shall be waived.

19.2 The Town shall have no liability to the Successful Bidder for any damages for delay or interruption of the Work. The Successful Bidder's sole and exclusive remedy for any such delay, if any, shall be an extension of the time required or allowed to complete the Work. No claim for damages or any claim other than an extension of time shall be made or asserted against the Town by reason of any delays.

20. DEFAULT

In the event the Successful Bidder shall default in any of the terms, obligations, restrictions or conditions in the Contract Documents, the Town shall give the Successful Bidder written notice by certified mail of the default and that such default shall be corrected or actions taken to correct such default shall be commenced within five (5) days thereof. In the event the Successful Bidder has failed to correct the condition(s) of the default or the default is not remedied to the satisfaction and approval of the Town, the Town shall have all legal remedies available to it, including, but not limited to termination of the Contact in which case the Successful Bidder shall be liable for all procurement and

re-procurement costs and any and all damages permitted by law arising from the default and breach of the Contract.

21. TERMINATION FOR CONVENIENCE OF THE TOWN

See Construction Services General Conditions, Section XIV (11) and Contract for Construction hereafter for details.

22. ASSIGNMENT

The Successful Bidder shall not assign or transfer its rights, title or interests in this Contract nor shall Successful Bidder delegate any of the duties or obligations undertaken by Successful Bidder without the Town's prior written approval.

23. APPLICABLE LAWS, ORDINANCES, RULES, CODES AND REGULATIONS

Notice is hereby given that the Successful Bidder must be familiar with all federal, state and local laws, ordinances, rules, codes and regulations that may affect the Work. Ignorance on the part of the Bidder will in no way relieve him/her from the responsibility of compliance therewith.

24. EQUAL EMPLOYMENT OPPORTUNITY REQU1RMENT INFORMATION

The Town is an Equal Opportunity Employer and encourages the participation of Disadvantaged Business Enterprises and (DBE) and Minority Business Enterprises (MBE).

25. BID SECURITY

25.1 Each Bid must be accompanied by a certified or cashier's check or by a Bid Bond made payable to the Town of Medley on an approved form, duly executed by the Bidder as principal and having as surety thereon a surety company acceptable to the Town and authorized to write such Bid Bond under the laws of the State of Florida, in an amount not less than five percent (5%) of the amount of the Bid.

25.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Contract and furnished the required Payment and Performance Bonds, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Contract or furnish the required Bonds within fifteen (15) days of the Notice of Award, the Town may annul the Notice of Award and the entire sum of the Bid Security shall be forfeited. The Bid Security of the three (3) lowest, responsible and responsive Bidders will be returned within seven (7) days after the Town and the Successful Bidder have executed the written Contract or if no such written Contract is executed within ninety (90) days after the date of the Bid opening, upon the demand of any Bidder at anytime thereafter, provided that it has not been notified of the acceptance of its Bid. Bid Security of all other Bidders will be returned within seven (7) days after the Bid opening. The attorney in fact or other officer who signs a Bid Bond for a surety company must file with such a Bond a certified copy of its power of attorney authorizing him/her to do so.

25.3 The Bid Security filed with the Bid shall, at the option of the Town, be forfeited in its entirety to the Town as liquidated damages if the Bidder to whom the Contract is awarded fails to

execute the Contract Documents within fifteen (15) days of written notice by the Town.

26. PAYMENT AND PERFORMANCE BONDS

26.1 Within fifteen (15) days after the Contract Award, but in any event prior to commencing Work, the Successful Bidder shall execute and furnish to the Town a Performance Bond and a Payment Bond, each written by a corporate surety, having a resident agent in the State of Florida and having been in business with a record of successful continuous operation for at least five (5) years. The surety shall hold a current certificate of authority from the Secretary of Treasury of the United States as an acceptable surety on federal bonds in accordance with United States Department of Treasury Circular No, 570. If the amount of the Bond exceeds the underwriting limitation set forth in the circular, in order to qualify, the net retention of the surety company shall not exceed the underwriting limitation in the circular and the excess risks must be protected by coinsurance, reinsurance, or other methods, in accordance with Treasury Circular 297, revised September 1, 1978 (31 DFR, Section 223,10, Section 223.11). Further, the surety company shall provide the Town with evidence satisfactory to the Town, that such excess risk has been protected in an acceptable manner. The surety company shall have at least the following minimum qualifications in accordance with the latest edition of A.M. Best's insurance Guide, published by Alfred M. Best Company, Inc., Ambest Road, Oldwick, New Jersey 08858: Financial Stability -A Financial size –VIII.

26.2 Two (2) separate Bonds are required and both must be approved by the Town. The penal sum stated in each Bond shall be the amount equal to the total amount payable under the terms of the contract. The Performance Bond shall be conditioned that the Successful Bidder performs the contract in the time and manner prescribed in the contract. The Payment Bond shall be conditioned that the Successful Bidder promptly make payments to all persons who supply the Successful Bidder with labor, materials and supplies used directly or indirectly by the Successful Bidder in the prosecution of the Work provided for in the contract and shall provide that the surety shall pay the same in the amount not exceeding the sum provided in such Bonds, together with interest at the maximum rate allowed by law; and that they shall indemnify and save harmless the Town to the extent of any and all payments in connection with the carrying out of said contract which the Town maybe required to make under the law.

26.3 Such Bonds shall continue in effect for one (1) year after final payment becomes due except as otherwise provided by law or regulation or by the Contract Documents with the final sum of said Bonds reduced after final payment to an amount equal to twenty-five percent (25%) of the Contract Price, or an additional Bond shall be conditioned that the Successful Bidder correct any defective or faulty Work or material which appear within one (1) year after Final Completion of the Contract, upon notification by the Town.

27. INDEMNIFICATION

27.1 The parties agree that one percent (1%) of the total compensation paid to Successful Bidders for the Work of the Contract shall constitute specific consideration to Successful Bidder for the indemnification to be provided under the Contract. To the fullest extent permitted by laws and regulations, Successful Bidder shall indemnify, defend, save and hold harmless the Town, its officers, agents and employees, from or on account of all claims, damages, losses, liabilities and expenses, direct, indirect or consequential arising out of or alleged to have arisen out of or in

consequence of the operations of the Successful Bidder or its Subcontractors, agents, officers, employees or independent contractors pursuant to or in the performance of the contract.

27.2 Successful Bidder agrees to indemnify, defend, save and hold harmless the Town, its officers, agents and employees, from all claims, damages, losses, liabilities and expenses arising out of any alleged infringement of copyrights, patent rights and/or the unauthorized or unlicensed use of any material, property or other work in connection with the performance of the Contract.

27.3 Successful Bidder shall pay all claims, losses, liens, settlements or judgments of any nature whatsoever in connection with the foregoing indemnifications including, but not limited to, reasonable attorney's fees (including appellate attorney's fees) and costs.

27.4 The Town reserves the right to select its own legal counsel to conduct any defense in any such proceeding and all costs and fees associated therewith shall be the responsibility of Successful Bidder under the indemnification. Nothing contained herein is intended nor shall it be construed to waive the Town's rights and immunities under the common law or Florida Statute 768.28 as amended from time to time.

28. TAXES

The Successful Bidder shall pay all applicable sales, consumer use and other similar taxes required by law.

29. INSPECTION AND AUDIT RIGHTS

The Town reserves the right to inspect and audit the records of the Successful Bidder for the Work and/or services provided under the Contract at any time during the performance and term of the Contract and for a period of five (5) years after completion and acceptance by the Town. If required by the Town, the Successful Bidder agrees to submit to an inspection and audit by an independent certified public accountant selected by the Town. The Successful Bidder shall allow the Town to inspect, examine and review the records of the Successful Bidder in relation to this Contract at any and all times during normal business hours during the term of the Contract, and shall comply with Chapter 119, Florida Statutes (Public Records Law).

30. CONFLICT OF INTEREST

The award hereunder is subject to the provisions of Chapter 112, Florida Statutes. Bidders must disclose with their Bid the name of any officer, director, partner, proprietor, associate or agent who is also a public officer or employee of the Town or any of its agencies. Further, all Bidders must disclose the name of any public officer or employee of the Town who owns, directly or indirectly, an interest of five percent (5%) or more in the Bidder's firm or any of its branches or affiliate companies.

31. NON-COLLUSIVE AFFIDAVIT

Each Bidder shall complete the Non-Collusive Affidavit and include it with the Bid Form and shall submit this Form with the Bid. Failure of the Bidder to submit this document may be cause for rejection of the Bid.

32. PUBLIC ENTITY CRIMES ACT. In accordance with the Public Entity Crimes Act, (Section 287.133, Florida Statutes) a person or affiliate who is a contractor, who had been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to the Town, 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 bids on leases or real property to the Town, 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 the Town in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of 36 months from the date of being placed on the convicted vendor list. Violation of this section by the Contractor shall result in rejection of the Bid, termination of the contract, and may cause Contractor debarment. Interested firms must complete and submit the enclosed public entity crimes form.

33. EXAMINATION OF DOCUMENTS AND WORK SITE. Bidders shall examine existing site(s) and surrounding areas, including but not limited to subsurface and soil conditions, utilities, and streets to determine all conditions that will affect the Work and become familiar with the nature and extent of Work to be performed and local conditions that may affect the Work.

33.1 The Bidding Documents were prepared to present an essentially accurate representation of existing conditions, interpreted from available information on site. The Bidder is not relieved, however, of the responsibility of becoming fully informed as to existing conditions at the site.

33.2 Bidders shall thoroughly examine the Bidding Documents, Plans and Specifications and any other documents which may be applicable to the Project and the Work.

33.3 A sample contract for construction has been included in the Bidding Documents. The Town is not bound by this sample document and reserves the right to modify the final contract.

33.4 Bidders should be aware that the Town is subject to hurricanes and tropical storms and therefore the Bidder shall consider such likelihood in their scheduling and construction activities.

34. LOCATION OF UTILITIES. The Successful Bidder and Contractor shall be responsible for determining the location, character and depth of all utilities. Within two (2) days before digging, if applicable, Contractor shall notify Sunshine Once Call: (800) 432-4770 to find out where buried utilities (electric, gas, telephone, cable, water, sewer facilities) are located within the Town as required by Chapter 556, Florida Statutes. At points where the Contractor's operations are adjacent to utility facilities which if damaged, might result in expense, loss and disruption of service or other undue inconvenience to the public or to the owner, Work shall not be commenced until all arrangements necessary for the protection thereof have been made by the Contractor. The Contractor shall not repair or attempt to repair utility damage but shall immediately contact the utility owner. The Contractor shall obtain the name, address and telephone number of each utility company to contact. The Contractor shall be solely and directly responsible to the owner and operators of such utilities for any damage, injury, expense, loss, inconvenience or delay caused by the Contractor's operations.

35. ACCESS TO PUBLIC RECORDS.

Contractor shall comply with the applicable provisions of Chapter 119, Florida Statutes. The Town shall have the right to immediately terminate the Contract for the refusal by the Contractor to comply with Chapter 119, Florida Statutes. The Contractor shall retain all records associated with this Contract for a period of five (5) years from the date of Final Payment or Termination of the Contract.

36. OWNERSHIP AND REUSE OF DOCUMENTS.

Ownership of all documents, including but not limited to drawings, as-builts, plans and specifications and related computerized documents utilized or prepared by Contractor in the performance of the Work shall remain with the Town. The Contractor and any Subcontractors or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the Town shall not reuse any documents without prior written consent of the Town. Upon termination of the Project or the Contract, the Work product of the Contractor shall become the property of the Town and the Contractor shall transfer to the Town all Work product in its possession, including but not limited to, designs, specifications, drawings, studies, reports and all other documents and digital data in the possession of the Contractor pertaining to this Project. Contractor shall deliver the aforesaid documents to the Town as a condition precedent to obtaining Final Payment under the Contract. Contractor shall pay all taxes, licenses, fees and royalties and costs incident to the use in performance of the Work.

37. SEVERABILITY.

Should any provision, paragraph, sentence, word, or phrase contained in these Bid Documents or the Contract be determined by a court of competent jurisdiction to be invalid, illegal, or otherwise unenforceable under the laws of the State of Florida, such provision, paragraph, sentence, word, or phrase shall be deemed modified to the extent necessary in order to conform with such laws, then shall be deemed severable, and the Bid Documents and the Contract shall remain unmodified and in full force and effect.

38. WAIVER OF JURY TRIAL AND VENUE.

The Town and Contractor knowingly, irrevocably, voluntarily and intentionally waive any right either may have to a trial by jury in State and or Federal court proceedings in respect to any action, proceeding, lawsuit or counterclaim based upon this Bid, resulting Contract and/ arising out of, under, or in connection with the Work, or any course of conduct, course of dealing, statements or actions or inactions of any party.

39. ATTORNEYS' FEES.

If either the Town or the Successful Bidder is required to enforce the terms of this bid or resulting Contract by court proceedings or otherwise, whether or not formal legal action is required, the prevailing party shall be entitled to recover from the other party all such costs and expenses, including, but not

limited to, reasonable attorneys' fees and court costs.

40. CONE OF SILENCE.

You are hereby advised that this Bid is subject to the "Cone of Silence," in accordance with Section 2-11.1(t) of the Code of Miami-Dade County, Florida. From the time of advertising until the Town Engineer issues his recommendation, there is a prohibition on communication with the Town's professional staff. The Cone of Silence does not apply to oral communications at pre-bid conferences, oral presentations before evaluation committees, contract discussions during any duly noticed public meeting, public presentations made to the Town Council during any duly notice public meeting, contract negotiations with the staff following the award of an RFP, RFQ, RFLI or Bid by the Town Council, or communications in writing at any time with any Town employee, official or member of the Town Council unless specifically prohibited. A copy of all written communications must be filed with the Town Clerk. Violation of these provisions by any particular bidder or proposer shall render any RFP award, RFQ award, RFLI award, or bid award to said bidder or proposer voidable, and said bidder or proposer shall not be considered for any RFP, RFQ, RFLI or bid for a contract for the provision of goods or services for a period of one year.

41. SUMMARY OF DOCUMENTS TO BE SUBMITTED BY BIDDERS

41.1 The following is a summary of documents, copies of which may be included in the Bid Documents, which are to be completed and submitted by Bidders:

A. Bidder acknowledgement

B. Bid Form

C. Bid Proposal

D. Notice to All Bidders

E. List of Major Subcontractors

F. General Information Required of Bidder

G. Solicitation, Giving and Acceptance of Gifts Policy

H. Drug Free Workplace Program

I. Bidder's Certification

J. Certified Resolution

K. Certification of Insurance

L. Non-Collusive Affidavit

M. Foreign (Non-Florida) Corporations Must Complete

N. Qualification Statement

O. Acknowledgement of Conformance with OSHA Standards

P. Trench Safety Compliance

Q. References

R. Bid Bond or Security

S. Certified Resolution or other duly executed document evidencing authority to sign on behalf of the Bidder

T. Public Entity Crime Affidavit

ITB No. 2018-003

PROJECT DESCRIPTION:

NW 105th Way Drainage Improvements

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements Project Number SW-0125, NW 105th Way Drainage Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

SCHEDULE OF EVENTS

It is important that Bidder agrees and fully understands that time is of the essence in completing the following schedule of events, pertaining to the requirements of this Bid, prior to the issuance of the Notice to Proceed.

The Town reserves the right to modify or alter the Schedule of Events set forth herein, in its sole and absolute discretion. The tentative Schedule of Events, relative to the Bid shall be as follows:

Event		Date (on or by)
1.	ADVERTISEMENT OF BIDS	December 21, 2017
2.	PRE-BID CONFERENCE	January 24, 2018
3.	FINAL DAY FOR BIDDER QUESTIONS	January 29, 2018
4.	OPENING OF BIDS	February 13, 2018
5.	RECOMMENDATION OF AWARD	February 19, 2018
6.	AWARD OF PROJECT BY THE TOWN COUNCIL	March 05, 2018
7.	NOTICE OF AWARD GIVEN TO THE SUCCESSFUL CONTRACTOR	March 06, 2018

8.	CONTRACT DOCUMENTS EXECUTION	March 22, 2018
9.	NOTICE TO PROCEED ISSUED TO CONTRACTOR	April 17, 2018
10.	SUBSTANTIAL COMPLETION (150 DAYS)	September 17, 2018
11.	FINAL COMPLETION (30 DAYS)	October 17, 2018
12.	PROJECT CLOSEPUT (EOR & CEI) (45 DAYS)	December 03, 2018

SECTION II CONSTRUCTION SERVICES - GENERAL CONDITIONS

1. DEFINITIONS

Wherever used in the Project Manual, the following terms have the meanings indicated which are applicable to both the singular and plural thereof. For additional definitions refer to Section I Instructions to Bidders, Defined Terms.

1.1 **Addenda -** Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Bidding Documents or the Contract Documents.

1.2 **Agreement -** The written instrument which is evidence of the agreement between the Town and Contractor covering the Work.

1.3 **Application for Payment -** The form accepted by CEI which is to be used by Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents.

1.4 **Asbestos -** Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

1.5 **Bid -** The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.6 **Bidder -**The individual or entity who submits a Bid directly to the Town.

1.7 **Bidding Documents -** The Bidding Requirements and the proposed Contract Documents (including all Addenda.)

1.8 **Bidding Requirements -** The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

1.9 **Bonds -** Bid, Performance and Payment Bonds and other instruments of security.

1.10 **Change Order -** A document recommended by Contractor, CEI, or the Town which is signed by Contractor, CEI and the Town and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Contract.

1.11 **Claim -** A demand or assertion by the Town or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

1.12 **Contract -** The written Contract between the Town and Contractor covering the Work to be performed including other Contract Documents that are attached to the Contract or made a part thereof.

1.13 **Contract Administrator -** The Town's Contract Administrator shall mean the individual appointed by the Mayor who shall be the Town's authorized representative to coordinate, direct, and review all matters related to the Project on behalf of the Town.

1.14 **Contract Documents -** The Contract Documents consist of the Drawings, Engineering Drawings and Specifications, Bid Form, Contractor's Bid, including documentation accompanying Bid and post Bid documentation submitted prior to the Notice of Award, Qualifications Statement, Contract, Addenda, and Notice of Award, Notice to Proceed, Payment and Performance Bonds, the Construction Services General Conditions, the Technical Specifications, any additional documents which are required to be submitted under the Contract, and all amendments, modifications and supplements issued on or after the effective date of the contract.

1.15 **Contract Price -** The moneys payable by the Town to Contractor under the Contract Documents as stated in the Contract (subject to the provisions of the Contract in the case of Unit Price Work).

1.16 **Contract Time -** The date stated in the Contract for the completion of the Work.

1.17 **Contractor -** The person, firm or corporation with whom the Town has entered into the Contract.

1.18 **Construction Engineering and Inspection Services Company (CEI) -** The person, firm or corporation contracted by the Town to ensure that the project is completed in accordance with the Drawings and Technical Specifications; including material testing and review as required.

1.19 **Cost of Work -** Means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the work.

1.20 **Days** - The term "days" shall mean calendar days unless otherwise specified.

1.21 **Defective** - An adjective which when modifying the Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to EOR's recommendation of final payment.

1.22 **Drawings** - The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by EOR and are referred to in the Contract Documents.

1.23 **Effective Date** - The date stated in the Notice to Proceed fixing the date on which the Contact Time will commence.

1.24 **Effective Date of the Agreement** - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

1.25 **Engineer of Record (EOR)** - A Florida professional Engineer who is in responsible charge of the preparation, signing, dating, sealing, and issuing of the engineering documents for the

project.

1.26 **Field Order** - A written order issued by EOR which orders minor changes in the Work but which does not involve a change in the Contract Price or the Contract Time.

1.27 **General Requirements** - Sections of Division 1 of the Specifications.

1.28 **Hazardous Environmental Condition** - The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

1.29 **Hazardous Waste** - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

1.30 **Law and Regulations; Laws or Regulations** - Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

1.31 **Liens** - Charges, security interests, or encumbrances upon Project funds real property, or personal property.

1.32 **Milestone** - A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

1.33 **Notice of Award** - The written notice by the Town to the apparent Successful Bidder stating that upon compliance by the apparent Successful Bidder with the conditions precedent enumerated therein, within the time specified the Town will sign and deliver the Contract.

1.34 **Notice to Proceed** - A written notice given by the Town to Contractor (with a copy to CEI) fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform Contractor's obligations under the Contract Documents. This written notice will also state the dates of substantial and final completion of the project.

1.35 **Owner** - The Town of Medley which is the individual or entity with whom Contractor has entered into the Contract and for whom the Work is to be performed.

1.36 **Petroleum** - Petroleum, including crude oil or any fraction thereof which is liquid as standard conditions or temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

1.37 **Progress Schedule** - A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

1.38 **Project -** The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

1.39 **Project Manual** - The bound documentary information prepared for bidding and constructing the Work. This shall include the Contract Documents, Drawings, Technical Specifications, and any other set of documents required for completion of the Work. A full listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the tables(s) of contents.

1.40 **Radioactive Material** - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq) as amended from time to time.

1.41 **Resident Project Representative** - The authorized representative of Engineer who may be assigned to the Site or any part thereof.

1.42 **Samples -** Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

1.43 **Schedule of Submittals** - A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

1.44 **Schedule of Values** - A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.45 **Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.

1.46 **Site** - Lands or areas indicated in the Contract Documents as being furnished by the Town upon which the Work is to be performed, including rights-of-ways and easements for access thereto, and such other lands furnished by the Town which are designated for the use of Contractor.

1.47 **Specifications** - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and Workmanship as applied to the Work and certain administrative details applicable thereto.

1.48 **Sub-Contractor** - An individual, firm or corporation having a direct Contract with Contractor or with any other Sub-Contractor for the performance of a part of the Work at the site.

1.49 **Substantial Completion** - Refers to the date certified by the CEI to when all conditions and requirements of permits and regulatory agencies have been satisfied, and when the Work has progressed to the point where in the opinion of the CEI, as evidenced by the Certificate of Substantial Completion/Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the Work is available for beneficial occupancy and can be utilized for the purposes for which it is intended; or if there be no such certificate issued when final

payment is due. A temporary Certificate of Occupancy or Certificate of Occupancy must be issued for Substantial Completion to the achieved; however, the issuance of a Temporary Certificate of Occupancy or Certificated of Occupancy of the date thereof are not to be determinative of the achievement or date of Substantial Completion. The terms “Substantially Complete” and “substantially completed” can be used interchangeably as applied to any work refer to as “substantial completion” thereof.

1.50 **Successful Bidder** - The Bidder submitting a responsive Bid to whom the Town makes an award.

1.51 **Supplementary Conditions** - The part of the Contract Documents which amends or supplements these General Conditions.

1.52 **Supplier** - A manufacturer, fabricator, supplier, distributor, materialman or vendor.

1.53 **The Town** - The Town of Medley, Florida with whom Contractor has entered into the Contract and for whom the Work is to be provided.

1.54 **Town Council** – The Council of the Town of Medley, FL. The Council is composed of the Town’s Mayor and four councilmember all of whom have one vote in all matters before the Town Council.

1.55 **Town Engineer -** The engineer employed by the Town who shall represent the Town during the construction process.

1.56 **Underground Facilities** - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television sewage and drainage removal, traffic or other control systems or water, and all irrigation systems on or contiguous to the worksite.

1.57 **Unit Price Work** - Work to be paid for on the basis of unit prices.

1.58 **Work -** The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

1.59 **Work Directive Change -** A written directive to Contractor, issued on or after the Effective Date of the Contract and signed by the Town and recommended by the CEI and approved by the EOR and the Town Engineer ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in Section V, Paragraph 2 and 3 of the General Conditions or to emergencies under Section VI, Paragraph 13 of the General Conditions. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change

Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in Section XI.

1.60 **Written Amendment -** A written Amendment of the Contract Documents, signed by the Town and Contractor on or after the Effective Date of the Contract and normally dealing with the non-engineering or non-technical aspects rather than strictly work related aspects of the Contract Documents.

2. ACRONYMS

Wherever in these Contract Documents and the Project Manual references are made to standards, specifications, or other published data of the various national, regional, or local organizations, such organizations may be referred to by their acronyms or abbreviation only. As a guide to the user, the following acronyms and abbreviations shall have the meanings indicated herein.

2.1 **AASHTO** - American Association of the State Highway and Transportation Officials

2.2 **ACI** - American Concrete Institute

2.3 **ANSI** - American National Standards Institute, Inc.

2.4 **ASCE** - American Society of Civil Engineers

2.5 **ASTM** - American Society for Testing and Materials

2.6 **AWWA** - American Water Works Association

2.7 **CEI** - Construction Engineering and Inspection Services Company

2.8 **EOR** - Engineer of Record

2.9 **FDOT** - Florida Department of Transportation

2.10 **ISO** - International Organization for Standardization

2.11 **MUTCD** - Manual of Uniform Traffic Control Devices

2.12 **NWWA** - National Water Well Association

2.13 **OSHA** - Occupational Safety and Health Administration

2.14 **PERA** - Miami-Dade Department of Permitting, Environment, and Regulatory Affairs

2.15 **PCBs** - Polychlorinated biphenyls

2.16 **SSPWC** - Standard Specifications of Public Works Construction

2.17 **UBC** - Uniform Building Code

2.18 **WASD** - Water and Sewer Department

SECTION III PRELIMINARY MATTERS

1. DELIVERY OF BONDS AND INSURANCE

Prior to award of the Contract by the Town, Contractor shall deliver to the Town copies of the certificate(s) of insurance evidencing the coverages required hereunder and specifically providing that the Town of Medley is an additional named insured or additional insured. Payment and Performance Bonds which Contractor is required to furnish in accordance with this Contract must be provided to the Town within fifteen (15) days after issuance of Notice of Award.

2. COMMENCEMENT OF CONTRACT TIME; EFFECTIVE DATE; NOTICE TO PROCEED

2.1 The Work shall commence subsequent to the execution of this Contract by all parties and upon a written Notice to Proceed from the Town setting forth the Effective Date of the Contract upon which date the Work shall commence. No Work shall be done at the site prior to the date on which the Contract Time commences to run.

2.2 The Town shall furnish to Contractor up to three (3) copies of the Contract Documents. Additional copies will be furnished upon request, at the cost of reproduction.

3. PRECONSTRUCTION CONFERENCE

Within twenty (20) days after the Effective Date of the Contract, but before Contractor starts the Work at the site, a conference attended by Contractor, EOR, CEI and others as appropriate will be held to discuss the schedules referred to in Paragraph 4 below, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

4. FINALIZING SCHEDULES

At least ten (10) days before submission of the first Application for Payment a conference attended by Contractor, CEI and others as appropriate will be held to finalize the schedules and procedures to establish a working understanding among the parties. The finalized progress schedule will be acceptable to CEI as providing an orderly progress on of the Work to completion within the Contract time, but such acceptance will neither impose on CEI's responsibility for the progress or scheduling of the Work nor relieve Contractor from full responsibility therefore. The finalized schedule of Shop Drawing submissions will be acceptable to EOR as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to CEI as to form and substance.

SECTION IV CONTRACT DOCUMENTS; INTENT, AMENDING, REUSE

1. ENTIRE CONTRACT

The Contract Documents comprise the entire Contract between the Town and Contractor concerning the Work. The Contract Documents are complimentary; what is called for by one is as binding as if

called for by all. The Contract Documents will be construed in accordance with the law of the State of Florida.

2. INTENT

It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code(whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Town, Contractor, CEI or EOR, or any of their consultants, agents or employees from those set forth in the Contract Documents.

3. CONFLICT, ERROR OR DISCREPANCY

If during the performance of the Work, Contractor finds a conflict, error or discrepancy in the Contract Documents, Contractor shall so report to CEI in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from CEI.

4. AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS

4.1 The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

A. A Change Order; or

B. A formal written Amendment.

5. SUPPLEMENTS, MINOR VARIATIONS OR DEVIATIONS

5.1 In addition, the requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

A. EOR’s approval of a Shop Drawing or sample;

B. EOR’s written interpretation or clarification; or

C. A field order.

6. REUSE OF DOCUMENTS

Neither Contractor nor any Sub-Contractors or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect Contract with the Town shall have or acquire any title to or Township rights in any of the Drawings, Specifications or other Documents (or copies of any thereof) prepared by or bearing the seal of the EOR; and they shall not reuse any of them on extensions of the Project or any other project without written consent of the Town.

SECTION V AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

1. AVAILABILITY OF LANDS

The Town shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of Contractor. Contractor shall provide at Contractor's own expense and without liability to the Town any and all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment. Contractor shall furnish to the Town copies of written permission that is obtained from the Town of such facilities. It is the responsibility of the Contractor to leave the additional lands in the same condition as prior to Work startup. Any damages caused by Contractor will be remedied at Contractors expense.

2. PHYSICAL CONDITIONS

2.1 Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to the Town or EOR by the Town of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

A. The Town and/or EOR shall not be responsible for the accuracy or completeness of any such information or data; and

B. Contractor shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the Town of such Underground Facilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the Work, the costs of all of which will be considered as having been included in the Contract Price.

2.2 Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which Contractor could not reasonably have been expected to be aware of, Contractor shall, promptly after becoming aware thereof and before performing any work affected thereby, except in an emergency as permitted by Section VI, Paragraph 13 of the General Conditions, identify the Town of such Underground Facility and give written notice thereof to the Town and EOR. EOR will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such

time, Contractor shall be responsible for the safety and protection of such Underground Facility. Contractor shall be allowed an extension of the Contract Time to the extent that any delay is attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and of which existence Contractor could not reasonably have been expected to be aware. If the parties are unable to agree as to the appropriate length of delay, Contractor may make a claim therefore as provided in this Contract.

3. REFERENCE POINTS

The Town shall provide engineering surveys to establish reference points for construction which in EOR's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work to protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the Town Contractor shall report to CEI whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

4. HAZARDOUS ENVIRONMENTAL CONDITIONS

4.1 If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately:

A. Secure or otherwise isolate such condition.

B. Stop all Work in connection with such condition and in any area affected thereby; and

C. Notify the Town and the CEI (and promptly thereafter confirm such notice in writing).

The Town shall promptly consult with CEI concerning the necessity for the Town to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with CEI, the Town shall take such actions as are necessary to permit the Town to timely obtain required permits to continue work the area where the hazardous environmental conditions were observed.

4.2 Contractor shall not be required to resume Work in connection with such condition or in any affected area until after the Town has obtained any required permits related thereto and delivered written notice to Contractor:

A. Specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or

B. Specifying any special conditions under which such Work may be resumed safely.

4.3 To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Town, CEI, EOR, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)

arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

SECTION VI CONTRACTOR'S RESPONSIBILITIES

1. SUPERVISION AND SUPERINTENDENCE

Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. Contractor shall be responsible to see that the finished Work complies accurately with the Contract Documents.

2. RESIDENT SUPERINTENDENT

Contractor shall keep on the worksite at all times during its progress a competent resident superintendent capable of communicating in English and any necessary assistants who shall not be replaced without written notice to the Town and CEI unless the superintendent proves to be unsatisfactory to Contractor and ceases to be in its employ. The superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

3. LABOR, MATERIALS AND EQUIPMENT

3.1 Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all work at the site shall be performed during regular working hours, and Contractor will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without the Town's written consent given after prior written notice to CEI.

3.2 Unless otherwise specified in the Bid Documents, Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

3.3 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by EOR, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to EOR, or any of EOR's consultants, agents or employees, any duty or authority to supervise

or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Section IX and X of these General Conditions.

3.4 Within 10 days after the signing of the Contract, Contractor shall submit to the Town and the CEI a preliminary Progress Schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work, including any milestones specified on the Project Manual. During the performance of the Work, Contractor shall adhere to the Progress Schedule which shall provide an orderly progression of the Work to completion within the Contract Times. The Progress Schedule may be adjusted from time to time as provided below.

A. Contractor shall submit to the CEI for acceptance the proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions described in this Project Manual.

B. Proposed adjustments in the Progress Schedule that will change the Contract Times may only be made by Change Order. Any claim for an adjustment in Contract Times shall be based on written notice submitted by the party making the Clam to the CEI and the other party to the Contract.

4. SUBSTITUTES OR "OR EQUAL" ITEMS

4.1 Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers maybe accepted by EOR if sufficient information is submitted by Contractor to allow EOR to determine that the material or equipment proposed is equivalent or equal to that named. Requests for review of substitute items of material and equipment will not be accepted by EOR from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall make written application to EOR for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application must state that the evaluation and acceptance of the proposed substitute will not prejudice Contractor's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct Contract with the Town for Work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which shall be considered by EOR in evaluating the proposed substitute. EOR may require Contractor to furnish at Contractor's expense additional data about the proposed substitute.

4.2 If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, Contractor may furnish or utilize a substitute

means, method, sequence, technique or procedure of construction acceptable to EOR, if Contractor submits sufficient information to allow EOR to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by EOR will be similar to that provided in Paragraph 4.1 as applied by EOR and as maybe supplemented in the Contract Documents.

4.3 EOR will be allowed a reasonable time within which to evaluate each proposed substitute. EOR will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without EOR's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Town may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

5. CONCERNING SUB-CONTRACTORS, SUPPLIERS AND OTHERS

5.1 Contractor shall be fully responsible to the Town and EOR for all acts and omissions of the Subcontractors, Suppliers and other persons directly or indirectly employed by its Subcontractors, Suppliers and of persons for whose acts any of them may be liable and any other persons and organizations performing or furnishing of the Work under a direct or indirect Contract with Contractor to the same extent that Contractor is responsible for the acts and omissions of persons directly employed by him/her. Nothing in the Contract Documents shall create any Contractual relationship between the Town or EOR and any such Sub-Contractor, Supplier or other person or organization, nor shall it create any obligation on the part of the Town or EOR to pay or to see to the payment of any moneys due any such Sub-Contractor, Supplier or other person or organization except as may otherwise be required by laws and regulations.

5.2 All work performed for Contractor by a Sub-Contractor will be pursuant to an appropriate Contract between Contractor and the Sub-Contractor which specifically binds the Sub-Contractor to the applicable terms and conditions of the Contract Documents for the benefit of the Town and EOR.

6. PATENT FEES AND ROYALTIES

Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others.

7. PERMITS

Contractor shall obtain and pay for all permits and licenses. Contractor shall pay all government charges and inspection fees as required by the Town. The Town reserves the right to waive as it deems appropriate all municipal permit and inspection fees related to this contract. However, the Town shall require that Contractor to pay all fees relative to re-inspections, as they may be required from time to time.

8. LAWS AND REGULATIONS

8.1 Contractor shall give all notices and comply with all laws and regulations applicable to

furnishing and performance of the Work. Neither the Town nor CEI shall be responsible for monitoring Contractor's compliance with any laws and regulations.

8.2 If Contractor observes that the Specifications or Drawings are at variance with any laws or regulations, Contractor shall give EOR prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in Section IX, Paragraph 6 of the General Conditions. If Contractor performs any Work knowing or having reason to know that it is contrary to such laws or regulations, and without such notice to EOR, Contractor shall bear all costs arising there from.

9. TAXES

Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the laws and regulations of the State of Florida and its political subdivisions which are applicable during the performance of the Work.

10. USE OF PREMISES

10.1 Contractor shall confine construction equipment, the storage of materials and equipment and the operations of Workers to the Project site and areas identified in and permitted by the Contract Documents and other land and areas permitted by laws and regulations, rights-of-way, permits and easements and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the Town or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against the Town or EOR by any such party or occupant because of the performance of the Work, Contractor shall promptly attempt to settle with such other party by Contract or otherwise resolve the claim. The general indemnification provided elsewhere in this Contract specifically applies to claims arising out of Contractor's use of the premises.

10.2 During the progress of the Work, Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the Town. Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

10.3 Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

11. RECORD DOCUMENTS

Contractor shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during

construction. Each document shall be labeled “PROJECT RECORD” and information shall be recorded concurrently with construction progress. These Record Documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to CEI for reference. Upon completion of the Work, these Record Documents, samples and Shop Drawings will be delivered to CEI for the Town.

12. SAFETY AND PROTECTION

12.1 Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work to prevent damage, injury or loss to all employees on the worksite and other persons and organizations who may be affected thereby; all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, irrigation systems, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

12.2 Contractor shall furnish watchmen, flagmen, warning signs, cones, barricades, flashing lights and other necessary safeguards in sufficient numbers and at appropriate locations to protect and divert vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Such watchmen and flagmen shall be furnished on a twenty-four (24) hour basis when conditions require. Contractor and all Subcontractors shall take all necessary precautions to guard against and eliminate all possible fire hazards and prevent injury to persons or fire damage to any construction, building materials, equipment, temporary field offices, storage sheds, and all other property, both public and private, particularly when gas or arc welding and cutting is taking place. Open flames including the use of flambeaux are strictly prohibited. No additional payment will be made for signs, barricades, lights, flags, watchmen, flagmen, required fire extinguishing apparatus and personnel, and other protective devices. Contractor shall not use explosives on the site, nor allow explosives of any type or nature to be brought upon the site of the construction, without the express written approval of the Town and CEI. When the use of explosives is authorized by the Town and CEI, Contractor shall exercise the utmost care in handling and usage of such explosives for the protection of life and property. All explosives shall be stored in a safe manner and storage places shall be clearly marked -“DANGEROUS -EXPLOSIVES” and placed in the care of competent watchmen. When such use of explosives becomes necessary, Contractor shall furnish to the Town, proof of insurance coverage, adequately providing public liability and property damage insurance as a rider attached to Contractor’s policies unless otherwise included.

12.3 Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety or persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify the Town of Underground Facilities and utility when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property caused directly or indirectly by workers employed by and of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by Contractor. Contractor’s duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and CEI has issued a notice to the Town and Contractor in accordance with Section XIV, Paragraph

7 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

12.4 Contractor shall designate a responsible representative at the worksite whose duty shall be the prevention of accidents. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to the Town.

13. EMERGENCIES

13.1 In emergencies affecting the safety or protection of persons or the Work or property at the worksite or adjacent thereto, Contractor, without special instruction or authorization from CEI to the Town, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give EOR prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If EOR determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Change Order will be issued or an Amendment made through proper procedures to document the consequences of the changes or variations.

13.2 Contractor shall be required to remove all materials from the job site and provide safe storage for the same that may be blown about or become a hazard during a hurricane or windstorm. Contractor shall also take necessary precautions to remove bulkheads, dams or other structures blocking drains in the event of the threat of flooding condition. No extra pay will be allowed for this work.

13.3 Shop Drawings and Samples

A. After checking and verifying all field measurements and after complying with applicable procedures specified in the Project Specifications or Engineering Drawings, Contractor shall submit to CEI for review and approval in accordance with the accepted schedule of Shop Drawing submissions or for other appropriate action if so indicated, five (5) copies of all Shop Drawings, which will bear a stamp or specific written indication that Contractor has satisfied Contractor's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as EOR may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable CEI to review the information as required.

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

C. Before submission of each Shop Drawing or sample Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation

requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

D. At the time of each submission, Contractor shall give CEI specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to CEI for review and approval of each such variation. Failure to point out such departures shall not relieve Contractor from its responsibility to comply with the Contract Documents.

14. CONTINUING THE WORK

Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the Town. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or as Contractor and the Town may otherwise agree in writing.

15. INDEMNIFICATION

15.1 General Indemnification: The parties agree that one percent (1%) of the total compensation paid to Contractor for the Work of the Contract shall constitute specific consideration to Contractor for the indemnification to be provided under the Contract. To the fullest extent permitted by laws and regulations, Contractor shall indemnify, save and hold harmless the Town, its officers, agents and employees, from or on account of all claims, damages, losses, liabilities and expenses, direct, indirect or consequential, including, but not limited to, fees and charges of Engineer, architects, attorney's consultants and other professionals and court and arbitration costs arising out of or resulting from the performance of the Work excluding the sole negligence of the Town. Such indemnification shall specifically include but not be limited to claims, damages, losses and expenses arising out of or resulting from:

A. Any and all bodily injuries, sickness, death, disease;

B. Injury to or destruction of tangible personal property, including the loss of use resulting there from;

C. Other such damages, liabilities or losses received or sustained by any person or persons during or on account of any operations connected with the construction of this project including the warranty period;

D. The use of any improper materials;

E. Any construction defect including patent defects;

F. Any act or omission of Contractor or its Sub-Contractors, agents, servants or employees;

G. The violation of any federal, state, county or the Town laws, by-laws, ordinances or regulations by Contractor, its Sub-Contractors, agents, servants or employees; and

H. The breach or alleged breach by Contractor of any term of the Contract, including the breach or alleged breach of any warranty or guarantee.

15.2 Patent and Copyright Indemnification: Contractor agrees to indemnify, save and hold harmless the Town, its officers, agents and employees, from all such claims and fees, and from any and all sites and actions of every name and description that may be brought against the Town, its officers, agents and employees, on account of any claims, fines, fees, royalties, or costs for any invention or patent, and from any and all suits and actions that may be brought against the Town, its officers, agents and employees for the infringement of any and all copyrights or patent rights claimed by any person, firm, or corporation.

15.3 Contractor shall pay all claims, losses, liens, settlements or judgments of any nature whatsoever, excluding only those in which the damages arose out of the sole negligence of the Town, in connection with the foregoing indemnifications, including, but not limited to, reasonable attorney's fees and costs to defend all claims or suits in the name of the Town when applicable.

15.4 The Town reserves the right to select its own legal counsel to conduct any defense in any such proceeding and all costs and fees associated therewith including any costs or fees of an appeal shall be the responsibility of Contractor under the indemnification. Such indemnification shall not be limited to the amount of comprehensive general liability insurance which Contractor is required to obtain under the Contract. Nothing contained herein is intended nor shall it be construed to waive the Town's rights and immunities under the common law or Florida Statute 768.28 as amended from time to time. This obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party described in this Paragraph 15 and its subparts.

16. LIABILITY FOR USE OF WORK FOR INTENDED PURPOSES

As an inducement for the Town's Council to enter into this Contract, Contractor has represented an expertise in the construction of and completion of like projects as described in these bid documents. In reliance upon those representations, the Town hired Contractor for specified construction services and documents. Contractor understands and agrees that the Town intends to utilize said Engineering Drawings for the stated purposes and therefore Contractor shall be liable for any defective or negligent design, whether patent or latent, as such maybe found by a court of competent jurisdiction.

SECTION VII OTHER WORK

1. RELATED WORK AT SITE

The Town may perform other work related to the Project at the site by the Town's own forces, have other work performed by utility or let other direct Contracts therefore which shall contain General Conditions similar to these. Written notice thereof will be given to Contractor prior to starting any such other work not previously noticed to Contractor; and, if Contractor believes that performance of work other than that already noticed will involve additional expense to Contractor or requires additional time and the parties are unable to agree as to the extent thereof, Contractor may make a claim therefore as provided in this Contract.

SECTION VIIITHE TOWN'S RESPONSIBILITIES

1. The Town shall issue all communications to Contractor through the CEI or the Town Engineer.

2. The Town shall furnish the data required of the Town under the Contract Documents promptly and shall make payments to Contractor promptly after they are due.

3. The Town's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Section V, Paragraph 3 of this document.

4. The Town is obligated to execute Change Orders as indicated in Section X, Section XI and Section XII.

5. The Town shall have such other responsibilities and rights as are expressed in the Contract Documents.

SECTION IX CEI'S STATUS DURING CONSTRUCTION

1. THE TOWN'S REPRESENTATIVE

CEI will be the Town's representative during the construction period and until final payment is due. The duties and responsibilities and the limitations of authority of CEI as the Town's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of the Town and EOR.

2. VISITS TO SITE

CEI will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. CEI's efforts will be directed toward providing for the Town a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site inspections, CEI shall keep the Town and EOR informed of the progress of the Work and shall endeavor to guard the Town against defects and deficiencies in the Work.

3. TECHNICAL CLARIFICATIONS AND INTERPRETATIONS

EOR will issue with reasonable promptness such written clarifications or interpretations of the technical requirements of the Contract Documents as EOR may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If Contractor believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, Contractor may make a claim therefore as provided in this Contract. Should Contractor fail to request interpretation of questionable items in the Contract Documents neither the Town nor EOR will thereafter entertain any excuse for failure to execute the Work in a satisfactory manner.

4. AUTHORIZED VARIATIONS IN WORK

CEI may authorize minor variations in the Work from the technical requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a field order and will be binding on the Town, and also on Contractor who shall perform the Work involved promptly. If Contractor believes that a field order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, Contractor may make a claim therefore as provided elsewhere in this Contract.

5. REJECTING DEFECTIVE WORK

CEI will have the authority to disapprove or reject work which CEI believes to be defective, and will also have authority to require special inspection or testing of the work whether or not the work is fabricated, installed or completed.

6. DECISIONS ON DISPUTES

CEI will be the initial interpreter of the technical requirements of the Contract Documents and the acceptability of the Work there under. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Section X, Section XI and Section XII in respect of changes in the Contract Price or Contract Time will be referred initially to EOR in writing with a request for a formal decision in accordance with this Paragraph, which EOR will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to the Town promptly, but in no event later than three (3) days after the occurrence of the event giving rise thereto, and written supporting data will be submitted to EOR and the Town within seven (7) days after such occurrence unless EOR allows an additional period of time to ascertain more accurate data in support of the claim. The rendering of a decision by EOR with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in Section XIV, Paragraph 9) will be a condition precedent to any exercise by the Town or Contractor of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

7. CHANGE ORDERS

7.1 The Town and Contractor shall execute appropriate Change Orders recommended by the CEI covering:

7.2 Changes in the Work which are:

A. Ordered by the Town which do not invalidate the Contract and without notice to any surety.

B. Required because of acceptance of defective Work as describes in Section XIII or the Town’s correction of defective Work, or

C. Agreed to by the parties.

7.3 Changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive.

7.4 Changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by EOR; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule.

8. DETERMINATIONS FOR UNIT PRICE WORK

CEI will determine the actual quantities and classification of Unit Price Work performed on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). CEI's written decision thereon will be final and binding (except as modified by CEI to reflect changed factual conditions or more accurate data) upon the Town and Contractor.

9. DECISION ON REQUIREMENTS OF CONTRACT DOCUMENTS AN ACCEPTABILITY OF WORK

9.1 CEI will be the initial interpreter of the requirements of the Project Manual and judge of the acceptability of the Work thereunder. All matters in question and other matters between the Town and Contractor arising prior to the date final payment is due relating to acceptability of the Work, and the interpretation of the requirements of the Project Manual pertaining to the performance of the Work, will be referred initially to the CEI in writing within 30 days of the event giving rise to the question.

9.2 CEI will, with reasonable promptness, render a written decision on the issued referred. If the Town or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a claim may be made. The date of CEI's decision shall be the date of the event giving rise to the issues referenced.

9.3 CEI's written decision on the issue referred will be final and binding on the Town and Contractor.

9.4 When functioning as interpreter and judge, CEI will not show partially to the Town or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

10. LIMITATIONS ON CEI'S RESPONSIBILITIES

10.1 Neither CEI's authority to act under this Paragraph 7 or elsewhere in the Contract Documents nor any decision made by CEI in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of CEI or Contractor, any Sub-Contractor, any supplier, or any other person or organization performing any of the Work, or to any surety for any of

them except as such duties and responsibilities are included within the Contract Documents.

10.2 CEI will not be responsible for the acts or omissions of Contractor or of any Sub-Contractor, any supplier, or of any other person or organization performing or furnishing any of the Work. CEI shall not be responsible for safety measures on the Project. This is the responsibility of the Contractor.

SECTION X CHANGES IN THE WORK

1. The Town, without invalidating the Contract, may order changes in the Work which do not materially alter the scope and character of the Work of the Contract or the completion date. All such changes in the Work shall be authorized by a Change Order. Any individual Change Order which decreases the cost of the Work to the Town or increases the cost of the Work by an amount not in excess of Twenty Five Thousand Dollars ($25,000.00) must be authorized and approved by the Town Council prior to their issuance. Any individual Change Order which increases the cost of the Work to the Town by an amount which exceeds Twenty Five Thousand Dollars ($25,000.00) must be formally authorized and approved by the Town Council prior to their issuance and before Work may begin. No claim against the Town for extra work in furtherance of such Change Order shall be allowed unless prior approval has been obtained.

2. If the Town and Contractor are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefore as provided in Section X or Section XI.

3. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified and supplemented except in the case of an emergency and except in the case of uncovering work as those situations are addressed herein.

4. The Town and Contractor shall execute appropriate Change Orders or written Amendments covering:

4.1 Changes in the Work which are ordered by the Town pursuant to this Section, and are required to correct defective work or are agreed to by the parties; and

4.2 Changes in the Contract Price or Contract Time which are agreed to by the parties. Provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable laws and regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the progress schedule. Proposed Change Orders shall be prepared by Contractor on forms approved by the Town. When submitted for approval to the Town they shall early the signature of the applicable Contract Administrator, Town Engineer, and Contractor.

5. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice shall be Contractor's

sole responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

SECTION XI CHANGE OF CONTRACT PRICE

1. GENERAL

1.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at its expense without change in the Contract Price,

1.2 The Contract Price may only be changed by a Change Order or by a written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered to CEI promptly (but in no event later than three (3) days after the occurrence of the event giving rise to the amount of the claim with supporting data to be delivered within seven (7) days and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. No resolution of a claim for adjustment in the Contract Price shall be effective until approved by the Town in writing. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph.

1.3 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

A. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.

B. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit including any Sub-Contractor fees) which shall not exceed twenty-five percent (25%) of the original Contract Price as defined herein or Contract Price as modified by an acceptable Change Order or written Amendment executed by all parties.

C. On the basis of the Cost of the Work determined as provided in Paragraph 4 below plus a Contractor's Fee for overhead and profit determined as provided in Paragraph 6 below.

2. COST OF THE WORK

2.1 The term "Cost of the Work" means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by the Town such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in this Section.

A. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by the Town and

Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, Worker's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Saturday, Sunday or legal holidays, shall not be included in the above unless authorized in writing by the Town.

B. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and suppliers' field services required in connection therewith. All cash discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to the Town, and Contractor shall make provisions so that they may be obtained.

C. Supplemental costs including the following:

a. Cost, including transportation and maintenance of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the brokers, which are consumed in the performance of the Work.

b. Rentals of all construction equipment and machinery and the parts thereof, whether rented from Contractor or others in accordance with rental Contracts approved by the Town with the advice of CEI, and the costs, of transportation, loading, unloading, installation, dismantling and removal thereof, all in accordance with terms of said rental Contracts. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work

c. Sales, consumer, use or similar taxes related to the Work and for which Contractor is liable, imposed by laws and regulations.

d. Royalty payments and fees for permits and licenses.

e. The cost of utilities, fuel and sanitary facilities at the site.

f. Minor expenses such as Internet services, cell phone service, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

g. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

3. NOT INCLUDED IN THE COST OF THE WORK

3.1 The term Cost of the Work shall NOT include any of the following:

A. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by Contractor whether at the site or in Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 6 below, all of which are to be considered administrative costs covered by Contractor's fee.

B. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

C. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

D. Costs due to the negligence of Contractor, any Sub-Contractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective work, disposal of materials or equipment wrongly supplied and making good any damage to property.

E. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 6 below.

4. CONTRACTOR'S FEE

4.1 Contractor's fee allowed to Contractor for overhead and profit shall be determined as a mutually acceptable negotiated fee:

A. For costs incurred under this Section shall not exceed ten percent (10%).

B. No fee shall be payable on the basis of costs itemized under Paragraphs 4.1 (C.)(a-g), 5 and 6 of this Section XI.

C. The amount of credit to be allowed by Contractor to the Town for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in Contractor's fee by an amount equal to ten percent (10%) for the net decrease.

D. When both additions and credits are involved in any one change the combined overhead and profit shall be figured on the basis of net increase if any, however, profit will not be paid on any Work not performed.

5. COST BREAKDOWN REQUIRED

Whenever the cost of any work is to be determined pursuant to Section XI, Paragraphs 4, 5 and 6 Contractor will submit in a form acceptable to CEI an itemized cost breakdown together with supporting data.

SECTION XII CONTRACT TIME

1. COMMENCEMENT

1.1 The Date of Commencement of the Work is the date established in the Notice to Proceed.

1.2 Time of Substantial Completion:

A. The date of Substantial Completion of the Work or designated portion thereof is the date certified by CEI when construction is sufficiently complete, in accordance with the Contract Documents, so the Town can occupy or utilize the Work or designated portion thereof for the purposes for which it is intended.

2. CHANGE OF CONTRACT TIME

2.1 All time limits stated in the Contract Documents are of the essence of the Contract. NO CLAIM FOR DAMAGES OR ANY CLAIM OTHER THAN FOR AN EXTENSION OF TIME SHALL BE MADE OR ASSERTED AGAINST THE TOWN BY REASON OF ANY DELAYS. Contractor shall not be entitled to an increase in the Contract Price or payment or compensation of any kind from the Town for direct, indirect, consequential, impact or other costs, expenses or damages including but not limited to costs of acceleration or inefficiency, arising because of delay, disruption, interference or hindrance from any cause whatsoever, whether such delay, disruption, interference be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable; provided, however, that this provision shall not preclude recovery of damages by Contractor for hindrances or delays due solely to fraud, bad faith or active interference on the part of the Town or its agents. Otherwise, Contractor shall be entitled only to extensions of the Contract Time as the sole and exclusive remedy for such resulting delay, in accordance with and to that extent specifically provided above. No extension of time shall be granted for delays resulting from normal weather conditions prevailing in the area as defined by the average of the last ten (10) years of weather data as recorded by the United States Department of Commerce, National Oceanic and Atmospheric Administration at the National Weather Service Miami-South Florida Forecast Office.

2.2 No recovery for early completion. If the Contractor submits a schedule or expresses an intention to complete the Work earlier than any required milestone or completion date, the Town shall not be liable to the Contractor for any costs incurred because of delay or hindrance should the Contractor be unable to complete the Work before such milestone or completion date. The duties, obligations and warranties of the Town to the Contractor shall be consistent with and applicable only to the completion of the Work and completion dates set forth in these Construction Services General Conditions.

2.3 The Contract Time may only be changed by a Change Order or a written Amendment. Any claim for extension of time shall be made in writing to CEI not more than three (3) days after the detection or beginning of the occurrence of the event giving rise to the delay and stating the general nature of the claim; otherwise, it shall be waived. In the case of a continuing delay only one (1) claim is necessary. Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work.

3. LIQUIDATED DAMAGES

Upon failure of Contractor to complete the Work within the time specified for Final Completion, (plus approved extensions if any) Contractor shall pay to the Town the sum of Three Hundred Dollars ($300.00) for each day that the Substantial Completion of the Work is delayed beyond the time specified in the Contract for Substantial Completion, as fixed and agreed liquidated damages and not as a penalty. After Substantial Completion, if Contractor neglects, fails or refuses to complete the remainder of the Work within the Contract Time or any approved extension thereof, Contractor shall pay to the Town the sum of Three Hundred Dollars ($300.00) for each calendar day (plus approved extensions if any) after the time specified in the Contract for Final Completion and readiness for final payment as fixed and agreed liquidated damages and not as a penalty. Liquidated-damages are hereby fixed and agreed upon between the parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by the Town as a consequence of such delay and both parties desiring to obviate any question of dispute concerning the amount of said damages and the cost and effect of the failure of Contractor to complete the Contract on time. Regardless of whether or not a single Contract is involved, the above-stated liquidated damages shall apply separately to each portion of the Work for which a time of completion is given. The Town shall have the right to deduct from and retain out of moneys which may be then due or which may become due and payable to Contractor, the amount of such liquidated damages and if the amount retained by the Town is insufficient to pay in full such liquidated damages, the Contractor shall pay in full such liquidated damages. Contractor shall be responsible for reimbursing the Town, in addition to liquidated damages or other per day damages for delay, for all costs of engineering, architectural fees, and inspection and other costs incurred in administering the construction of the project beyond the completion date specified or beyond an approved extension of time granted to Contractor whichever is later.

SECTION XIII WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

1. WARRANTY AND GUARANTEE

Contractor warrants and guarantees to the Town and CEI that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to Contractor. All defective work, whether or not in place, may be rejected, corrected or accepted. Contractor warrants to the Town that the consummation of the Work provided for in the Contract Documents will not result in the breach of any term or provisions of, or constitute a default under any indenture, mortgage, Contract, or Agreement to which Contractor is a party. Contractor warrants that there has been no violation of copyrights or patent rights in connection with the Work of the Contract.

2. ACCESS TO WORK

CEI and other representatives of the Town, testing agencies and governmental agencies with jurisdictional interests shall have access to the Work at reasonable times for their observation, inspecting and testing. Contractor shall provide proper and safe conditions for such access.

3. TESTS AND INSPECTION

3.1 Contractor shall give CEI and Contract Administrator Inspector timely notice of readiness of the Work for all required inspections, tests or approvals.

3.2 Contractor shall assume full responsibility, pay all costs in connection therewith and furnish CEI the required certificates of inspection, testing or approval for all materials, equipment or the Work or any part thereof unless otherwise specified herein.

3.3 If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of CEI, it must, if requested by CEI, be uncovered for examination and properly restored at Contractor's expense. Such uncovering shall be at Contractor's expense unless Contractor has given CEI timely notice of Contractor's intention to cover the same and CEI has not acted with reasonable promptness in response to such notice.

3.4 Neither observations by CEI nor inspections, tests or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract Documents.

4. UNCOVERING THE WORK

4.1 If any work is covered contrary to the written request of CEI, it must, if requested by CEI or Town Representative, be uncovered for CEI's observation and replaced at Contractor's expense.

4.2 If CEI or Town Representative considers it necessary or advisable that covered work be observed by CEI of inspected or tested by others, Contractor, at CEI's request, shall uncover, expose or otherwise make available for observation, inspection or testing as CEI may require, that portion of the work in question, furnishing all necessary labor, material and equipment. If it is found that such work is defective, Contractor shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction (including but not limited to fees and charges of engineers, architects, attorneys and other professional(s), and the Town shall be entitled to an appropriate decrease in the Contract Price, and if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided in the Contract Documents. If, however, such work is found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the contract time, or both, directly attributable to such uncovering and, if the parties are unable to agree as to the amount or extent thereof, Contractor may make a claim therefore as provided in the Contract Documents.

5. THE TOWN MAY STOP THE WORK

If the Work is defective, or Contractor fails to supply sufficient skilled Workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, the Town may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Town to stop the Work shall not give rise to any duty on the part of the Town to exercise this right for the benefit of Contractor or any other party.

6. CORRECTION OR REMOVAL OF DEFECTIVE WORK

If required by CEI or Town Representative, Contractor shall promptly, as directed, either correct all defective work, whether or not fabricated, installed or completed, or, if the Work has been rejected by CEI, remove it from the site and replace it with non-defective Work. Contractor shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

7. ONE YEAR CORRECTION PERIOD

If within one (1) year after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to the Town and in accordance with the Town's written instructions, either correct such defective Work, or, if it has been rejected by the Town, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Town may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by Contractor. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by written Amendment.

SECTION XIV PAYMENTS TO CONTRACTOR AND COMPLETION

1. SCHEDULE OF VALUES

The schedule established as provided in Article 5 of the Contract will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to CEI.

2. APPLICATION FOR PROGRESS PAYMENT

At least ten (10) days before each progress payment is scheduled (but not more often than once a month), Contractor shall submit to CEI for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the

basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that the Town has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the Town's interest therein, all of which will be satisfactory to the Town. The amount of retainage with respect to progress payments will be as stipulated in the Contract.

3. CONTRACTOR'S WARRANTY OF TITLE

Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the Project or not, will pass to the Town no later than the time of final payment free and clear of all Liens.

4. REVIEW OF APPLICATIONS FOR PROGRESS PAYMENTS

CEI will, within ten (10) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment, or return the Application to Contractor indicating in writing CEI's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application. The Town shall make payment to Contractor within thirty (30) days after approval by the CEI of Contractor's requisition for payment.

5. GROUNDS FOR REFUSAL

5.1 CEI may refuse to recommend the whole or any part of any payment if, in his/her opinion, it would be incorrect to make such representation to the Town. CEI may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in CEI's opinion to protect the Town from loss because:

A. The Work is defective, or completed Work has been damaged requiring correction or replacement.

B. The Contract Price has been reduced by written Amendment or Change Order.

C. Of CEI's actual knowledge of the occurrence of any of the events outlined elsewhere in the Contract Documents that represent grounds for refusal of payment in whole or part the Town may refuse to make payment of the full amount recommended by CEI because claims have been made by the Town on account of Contractor's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling the Town to a set-off against the amount recommended, but the Town must give Contractor written notice stating the reasons for such action within a reasonable time from receipt of CEI's recommendation for payment on that matter.

D. Final Inspection:

Upon written notice from Contractor that the entire Work or an agreed portion thereof

is complete, CEI will make a final inspection with the Town and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to remedy such deficiencies.

6. FINAL APPLICATION FOR PAYMENT

After Contractor has completed all such corrections to the satisfaction of CEI and the Town and delivered all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, marked up Record Documents and other Documents, all as required by the Contract Documents, and after CEI has indicated that the Work is acceptable, Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the Town) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by the Town, Contractor may furnish receipts or releases in full; an affidavit of Contractor that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which the Town or the Town's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Sub-Contractor or supplier fails to furnish a release or receipt in full, Contractor may furnish a Bond or other collateral satisfactory to the Town to indemnify the Town against any lien. In addition, Contractor shall also submit with the final application for payment, the completed set of "As-Built" prints for review and approval. Final payment to Contractor shall not be made until said prints have been reviewed and approved by CEI. Prior to approval, if necessary, the prints may be returned to Contractor for changes or modifications and if in the opinion of CEI they do not represent correct or accurate "AS-BUILTS".

7. FINAL PAYMENT AND ACCEPTANCE

7.1 If, on the basis of CEI's observation of the Work during construction and final inspection, and CEI's review of the Final Application for Payment and accompanying documentation all as required by the Contract Documents, CEI is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, CEI will, within ten (10) days after receipt of the Final Application for Payment, indicate in writing CEI's recommendation of payment and present the Application to the Town for payment. Thereupon CEI will give written notice to the Town and Contractor that the Work is acceptable. Otherwise, CEI will return the Application to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application. Thirty (30) days after presentation to the Town of the Application and accompanying documentation, in appropriate form and substance, and with CEI's recommendation and notice of acceptability, the amount recommended by CEI will become due and will be paid by the Town to Contractor.

7.2 If, through no fault of Contractor, Final Completion of the Work is significantly delayed and if CEI so confirms, the Town shall, upon receipt of Contractor's Final Application for Payment and recommendation of CEI, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by the Town for Work not fully completed or corrected is less than the retainage stipulated in the

Contract, and if Bonds have been furnished as required, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to CEI with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

7.3 Any moneys not paid by the Town when claimed to be due to Contractor under this Contract shall not be subject to interest, including but not limited to pre-judgment interest.

8. CONTRACTOR'S CONTINUING OBLIGATION

Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by CEI, nor any payment by the Town to Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by the Town, nor any act of acceptance by the Town nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by CEI, nor any correction of defective Work by the Town will constitute an acceptance of Work not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents.

9. WAIVER OF CLAIMS

The acceptance of final payment shall constitute a waiver of all claims by Contractor against the Town other than those previously made in writing and still unsettled as of the date of final payment.

10. THE TOWN MAY SUSPEND WORK

The Town may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by notice in writing to Contractor and CEI which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore as provided in the Contract Documents.

11. THE TOWN MAY TERMINATE

11.1 Upon the occurrence of any one or more of the following events:

A. If Contractor commences a voluntary case under any chapter of the Bankruptcy Code as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency.

B. If a petition is filed against Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency.

C. If Contractor makes a general assignment for the benefit of creditors.

D. If a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under Contract, whose appointment or authority to take charge of property of Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors.

E. If Contractor admits in writing an inability to pay its debts generally as they become due.

F. If Contractor fails to timely begin the Work, or fails to perform the Work with sufficient workers and equipment or with sufficient materials to insure the prompt completion of the Work within the Contract Time, or fails to adhere to the Progress Schedule as same may be revised from time to time, or shall perform the Work unsuitably, or cause it to be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work pursuant to the Contract Time, or if the Contractor shall fail to perform any material term set forth in the Contract Documents, or from any other cause whatsoever shall not carry on the Work in an acceptable manner in accordance with the Contract Documents.

G. If Contractor disregards laws or regulations of any public body having jurisdiction.

H. If Contractor disregards the authority of CEI.

I. If Contractor otherwise violates in any substantial way any provisions of the Contract Documents, the Town may, after giving Contractor and the surety seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor, exclude Contractor from the site and take possession of the Work and of all Contractor's tools, appliances, construction equipment and machinery at the site and use the same to full extent they could be used by Contractor without liability to Contractor for trespass or conversion, incorporate in the Work all materials and equipment stored at the site or for which the Town has paid Contractor but which are stored elsewhere, and finish the Work as the Town may deem expedient. In such case Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work, including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs, such excess will be paid to Contractor. If such costs exceed such unpaid balance, Contractor shall pay the difference to the Town. Such costs incurred by the Town will be approved as to reasonableness by CEI and incorporated in a Change Order, but when exercising any rights or remedies under this Paragraph the Town shall not be required to obtain the lowest price for the Work performed.

J. Where Contractor's services have been so terminated by the Town, the termination will not affect any rights or remedies of the Town against Contractor then existing or which may thereafter accrue any retention or payment of moneys due Contractor by the Town will not release Contractor from liability.

12. TERMINATION FOR CONVENIENCE OF THE TOWN

Upon seven (7) days written notice delivered by certified mail to Contractor, the Town may, without cause and without prejudice to any other right or remedy, terminate the Contract for the Town's convenience whenever the Town determines that such termination is in the best interests of the Town. Where the Contract is terminated for the convenience of the Town, the notice of termination to Contractor must state that the Contract is being terminated for the convenience of the Town under the termination clause, the effective date of the termination and the extent of termination. Upon receipt of the notice of termination for convenience, Contractor shall promptly discontinue all Work at the time and to the extent indicated on the notice of termination, terminate all outstanding Subcontractors and purchase orders to the extent that they relate to the terminated portion of the Contract, and refrain from placing further orders and subcontracts, except as they may be necessary, and complete any continued portions of the Work.

13. TERMINATION BY CONTRACTOR

If the Work should be stopped under an order of any court of other public authority for a period of more than ninety (90) days through no act or fault of Contractor or of anyone employed by him/her, or if CEI fails to review and approve or state in writing reasons for non-approval of any application for payment within thirty (30) days after it is submitted or if the Town fails to pay Contractor within thirty (30) days after presentation by CEI of any sum determined to be due, then Contractor (after written notice to the Town and an opportunity to cure provided to the Town) may, upon ten (10) days written notice to the Town and CEI stop Work or terminate this Contract and recover from the Town, payment for all Work executed and any expense sustained. The provisions of this Paragraph shall not relieve Contractor of the obligations to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with the Town.

SECTION XV NOTICES & COMPUTATION OF TIME

1. GIVING NOTICE

All notices required by any of the Contract Documents shall be in writing and shall be deemed delivered upon mailing by certified mail, return receipt requested to the following:

Contractor:

The business address of Contractor is: *as stated in the Contract with the Town*

The business address of the Town is:

Town of Medley
7777 N.W. 72 Avenue
Medley, FL 33166

2. COMPUTATION OF TIME

When any period of time is referred to in the Contract Documents by days it will such calendar days and it will be computed to exclude the first and include the last day of such period. If the last day of

the final amended contract time falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation. A calendar day of twenty-four (24) hours measured from midnight to the next midnight shall constitute a day.

SECTION XVI MISCELLANEOUS

1. Should the Town or Contractor suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this Paragraph shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

2. The duties and obligations imposed by these Construction Services General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guaranties and obligations imposed upon Contractor and all of the rights and remedies available to the Town and CEI thereunder, are in addition to, and are not to be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available to any or all of them which are otherwise imposed or available by laws or regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents, and the provisions of this Paragraph will survive final payment and termination or completion of the Contract.

3. Contractor shall not assign or transfer the Contract or its rights, title or interests therein without the Town's prior written approval. The obligations undertaken by Contractor pursuant to the Contract shall not be delegated or assigned to any other person or firm unless the Town shall first consent in writing to the assignment. Violation of the terms of this Paragraph shall constitute a breach of Contract by Contractor and the Town may, at its discretion, cancel the Contract and all rights, title and interest of Contractor shall thereupon cease and terminate.

SECTION XVII BONDS AND INSURANCE

1. <u>CONSTRUCTION, PAYMENT AND PERFORMANCE BONDS</u>

1.1 Within fifteen (15) days after issuance of Notice of Award, but in any event prior to commencing Work, Contractor shall execute and furnish to the Town a Performance Bond and a Payment Bond, each written by a corporate surety authorized to do business in the State of Florida and having been in business with a record of successful continuous operation for at least five (5) years. The surety shall hold a current certificate of authority from the Secretary of Treasury of the United States as an acceptable surety on federal bonds in accordance with United States Department of Treasury Circular No. 570. If the amount of the Bond exceeds the underwriting limitation set forth in the circular, in order to qualify, the net retention of the surety company shall not exceed the underwriting limitation in the circular and the excess risks must be protected by coinsurance, reinsurance, or other methods, in accordance with Treasury Circular 297, revised July 1, 1997 (31 DFR, Section 223.10, Section 223,11). Further, the surety company shall provide the Town with evidence satisfactory to the Town, that such excess risk has been protected in an

acceptable manner. The surety company shall have at least the following minimum qualifications in accordance with the latest edition of A.M. Best's Insurance Guide, published by Alfred M. Best Company, Inc., Ambest Road, Oldwick, New Jersey08858:

1.2 Financial Stability A

1.3 Financial Size VIII

1.4 Two (2) separate Bonds are required and both must be approved by the Town. The penal sum stated in each Bond shall be the amount equal to the total amount payable under the Contract. The Performance Bond shall be conditioned that Contractor perform the Contract in the time and manner prescribed in the Contract. The Payment Bond shall be conditioned that Contractor promptly make payments to all persons who supply Contractor with labor, materials and supplies used directly or indirectly by Contractor in the prosecution of the Work provided for in the Contract and shall provide that the surety shall pay the same in the amount not exceeding the sum provided in such Bonds, together with interest at the maximum rate allowed by law; and that they shall indemnify and save and hold harmless the Town to the extent of any and all payments in connection with the carrying out of said Contract which the Town maybe required to make under the law.

2. BONDS, REDUCTION AFTER FINAL PAYMENT

Such Bonds shall continue in effect for one (1) year after final payment becomes due except as otherwise provided by law or regulation or by the Contract Documents with the final sum of said Bonds reduced after final payment to an amount equal to twenty-five percent (25%) of the Contract Price, or an additional Bond shall be conditioned that Contractor shall correct any defective or faulty Work or material which appears within one (1) year after Final Completion of the Contract, upon notification by the Town except in Contracts which are concerned solely with demolition work, in which case the twenty-five percent (25%) shall not be applicable.

3. DUTY TO SUBSTITUTE SURETY

If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of other applicable laws or regulations, Contractor shall within five (5) days thereafter substitute another Bond and surety, both of which must be acceptable to the Town.

4. INSURANCE

See Invitation to Bid, Section I, Paragraph 12 for details.

5. THE TOWN'S LIABILITY AND INSURANCE

The Town shall not be responsible for purchasing and maintaining any insurance to protect the interests of Contractor, Sub-Contractors or others on the Work. The Town specifically reserves all statutory and common law rights and immunities and nothing herein is intended to limit or waive same including, but not limited to, the procedural and substantive provisions of Florida Statute 768.28 and Florida Statute 95.11.

TABLE OF CONTENTS

PART 2

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BID FORM

FOR ITB 2018-003

NW 105th Way (SW-0125) Drainage Improvements

Date:_____, 20___

Honorable Roberto Martell
Mayor
Town of Medley
7777 N.W. 72nd Avenue
Medley, FL 33166

Mr. Martell,

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with Town to perform all Work as specified in the Bid Documents for the price(s) and within the time indicated in this Bid, and in accordance with the terms and conditions of the Bid Documents.

2. Bidder accepts and hereby incorporates by reference in this Bid Form all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those pertaining to the disposition of Bid Security.

3. Bidder has examined the site of the Project and has become fully informed concerning the local conditions, and nature and extent of Work. Bidder has examined the indemnification and liquidated damages provisions, if any, and the Bond and insurance requirements of the Bid, and accepts and agrees to abide by those terms and conditions without exception or limitation of any kind.

4. Bidder hereby declares that the only person or persons interested in this Bid, as principal or principals, is or are named herein and that no other person than herein mentioned has any interest in the Contract to which the work pertains; that this Bid is made without connection or arrangement with any other person, company, or parties making a bid and that the Bid is in all respects fair and made in good faith without collusion or fraud.

5. Bidder further represents that from personal knowledge and experience, or that he has made sufficient observations of the conditions of the Project or that to satisfy himself that such site is a correct and suitable one for this Work and he assumes full responsibility therefore, that he has examined the Drawings and Project Manual for the Work and from his own experience or from professional advice that the Drawings and Project Manual are sufficient for the work to be done, and he has examined the other Contractual Documents relating thereto, including the Notice of Bid Invitation, Instructions to Bidders, Proposal, Contract, General and Special Conditions, Technical Specifications, Drawings and has read all addenda prior to the receipt of bids, and that he has

satisfied himself fully, relative to all matters and conditions with respect to the work to which this Proposal pertains.

6. Bidder proposes and agrees, if this Proposal is accepted, to contract with the Town, in the form of contract specified, to furnish all necessary materials, all necessary equipment, all necessary machinery, tools, apparatus, means of transportation, and labor necessary to complete the work specified in the Proposal and the Contract, and called for by the Drawings, General Notes and Technical Specifications and in the manner specified.

7. Bidder further proposes and agrees to comply in all respects with the time limits for commencement and completion of the work as stated in the Contract.

8. Bidder has given the Town written notice of all conflicts, errors or discrepancies that it has discovered in the Bid and/or Project Manual and the written resolution thereof by the Town or its representative is acceptable to Bidder.

9. Bidder further agrees to execute a Contract and furnish satisfactory Performance and Payment Bonds each in the amount of one-hundred percent of the Contract price, within ten (10) consecutive calendar days after written notice being given by the Town of the award of the Contract, and the undersigned agrees that in case of failure on his part to execute the said Contract and Performance and Payment Bonds within the fifteen (15) consecutive calendar days after the award of the Contract, the cashier's check or Bid Bond accompanying his bid and the money payable thereon shall be paid to the Town as liquidation of damages sustained by the Town; otherwise, the check accompanying the Bid shall be returned to the undersigned after the Contract is signed and the Performance and Payment Bonds are filed. (Note: should the tenth consecutive calendar day fall on a Saturday, Sunday or legal holiday observed by the Town or Bidder, then the final day to execute a contact and furnish satisfactory Performance and Payment Bonds shall be extended to the next immediate following business day).

10. The undersigned agrees to accept in full compensation therefore the total of the lump sum prices for the items named in the Bid Proposal, based on the quantities actually constructed as determined by the applicable measurement and payment portion of the Technical Specifications.

Bidder's Certificate of Competency No. _____

Bidders Occupational License No._____

Acknowledgement is hereby made of the following Addenda (identified by number) received since issuance of the Invitation to Bid:

Addendum No. _____ Date_____

Addendum No. _____ Date_____

Addendum No. _____ Date_____

Attached hereto is (check one) a:

_____ Cashier's check for the sum of $_____ U.S. Dollars or

_____ Bid Bond for the Sum of $_____ U.S. Dollars

Made payable to the Town of Medley, Florida

_____

(Name of Bidder) (Affix Seal)

_____

Signature of Officer

_____

(Title of Officer)

PLEASE HAVE YOUR INSURANCE REPRESENTATIVE CAREFULLY REVIEW THE INSURANCE COVERAGE REQUIREMENTS CONTAINED IN THE INSTRUCTIONS TO BIDDERS PRIOR TO SUBMITTING YOUR BID TO ENSURE COMPLIANCE WITH ALL INSURANCE REQUIREMENTS.

Communications concerning this Bid shall be addressed to:

Name:

_____

Address:

_____

E-mail Address:

_____

Telephone No.: _____

Fax No.: _____

The following documents are attached to and made as a condition to this Bid:

(a) Attachment 1: List of Major Sub Contractors

(b) Attachment 2: Bid Proposal

(c) Attachment 3: Notice to all Bidders

(d) Attachment 4: List of Sub-Contractors

(e) Attachment 5: General Information Required of Bidder

(f) Attachment 6: Solicitation, Giving, and Acceptance of Gift Policy

(g) Attachment 7: Drug-Free Workplace Program

(h) Attachment 8: Bidder's Certification

(i) Attachment 9: Certified Resolution (corporation, partnerships)

(j) Attachment 10: Certificate(s) of Insurance

(k) Attachment 11: Non-Collusive Affidavit

(l) Attachment 12: Bidder's Foreign (Non-Florida) corporate statement References

(m) Attachment 13: Bidder's Qualification Statement

(h) Attachment 14: Conformance with OSHA Standards

(i) Attachment 14: Trench Safety Act Compliance

(j) Attachment 15: Construction Engineering and Inspection Services Company Notice

(k) Attachment 16: References

(l) Attachment 17: Bid Bond

BID PROPOSAL
FOR ITB 2018-003
NW 105th Way (SW-0125) Drainage Improvements

Bid prices stated in the proposal include all costs and expenses for labor, equipment, materials, contractor's overhead, and profit. Payment for this project will be based upon completion of the entire project as a unit price contract, in accordance with the Project Manual.

Name of Bidder Signature of Bidder

BID TABULATION

NW 105TH WAY DRAINAGE IMPROVEMENTS
PELMAD INDUSTRIAL PARK

ITEM NO.	ITEM DESCRIPTION	EST. QTY	UNIT	UNIT COST	TOTAL COST
	Demolition				
101-1	Mobilization (2% of budget)	1	L.S.	L.S.	
102-1	Maintenance of Traffic (2% of budget)	1	L.S.	L.S.	
104-18	Storm Water Pollution Prevention & Erosion Control per Catch Basin	19	EA.		
110-1-1	Clearing and Grubbing (2% of budget)	1	L.S.		
				Sub-Total	

ITEM NO.	ITEM DESCRIPTION	EST. QTY	UNIT	UNIT COST	TOTAL COST
	Paving , Grading and Drainage				
125-1	Excavation for Structures	1,397	C.Y.		
110-4-1	Existing Asphalt to be removed	5,095	S.Y.		

334-1-13	Asphalt Concrete, Type SP-9.5 (2" Thick)	509	TON		
	Inlet Curb Type (D-3-SD 2.2) P< 10'	16	EA.		
	Inlet Curb Type (D-1-SD 3.1) P< 10'	2	EA.		
	Inlet Curb Type (SD 2.6) J< 10' w/ USF 4700-6223	1	EA.		
	Pollution Retardant Baffles	17	EA.		
425-2-41	Manholes Type P-7 < 10'	10	EA.		
430-175-118	Solid Pipe 18" diameter H.D.P.E	679	L.F.		
443-70-3	Exfiltration Drain (18" perforated pipe)	851	L.F.		
	As-Built (Entire Project)	1	L.S.		
	Survey (Entire Project)	1	L.S.		
	Utility Verification Prior to Construction of Drainage Structures	1	L.S.		
				Sub-Total	

ITEM NO.	ITEM DESCRIPTION	EST. QTY	UNIT	UNIT COST	TOTAL COST
	Pavement Marking and Signage				
706-3	Retro-Reflective Pavement Marker (Yellow/Yellow)	50	EA.		
711-11-121	6" White (Thermoplastic)	2,401	L.F.		
711-11-124	18" White (Thermoplastic)	31	L.F.		
711-11-125	24" White Stopbar (Thermoplastic)	22	L.F.		
711-11-221	6" Double Yellow (Thermoplastic)	2,070	L.F.		
				Sub-Total	

	Subtotal Amount	
	Overhead & Profit (10% of subtotal amount)	

	Bond & Insurance	
	Contingency Fund	
TOTAL PROJECT COST:		

A. Subtotal (NW 105th WAY DRAINAGE IMPROVEMENTS) _____

B. 10% Contingency Allowance (10% of A) _____

Grand Total (Add A+B) _____

Written Bid Amount: _____

The total contract time is 150 calendar days to Final Completion from Notice to Proceed.

_____ _____

Name of Bidder Signature of Bidder

NOTICE TO ALL BIDDERS

THE TOWN OF MEDLEY RESERVES THE RIGHT TO WAIVE ANY INFORMALITY IN ANY BID, TO REJECT ANY AND ALL BIDS, AND TO DELETE ANY PART OF ANY OF ABOVE ITEMS.

AMOUNTS SHALL BE SHOWN IN BOTH WORDS AND FIGURES. IN CASE OF DISCREPANCIES, THE AMOUNT SHOWN IN WORDS SHALL GOVERN FOR EACH BID ITEM.

The Bidder further proposes and agrees to begin work with an adequate force and with sufficient equipment and facilities on the date stated in the written Notice issued and served upon him by the Owner and to complete the work included in this Proposal within the time stipulated in the Agreement, including delivery time for materials and equipment, installation, start-up and inspections.

BIDDER HEREBY ACKNOWLEDGES RECEIPT OF ADDENDA BY NUMBER AND DATE ON THIS PAGE.

ADDENDUM NO._____ DATE_____

ADDENDUM NO._____ DATE_____

ADDENDUM NO._____ DATE_____

ADDENDUM NO._____ DATE_____

ADDENDUM NO._____ DATE_____

ADDENDUM NO._____ DATE_____

LIST OF MAJOR SUB-CONTRACTORS

Bidders are required to list with the Proposal, on this attached sheet all major sub-contractors included for the prosecution of the work. Failure to complete the list may be cause for declaring the Proposal irregular.

The successful bidder shall employ the sub-contractors listed hereunder for the class of work indicated, which list shall not be modified in any way without the written consent of the Town of Medley.

The Bidder expressly agrees that:

1. If awarded a contract as a result of this Proposal, the major sub-contractors used in the prosecution of the work shall be those listed below.

2. The Bidder represents that the sub-contractors listed below are financially responsible and are qualified to do the work required.

CATEGORY OR CLASS OF WORK	NAME OF SUB-CONTRACTOR ADDRESS

LIST OF SUBCONTRACTORS

CONTRACTOR _____

Name Under Which Subcontractor is Licensed	License No.	Address of Office, Mill, or Shop	Percent of Total Contract	Specific Description of Subcontract

GENERAL INFORMATION REQUIRED OF BIDDER

The Bidder shall furnish the following information. Failure to comply with this requirement will render the Bid Proposal informal and may cause its rejection. Additional sheets shall be attached as required.

(1) Contractor's name and address:

_____

_____

_____

(2) Contractor's telephone: _____ Fax: _____

(3) Primary E-mail Address:_____

(4) Contractor's license: Primary classification: _____

Dade County License No.:_____

Supplemental classifications held, if any:_____

(5) Number of years as a Contractor in construction work of type:_____

(6) Name of person who inspected site of proposed work for your firm:

_____

Date of inspection: _____

(7) Three projects of this type and complexity recently constructed by bidder:

Contract Amount	Type of Project	Date Completed	Owner's Name & Address

NOTE: If requested by the Owner, the Bidder shall furnish a notarized financial statement, references, and other information, sufficiently comprehensive to permit an appraisal of his current financial condition.

SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY

Florida Statute 112.313 prohibits the solicitation or acceptance of Gifts. -"No public officer, employee of an agency, or candidate for nomination or election shall solicit or accept anything of value to the recipient, including a gift, loan, reward, promise of future employment, favor, or service, based upon any understanding that the vote, official action, or judgment of the public officer, employee, or candidate would be influenced thereby." "... the term 'public officer' includes any person elected or appointed to hold office in any agency, including any person serving on an advisory body."

The Town of Medley policy prohibits all public officers, elected or appointed, all employees, and their families from accepting gifts of any value, either directly or indirectly, from any contractor, vendor, consultant, or business with whom the Town does business. Only advertising office stationery or supplies of small value are exempt from this policy - e.g. calendars, note pads, pencils.

The State of Florida definition of "gifts" includes the following:

- Real property, or its use.
- Tangible or intangible personal property, or its use.
- A preferential rate or terms on a debt, loan, goods, or services.
- Forgiveness of an indebtedness.
- Transportation, lodging, or parking.
- Membership dues.
- Entrance fees, admission fees, or tickets to events, performances, or facilities.
- Plants, flowers, or floral arrangements.
- Services provided by persons pursuant to a professional license or certificate.
- Other personal services for which a fee is normally charged by the person providing the services.
- Any other similar service or thing having an attributable value not already provided for in this section.

To this list, the Town of Medley has added food, meals, beverages, and candy.

Any contractor, vendor, consultant, or business found to have given a gift to a public officer or employee, or his/her family, will be subject to dismissal or revocation of contract.

As the person authorized to sign the statement, I certify that this firm will comply fully with this statute and policy.

_____	_____
Signature	Company Name
_____	_____
Print Name / Title	Date

DRUG-FREE WORKPLACE PROGRAM

IDENTICAL BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. 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's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in Paragraph 1.

4. In the statement specified in Paragraph 1, 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 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 this section.

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

Signature	Company Name
Print Name / Title	Date

BIDDER'S CERTIFICATION

WHEN BIDDER IS AN INDIVIDUAL

In witness whereof, the Bidder has executed this Bid Form this ___day of _____, 20____.

By: _____
Signature of Individual/Title

_____

Witness: _____

ACKNOWLEDGEMENT

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this _____day of_____, 20____,

by who is personally known to me or who has produced _____ as identification and who did (did not) take an oath.

WITNESS my hand and official seal.

_____
NOTARY PUBLIC

_____
Name of Notary Public:
Print, Stamp, or type as Commissioned

BIDDER'S CERTIFICATION

WHEN BIDDER IS A CORPORATION, PARTNERSHIP OR FIRM

In witness whereof, the Bidder has executed this Bid Form this _____ day of _____, 20___.

_____ _____
Printed Name of Corporation, Partnership, Firm Signature of Town

Witness: _____

_____ Business Address

_____ Town/State/Zip

Business Phone Number:_____

ACKNOWLEDGEMENT

Signed, sealed and delivered in the presence of:

By: _____

Printed Name: _____

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this day _____of _____,

20____ , by _____ of _____ who is

personally known to one or who has produced _____ as

identification and who did (did not) take an oath.

WITNESS my hand and official seal.

_____
NOTARY PUBLIC

_____
Name of Notary Public:
Print, Stamp, or type as Commissioned

ACKNOWLEDGEMENT

Signed, sealed and delivered in the presence of:

Signed, sealed and delivered in the presence of:

By: _____

Printed Name: _____

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this day _____of _____,

20____ , by _____ of _____ who is

personally known to one or who has produced _____ as

identification and who did (did not) take an oath.

WITNESS my hand and official seal.

_____
NOTARY PUBLIC

_____
Name of Notary Public:
Print, Stamp, or type as Commissioned

CERTIFIED RESOLUTION

I, _____ (Name), the duly elected Secretary of _____ (Corporate Title), a corporation organized and existing under the laws of the State of Florida, do hereby certify that the following Resolution was unanimously adopted and passed by a quorum of the Board of Directors of the said corporation at a meeting held in accordance with law and the by-laws of the said corporation.

IT IS HEREBY RESOLVED THAT _____ (Name) the duly elected _____ (Title of Officer) of _____ (Corporate Title) be and is hereby authorized to execute and submit a Bid and Bid Bond, if such Bond is required, to the Town of Medley and such other instruments in writing as maybe necessary on behalf of the said corporation; and that the Bid, Bid Bond, and other such instruments signed by him/her shall be binding upon the said corporation as its own acts and deeds. The secretary shall certify the names and signatures of those authorized to act by the foregoing Resolution.

The Town of Medley shall be fully protected in relying upon such certification of the secretary and shall be indemnified and saved harmless from any and all claims, demands, expenses, loss or damage resulting from or growing out of honoring, the signature of any person so certified or for refusing to honor any signature not so certified.

I further certify that the above Resolution is in force and effect and has not been revised, revoked or rescinded.

I further certify that the following are the name, titles and official signatures of those persons authorized to act by the foregoing resolution.

NAME	TITLE	SIGNATURE

Given under my hand and the Seal of the said corporation this ___day of _____, 20____.

(SEAL)

By: _____
Secretary

_____
Corporate Title

NOTE:

The above is a suggested form of the type of Corporate Resolution desired. Such form need not be followed explicitly, but the Certified Resolution submitted must clearly show to the satisfaction of the Town of Medley that the person signing the Bid and Bid Bond for the corporation has been properly empowered by the corporation to do so in its behalf.

CERTIFICATE OF INSURANCE

This is to certify that the _____
(Insurance Company)

Address_____

of_____

has issued policies of insurance, as described below and identified by a policy number, to the insured named below; and to certify that such policies are in full force and effect at this time. It is agreed that none of these policies will be canceled or changed so as to affect the interest(s) of the _____

(hereinafter sometimes called the Town) until thirty (30) days after written notice of such cancellation or change has been delivered to the CEI.

Insured _____

Address _____

Status of Insured: _____ Corporation _____ Partnership _____ Individual

Location of Operations Insured _____

Description of Work:

NW 105TH WAY (SW-0125) DRAINAGE IMPROVEMENTS

INSURANCE POLICIES IN FORCE:

Forms of coverage	**Policy Number**	**Exp. Date**
* Workers Comp./Employers Liability		
+ Comprehensive Automobile Liability		
o Comprehensive General Liability		
+Excess Liability		

Other (Please specify type:_____):

_____

POLICY INCLUDES COVERAGE FOR:	**YES**	**NO**
1. Additional Insured: Town, EOR, and CEI	_____	_____
2. *Liability under the United States Longshoremen's and Harbor Workers Compensation Act	_____	_____
3. + All owned, hired or non-owned automotive Equipment used in connection with work Done for the Town.	_____	_____
4. o Contractual Liability	_____	_____
5. o Damage caused by explosion, collapse or Structural injury and damage to underground Utilities	_____	_____
6. o Products/Completed Operations	_____	_____
7. o Town's and Contractors Protective Liability	_____	_____
8. o Personal injury Liability	_____	_____
+ Excess Liability applies excess of:	_____	_____
(a) Employers Liability	_____	_____
(b) Comprehensive General Liability	_____	_____
(c) Comprehensive Automobile Liability	_____	_____
9. Builder's Risk	_____	_____

TYPES OF POLICY	**FORMS OF COVERAGE**	**LIMITS OF LIABILITY**
Workers' Compensation	Bodily Injury Statutory	$_____
Employers Liability	Bodily Injury	$_____ Each Accident
	Disease	$_____ Each Person
	Disease	$_____ Policy Limit
Comprehensive Auto Liability	Combined Single Limit BI/PD	$_____ Each Accident
Comprehensive General Liability	Bodily Injury	$_____ Each Occurrence
		$_____ Aggregate
	Property Damage	$_____ Each Occurrence
		$_____ Aggregate

	OR	
	Combined Single Limit BI/PD	$_____Each Occurrence $_____Aggregate
Excess Liability	Combined Single Limit BI/PD	$_____Aggregate
Builder's Risk	Property Damage/ Replacement	$_____

Other

_____

The Insurance Company hereby agrees to deliver, within ten (10) days from the date hereof, two (2) certified copies of the above policies to the CE when so requested and two (2) certified copies of the above policies to the Town Attorney when so requested.

Note: Entries on this certificate are limited to the Authorized Agent or Insurance Company Representative.

Date:_____ (SEAL)_____
Insurance Company

Issued at _____ _____
Authorized Representative Insurance Agent or Company

- Send three (3) copies to:

Town of Medley
7777 N.W. 72nd Avenue
Medley, FL 33166
Attention: Herlina Taboada, Town of Medley Clerk

NON-COLLUSIVE AFFIDAVIT

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

_____ being first duly sworn, deposes and says that:

(1) He/she is the _____,(Partner, Officer, Representative or Agent) of _____ the Bidder that has submitted the attached Bid;

(2) He/she 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 its officers, partners, Town's agents, representatives, employees or parties in interest, including this affiant, have in 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 Work for which the attached Bid has been submitted; or to refrain from bidding in connection with such Work; or have in any manner, directly or indirectly, sought by Contract or collusion, or communication, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit, or cost elements of the Bid price or the Bid price of any other Bidder, or to secure trough any collusion, conspiracy, connivance, or unlawful Contract any advantage against (Recipient), or any person interested in the proposed Work; 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 Contract on the part of the Bidder or any other of its agents, representatives, Towns, employees or parties in interest, including this affiant.

ACKNOWLEDGEMENT

Signed, sealed and delivered in the presence of:

By: _____
Printed Name: _____

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this day ____of _____, 20_____, by _____ of _____ who is personally known to one or who has produced as identification and who did (did not) take an oath.

WITNESS my hand and official seal.

_____

NOTARY PUBLIC

_____

Name of Notary Public:
Print, Stamp, or type as Commissioned

FOREIGN (NON-FLORIDA) CORPORATIONS MUST COMPLETE THIS FORM

DEPARTMENT OF STATE CORPORATE CHARTER NO.

If your corporation is exempt from the requirements of Section 607.1501, Florida Statutes, YOU MUST CHECK BELOW the reason(s) for the exemption. Please contact the Department of State, Division of Corporations at (850) 245-6051 for assistance with corporate registration or exemptions.

Section 607.1501 Authority of foreign corporation to transact business required.

(1) A foreign corporation may not transact business in this state until it obtains a certificate of authority from the Department of State.

(2) The following activities, among others, do not constitute transacting business within the meaning of subsection (1);

_____ (a.) Maintaining, defending, or settling any proceeding.

_____ (b.) Holding meetings of the board of directors or shareholders or carrying on other activities concerning internal corporate affairs.

_____ (c.) Maintaining bank accounts.

_____ (d.) Maintaining officers or agencies for the transfer, exchange, and registration of the corporation's own securities or maintaining trustees or depositaries with respect to those securities.

_____ (e.) Selling through independent contractors.

_____ (f.) Soliciting or obtaining orders, whether by mail or through employees, agents, or otherwise, if the orders require acceptance outside this state before they become contracts.

_____ (g.) Creating or acquiring indebtedness, mortgages, and security interests in real or personal property.

_____ (h.) Securing or collecting debts or enforcing mortgages and security interests in property securing the debts.

_____ (i.) Transacting business in interstate commerce.

_____ (j.) Conducting an isolated transaction that is completed within thirty (30) days and that is not one in the course of repeated transactions of a like nature.

_____ (k.) Owning and controlling a subsidiary corporation incorporated in

or transacting business within this state or voting the stock of any corporation which it has lawfully acquired.

_____ (l.) Owning a limited partnership interest in a limited partnership that is doing business within this state, unless such limited partner manages or controls the partnership or exercises the powers and duties of a general partner.

_____ (m.) Owning, without more, real or personal property.

(3) The list of activities in subsection (2) is not exhaustive.

(4) This section has no application to the question of whether any foreign corporation is subject to service of process and suit in this state under any law of this state.

Please check one of the following if your firm is NOT a corporation:

(I) [___] Partnership, Joint Venture, Estate or Trust.

(II) [___] Sole Proprietorship or Self-Employed.

NOTE: This sheet MUST be enclosed with your Bid if you claim an exemption or have checked I or II above. If you do not check I or II above, your firm will be considered a corporation and subject to all requirements listed herein.

_____
BIDDER'S CORRECT LEGAL NAME

_____
SIGNATURE OFAUTHORIZED AGENT OF BIDDER

QUALIFICATION STATEMENT

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter:

SUBMITTED TO: Town of Medley
(Contract Administrator)

ADDRESS: 7777 N.W. 72nd Avenue
Medley, Florida 33166

SUBMITTED BY: _____ CIRCLE ONE
Corporation
Partnership
Individual
Other

NAME: _____

ADDRESS: _____

_____

TELEPHONE NO.: _____

FAX NO.: _____

E-MAIL ADDRESS: _____

1. State the true, exact, correct and complete name of the partnership, corporation, trade or fictitious name under which you do business and the address of the place of business.

The correct name of the Bidder is:_____

The address of the principal place of business is:_____

2. If Bidder is a corporation, answer the following:

   a. Date of Incorporation: _____

   b. State of Incorporation: _____

   c. President's name: _____

   d. Vice President's name: _____

   e. Secretary's name: _____

   f. Treasurer's name: _____

   g. Name and address of Resident Agent: _____

      _____

3. If Bidder is an individual or a partnership, answer the following:

a. Date of organization: _____

b. Name, address and Township units of all partners: _____

_____

c. State whether general or limited partnership: _____

4. If Bidder is other than an individual, corporation or partnership, describe the organization and give the name and address of principals:

_____

_____

5. If Bidder is operating under a fictitious name, submit evidence of compliance with the Florida Fictitious Name Statute.

6. How many years has your organization been in business under its present business name?

_____

a. Under what other former names has your organization operated?

_____

_____

7. Indicate registration, license numbers or certificate numbers for the businesses or professions that are the subject of this Bid, Please attach certificate of competency and/or state registration,

8. Do you have a complete set of documents, including drawings and addenda?

(Y) _____ (N) _____

9. Have you personally inspected the site of the proposed Work? _____Yes _____No

10. Did you attend the Pre-Bid Conference if such conference was held? ____Yes ___No

11. Have you ever failed to complete any work awarded to you? If so, state when, where and why?

_____

_____

THE BIDDER ACKNOWLEDGES AND UNDERSTANDS THAT THE INFORMATION CONTAINED IN RESPONSE TO THIS QUALIFICATIONS STATEMENT SHALL BE RELIED UPON BY THE TOWN IN AWARDING THE CONTRACT AND SUCH INFORMATION IS WARRANTED BY BIDDER TO BE TRUE. THE DISCOVERY OF ANY OMISSION OR MISSTATEMENT THAT MATERIALLY AFFECTS THE BIDDER'S QUALIFICATIONS TO PERFORM UNDER THE CONTRACT SHALL CAUSE THE TOWN TO REJECT THE BID, AND IF AFTER THE AWARD, TO CANCEL AND TERMINATE THE AWARD AND/OR CONTRACT.

_____

Signature

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

The foregoing instrument was acknowledged before me this ____ day of _____, 20____, by _____ of _____, who is personally known to me or who has produced _____ as identification and who did (did not) take an oath.

WITNESS my hand and official seal.

_____

NOTARY PUBLIC

_____

Name of Notary Public

Print, Stamp, or type as Commissioned

ACKNOWLEDGMENT OF CONFORMANCE WITH OSHA STANDARDS

TO THE TOWN OF MEDLEY:

We,_____, hereby acknowledge and agree that as Contractors for the construction of

NW 105TH WAY (SW-0125) DRAINAGE IMPROVEMENTS

within the limits of the Town of Medley, Florida, that we have the sole responsibility for compliance with all requirements of the Federal Occupational Safety and Health Act of 1970, and all State and Local Safety and Health regulations, and agree to indemnify and hold harmless the Town of Medley, Florida, and its Consulting Engineers against any and all legal liability or loss the Town or its Consulting Engineers may incur due to _____ failure to comply with such act.

_____ _____

ATTEST CONTRACTOR

BY: _____

NAME

_____ _____

ATTEST DATE

TRENCH SAFETY ACT COMPLIANCE

Bidder acknowledges that the Florida Trench Safety Act, Section 553.60 et. seq. which became effective October 1, 1990, shall be in effect during the period of construction of the project. The Bidder, by signing and submitting the bids, in writing, assuring that it will perform any trench excavation in accordance with applicable trench safety standards. The Bidder further identifies the following separate item of costs of compliance with the applicable trench safety standards as well as the methods of compliance:

Methods of Compliance

_____

_____

_____

(fill in methods)

Total $_____

Bidder acknowledges that this cost is included in the applicable items of the Proposal and in the Grand Total Bid Price. Failure to complete the above will result in the bid being declared non-responsive.

The Bidder is, and the Town, EOR and CEI are not, responsible to review or assess Bidder's safety precautions, programs or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 et. seq. cited as the "Trench Safety Act". Bidder is, and the Town, CEI and EOR are not, responsible to determine if any safety or safety related standards apply to the project, including but not limited to, the "Trench Safety Act".

_____
Signature of Authorized Representative (Manual)

_____
Name of Authorized Representative (Typed or Printed)

Sworn to and subscribed before me in the State and County first mentioned above on the _____day of _____, 20_____.

_____(affix seal)
Notary Public

_____
My Commission Expires:

REFERENCES

In order to receive Bid Award consideration on the proposed Bid, it is a requirement that the following "Information Sheet" be completed and returned with your Bid. This information may be used in determining the Bid Award for this Contract.

Bidder (company name):_____

Address:

_____

Telephone No:_____

Contact person: _____ Title: _____

Number of years in business: _____Years

Address of nearest facility: _____

_____

List three (3) companies or governmental agencies where these services have been provided in the last 3 years:

1. Company Name:_____
   Address:_____
   Telephone No:_____
   Contact Person:_____ Title:_____
   E-mail Address:_____

2. Company Name:_____
   Address:_____
   Telephone No:_____
   Contact Person:_____ Title:_____
   E-mail Address:_____

3. Company Name:_____
   Address:_____
   Telephone No:_____
   Contact Person:_____ Title:_____
   E-mail Address:_____

BID BOND

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal and as Surety are held and firmly bound unto the Town of Medley, a municipal corporation of the State of Florida in the penal sum of _____ Dollars ($_____), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors jointly and severally, firmly by these presents. THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying Bid, dated _____, 20____ for:

NW 105th Way (SW-0125) Drainage Improvements

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

NOW, THEREFORE,

1. If said Bid shall be rejected, or in the alternate.

2. If said Bid shall be accepted and the Principal shall properly execute and deliver to said Town the appropriate Contract Documents, and shall in all respects fulfill all terms and conditions attributable to the acceptance of said Bid, then this obligation shall be void; otherwise, it shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby agrees that the obligations of the said Surety and its Bond shall be in no way impaired or affected by any extension of time within which said Town may accept such Bid; and said Surety does hereby waive notice of any extension.

IN WITNESS WHEREOF, the above bonded parties have executed this instrument under their several seals this _____ day of _____, 20_____ , the name and the corporate seal of each corporate party being hereto affixed and these presents being

duly signed by its undersigned representative.

IN PRESENCE OF:

_____
(Individual or Partnership Principal)
(SEAL)

_____
(Business Address)

_____
(Town/State/Zip)

_____
(Business Phone)

ATTEST:

_____ _____
Secretary (Corporate Principal)*

By: _____
_____
(Title)

ATTEST:

_____ _____
Secretary (Corporate Surety)*
By: _____
_____
*Impress Corporate Seal

IMPORTANT Surety companies executing Bonds must appear on the Treasury Department's most current list (circular 570 as amended) and be authorized to transact business in the State of Florida.

NOTICE OF AWARD

Dated _____, 20____

TO:

_____
(Bidder -Use Full Name)

_____
(Street Address)

_____
(Town, State, Zip Code)

BID NAME: _____

BID NUMBER: _____

DESCRIPTION OF WORK:

NW 105th Way (SW-0125) Drainage Improvements

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along. NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

You are notified that your Bid dated _____, 20____ for the above Work has been awarded by the Town of Medley's Town Council on _____.

The Contract Price is _____

_____Dollars ($_____).

1) Submit two (2) copies of the Performance and Payment Bonds to this office. Instructions to the Surety and the Principal for execution of the Bonds are as follows:

   a) Where the Contractor is a Corporation, the Contract and any Bonds must be

executed by the President or the Chairman of the Board of the Corporation. The Contract, or Bond, is accompanied by a statement certified by a Secretary of the Corporation. The signatures of the persons executing the Bond on behalf of the Principal and of the surety, respectively, shall each be dated on the signature line. If the Bond is executed by an Attorney-in-Fact for the Surety, the accompanying Power of Attorney must be executed by persons whose authority to do so is plainly identified on the face of the Power of Attorney.

b) Neither signatures nor the Corporate Seal may appear by facsimile unless the authority for them to appear in that form is plainly disclosed on the face of the document. The Secretary, or other properly authorized Officer, must certify and seal a statement declaring that the authority granted by the Power of Attorney remained in force on the date that the Bond was executed by the Attorney-in-Fact.

2) Include two (2) copies of you current Certificate of Insurance. The Certificate must name the Town as an additional insured and the standard cancellation clause must read as follows:

"Should any of the above described policies it canceled or changed by restricted Amendment before the expiration date thereof, the issuing Company will give thirty(30) days written notice to the below named certificate holder".

Failure to comply with these conditions within the time specified will entitle the Town to consider your Bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within twenty (20) days after you comply with the above conditions, the Town will return to you one fully signed counterpart of the Contract Documents.

If you have any questions, or if we can be of any further assistance, please do not hesitate to contact the Contract Administrator's office at (___) _____.

_____
Contract Administrator

_____
(Print Name)

FORM OF PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That, pursuant to the requirement of Florida Statute 255.05, we, _____, as Principal, hereinafter called Contractor, and , _____ as Surety, are bound to the Town of Medley, Florida, as Obligee, hereinafter called the Town, in the amount of _____ Dollars ($ _____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, Contractor has by written Contract entered into a Contract, Bid/Contract No. _____, awarded the _____ day of _____, 20____ with the Town for in accordance with drawings (plans) and specifications prepared by which Contract is by reference made a part hereof, and is hereafter referred to as the Contract;

THE CONDITION OF THIS BOND IS THAT IF THE CONTRACTOR:

1. Fully performs the Contract between the Contractor and the Town for construction of, within _____ calendar days after the date of contract commencement as specified in the Notice to Proceed and in the manner prescribed in the Contract; and

2. Indemnifies and pays the Town all losses, damages, specifically including, but not limited to, damages for delay and other consequential damages caused by or arising out of the acts, omissions or negligence of Contractor, expenses, costs and attorney's fees and costs, including attorney's fees incurred in appellate proceedings, that the Town sustains because of default by Contractor under the Contract; and

3. Upon notification by the Town, corrects any and all defective or faulty Work or materials which appear within one (1) year after final acceptance of the Work.

4. Performs the guarantee of all Work and materials furnished under the Contract for the time specified in the Contract, then this Bond is void, otherwise it remains in full force.

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

4.1 Complete the Contract in accordance with its terms and conditions; or

4.2 Obtain a Bid or Bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the best, lowest, qualified, responsible and responsive Bidder, or, if the Town elects, upon determination by the Town and Surety jointly of the best, lowest, qualified, responsible and responsive Bidder, arrange for a Contract between such Bidder and the Town, and make available as Work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this Paragraph) sufficient funds to pay the cost of completion less

the balance of the Contract Price, but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first Paragraph hereof. The term “balance of the Contract Price,” as used in this Paragraph, shall mean the total amount payable by the Town to Contractor under the Contract and any Amendments thereto, less the amount properly paid by the Town to Contractor.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Town named herein and those persons or corporations provided for in Section 255.05, Florida Statutes, or their heirs, executors, administrators or successors.

Any action under this Bond must be instituted in accordance with the Notice and Time Limitations provisions prescribed in Section 255.05(2), Florida Statutes.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes do not affect Surety’s obligation under this Bond.

Signed and sealed this_____ day of _____ , 20_____

WITNESS:

_____
(Name of Corporation)

_____
Secretary
(Signature and Title)

By: _____

(CORPORATE SEAL)

_____
(Type Name & Title signed above)

IN THE PRESENCE OF:

_____

INSURANCE COMPANY:

By:_____
Agent and Attorney-in-Fact

_____
Printed name

Address:_____(Street)

_____
(Town/State/Zip Code)

Telephone No. _____

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

On this, the ____day of _____, 20___ , before me, the undersigned Notary Public of the State of Florida, the foregoing instrument was acknowledged by _____ (name of corporate officer), _____ (title), of _____ (name of corporation), a _____ (state of corporation) corporation, on behalf of the corporation.

WITNESS my hand and official seal

_____
Notary Public, State of Florida

_____
Printed, typed or stamped name of Notary Public exactly as commissioned

[__] Personally known to me, or
[__] Produced identification:

_____
(type of identification produced)

[__] Did take an oath, or
[__] Did not take an oath

Bonded by:
_____

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as Principal in the foregoing Performance Bond; that _____, who signed the Bond on behalf of the Principal, was then _____ of said corporation; that I know his/her signature; and his/her signature thereto is genuine; and that said Bond was duly signed, sealed and attested to on behalf of said corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Name of Corporation)

FORM OF PAYMENT BOND

KNOW ALLMEN BY THESE PRESENTS:

That, pursuant to the requirements of Florida Statute 255.05, we, _____, as Principal, hereinafter called Contractor, and _____, as Surety, are bound to the Town of Medley, Florida, as Obligee, hereinafter called the Town, in the amount of _____ Dollars ($) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

WHEREAS, Contractor has by written Contract entered into a Contract, Bid No. _____, awarded the ____ day of _____, 20____ , with the Town for _____ in accordance with drawings (plans) and specifications prepared by _____ which Contract is by reference made a part hereof, and is hereafter referred to as the Contract;

THE CONDITION OFTHIS BOND IS THAT IF THE CONTRACTOR:

1. Indemnifies and pays the Town all losses, damages (specifically including, but not limited to, damages for delay and other consequential damages caused by or arising out of the acts, omissions or negligence of Contractor), expenses, costs and attorney's fees including attorney's fees incurred in appellate proceedings, that the Town sustains because of default by Contractor under the Contract; and
2. Promptly makes payments to all claimants as defined by Florida Statute 225.05(1) supplying Contractor with all labor, materials and supplies used directly or indirectly by Contractor in the prosecution of the Work provided for in the Contract, then its obligation shall be void; otherwise, it shall remain in full force and effect subject, however, to the following conditions:
    a. A claimant, except a laborer, who is not in privity with the Contractor and who has not received payment for its labor, materials, or supplies shall, within forty five (45) days after beginning to furnish labor, materials, or supplies for the prosecution of the Work, furnish to the Contractor a notice that it intends to look to the Bond for protection.
    b. A claimant who is not in privity with the Contractor and who has not received payment for its labor, materials, or supplies shall, within ninety (90) days after performance of the labor or after complete delivery of the materials or supplies, deliver to the Contractor and to the Surety, written notice of the performance of the labor or delivery of the materials or supplies and of the non-payment.
    c. Any action under this Bond must be instituted in accordance with the Notice and Time Limitations provisions prescribed in Section 255.05(2), Florida Statutes.

The Surety hereby waives notice of and agrees that any changes in or under the Contract Documents and compliance or noncompliance with any formalities connected with the Contract or the changes do not affect the Surety's obligation under this Bond.

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

WITNESS:

_____
Secretary

(CORPORATE SEAL)

IN THE PRESENCE OF:

_____
(Name of Corporation)

By: _____
(Signature and Title)

_____
(Type Name & Title signed above)

INSURANCE COMPANY:

By: _____
Agent and Attorney-in-Fact

Address: _____

_____

Telephone No.: _____

STATE OF FLORIDA

COUNTY OF MIAMI-DADE

On this, the ____ day of _____, 20____ , before me, the undersigned Notary Public of the State of Florida, the foregoing instrument was acknowledged by _____ (name of corporate officer), _____ (title), of _____ (name of corporation), a _____ (state of corporation) corporation, on behalf of the corporation.

WITNESS my hand and official seal

Notary Public, State of Florida

_____
Printed, typed or stamped name of Notary

Public exactly as commissioned

[__] Personally known to me, or
[__] Produced identification:

_____
(type of identification produced)

[__] Did take an oath, or
[__] Did not take an oath

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the corporation named as Principal in the foregoing Payment Bond; that _____, who signed the Bond on behalf of the Principal, was then _____ of said corporation; that I know his/her signature; and his/her signature thereto is genuine; and that said Bond was duly signed, sealed and attested to on behalf of said corporation by authority of its governing body.

(CORPORATE SEAL)

_____
(Name of Corporation)

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 _____
[print name of public entity]

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 define in Paragraph 287.133(1)(g), **Florida Statutes,** means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of United States, including, but not limited to, any Proposal 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 misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), **Florida Statutes,** means a finding of guilt or a conviction of a public entity crime, with or without and 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 a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

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

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

2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm’s length agreement, shall be a 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 Paragraph 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 Proposals or applies to Proposal on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term “person” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. **[indicate which statement applies.]**

____Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in neither 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 are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity 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 are 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 subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the 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 SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPGH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VAILD THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN 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 THRESHOLD 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)

_____
(Print, typed, or stamped commissioned name of notary public)

Contractor's Application For Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1.	**ORIGINAL CONTRACT PRICE**	$ _____
2.	**Net change by Change Orders**	$ _____
3.	**CURRENT CONTRACT PRICE (Line 1 ± 2)**	$ _____
4.	**TOTAL COMPLETED AND STORED TO DATE (Column F on Progress Estimate)**	$ _____
5.	**RETAINAGE:**	
	a. _____ % x $_____ **Work Completed**	$ _____
	b. _____ % x $_____ **Stored Material**	$ _____
	c. **Total Retainage (Line 5a + Line 5b)**	$ _____
6.	**AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)**	$ _____
7.	**LESS PREVIOUS PAYMENTS (Line 6 from prior Application)**	$ _____
8.	**AMOUNT DUE THIS APPLICATION**	$ _____
9.	**BALANCE TO FINISH, PLUS RETAINAGE (Column G on Progress Estimate + Line 5 above)**	$ _____

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:

Payment of: $_____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____ _____
(Engineer) (Date)

Payment of: $_____
(Line 8 or other - attach explanation of other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding Agency (if applicable) (Date)

Progress Estimate

Contractor's Application

For (contract):	Application Number:
Application Period:	Application Date:

A		B	Work Completed		E	F		G
Item			C	D		Total Completed and Stored to Date (C + D + E)	% (F) B	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value	From Previous Application (C + D)	This Period	Materials Presently Stored (not in C or D)			
	Totals							

Progress Estimate

Contractor's Application

For (contract):							Application Number:			
Application Period:							Application Date:			
A				B	C	D	E	F		G
Item		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F) B	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

Stored Material Summary

Contractor's Application

For (contract):							Application Number:		
Application Period:							Application Date:		
A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage ($) (D + E - F)
			Date (Month/Year)	Amount ($)	Amount ($)	Subtotal	Date (Month/Year)	Amount ($)	
		Totals							

Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIMES:**
Original Contract Price: $_____	Original Contract Times: ☐ Working days ☐ Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No._____ to No._____: $_____	[Increase] [Decrease] from previously approved Change Orders No._____ to No._____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency (if applicable): _____		Date: _____

Change Order
Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

NOTICE TO PROCEED

Dated: _____, 20 ____.

TO:

_____

(Bidder)

Project No.: _____

PROJECT:

NW 105th Way Drainage Improvements

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

TOWN'S CONTRACT NO:_____

CONTRACT FOR: _____

_____

_____

You are notified that the Contract time under the above Contract will commence to run on ____ day of _____, 20___, the Effective Date.

By that date, you are to start performing the Work and your other obligations under the Contract Documents. The dates of Substantial Completion and Final Completion are set forth in the Contract Document; they are _____ 20___ and _____, 20___, respectively.

Before you may start any Work at the site, you must deliver to the Town, the Policies of

Insurance and Payment and Performance Bonds which you are required to purchase and maintain in accordance with the Contract Documents.

Work at the site must be started by _____, 20___, as indicated in the Contract Documents.

_____
(Town)

By: _____
(Authorized Signature)

_____
(Title)

CONTRACT FOR CONSTRUCTION

THIS CONTRACT FOR CONSTRUCTION (the "Contract") is dated as of the _____ day of _____**20**___ by and between **TOWN OF MEDLEY, FLORIDA,** a Florida municipal corporation (hereinafter called the "**TOWN**") and _____ (hereinafter called **CONTRACTOR**), with its principal place of business at _____.

TOWN and **CONTRACTOR**, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

1.1 Project/Work. CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Contractor shall furnish all of the labor, materials, equipment, transportation, supplies and services necessary to perform all of the Work required by the Contract Documents for:

NW 105TH WAY DRAINAGE IMPROVEMENTS

The Contractor must furnish all supervision, labor, materials, tools, equipment, and perform all operations required to construct the Town of Medley Capital Improvements in accordance with the Contract Documents and as described in the Construction Plans.

Work includes, but is not limited to, the drainage construction and associated pavement restoration along NW 105th Way just south of NW 106th Street, and extends eastwardly to 105th Way.

Contractor shall be responsible for complying with the requirements of all regulatory agencies and applicable laws; coordination with all impacted utility owners; and complying with the requirements of Miami-Dade County.

Article 2. TOWN'S REPRESENTATIVE, ARCHITECT AND ENGINEER

2.1. It is understood that the TOWN will designate a representative for the Work. The TOWN'S **REPRESENTATIVE** referred to in any of the Contract Documents designated herein is: _____ .

2.2 The TOWN'S **ARCHITECT** referred to in any of the Contract Documents designated herein is: _____ .

2.3 The TOWN's **ENGINEER** referred to in any of the Contract Documents designated herein is: _____ .

Article 3. TERM

3.1 Contract Times. The Work shall be Substantially Complete within One Hundred and Fifty **(150)** calendar days after the date specified in the Notice to Proceed and achieve Final Completion completed and ready for final payment in accordance with the Contract Documents within One Hundred and Eighty **(180)** calendar days after the date specified in the Notice to Proceed. Failure to achieve timely Final Completion shall be regarded as a breach of this Contract and subject to the appropriate remedies including but not limited to, liability for liquidated damages in accordance with Section XII(3) of the General Conditions.

3.2. Term. The term of the Contract shall be from the date of execution through the date of final payment unless terminated earlier pursuant to the General Conditions or otherwise indicated in the Contract Documents.

3.3 Survival of Obligations. Any obligations by the Contractor, including but not limited to Document 00700, Article 12, Contractor's General Warranty and Guarantee, that would or could occur after the date of expiration or termination of the Contract shall survive the termination or expiration of the Contract.

3.4. Liquidated Damages. **TOWN** and **CONTRACTOR** recognize that time is of the essence in this Contract and that the **TOWN** will suffer financial loss if the Work is not completed within the Contract Time specified in Section 3.1 for the Work, plus any approved extensions thereof allowed in accordance with the General Conditions. The **CONTRACTOR** also recognizes the delays, expense and difficulties involved in proving the actual loss suffered by **TOWN** if the Work is not completed on time. Accordingly, instead of requiring any such proof, **TOWN** and **CONTRACTOR** agree that as liquidated damages for delay (but not as a penalty) **CONTRACTOR** shall pay **TOWN** **Three Hundred Dollars ($300.00)** for each calendar day that expires after the time specified in Section 3.1 for Substantial Completion of the Work. After Final Completion, if **CONTRACTOR** shall neglect, refuse or fail to complete the remaining Work within the time specified in Section 3.1 for completion and readiness for final payment or any proper extension thereof granted by **TOWN, CONTRACTOR** shall pay **TOWN** **Three Hundred Dollars ($300.00)** for each calendar day that expires after the time specified in Section 3.1 for completion and readiness for final payment.

3.5. Should the Final Completion and acceptance of Work, together with any modification or additions, be delayed beyond the time for performance set in Section 3.1 above because of lack of performance by the **CONTRACTOR**, it is understood and agreed that aside from any other liquidated damages, all actual additional costs incurred by the **TOWN** for professional services will be the responsibility of the **CONTRACTOR.**

3.6. Monies due to the **TOWN** under Sections 3.4 and 3.5 shall be deducted from any monies due the **CONTRACTOR**, or if no money is due or the amount due is insufficient to cover the amount charged, the **CONTRACTOR** shall be liable for said amount.

Article 4. CONTRACT SUM

4.1 The TOWN shall pay the Contractor in current funds for the performance of the Work, subject to additions and deductions by Change Order as provided in the Contract Documents, the Contract Sum of _____ Dollars ($_____). **TOWN** shall pay **CONTRACTOR** for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Sections 4.1.1 below:

4.1.1 For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this Section 4.1.1, and in accordance with the Contractor's Bid Proposal incoprortated herein and made a part hereof. Estimated quantities are not guaranteed, and determination of actual quantities and classification are to be made by ENGINEER as provided in the Contract Documents.

4.2. The **CONTRACTOR** agrees that all specific cash allowances are included in the above Contract Sum and have been computed in accordance with the Contract Documents.

Article 5. PAYMENT PROCEDURES

5.1 CONTRACTOR shall submit Applications for Payment in accordance with the General Conditions, Article 14, Payments to Contractor and Completion. Applications for Payment will be processed by **TOWN** as provided in the General Conditions.

5.2 Progress Payments, Retainage. TOWN shall make progress payments, deducting the amount from the Contract Sum above, on the basis of **CONTRACTOR'S** Applications for Payment as recommended by the **TOWN'S REPRESENTATIVE**, on or about the last day of each month during construction as provided herein. All such payments will be made in accordance with the schedule of values established in the General Conditions or, in the event there is no schedule of values, as provided in the General Conditions.

5.2.1 No progress payment shall not be made until the CONTRACTOR delivers to the TOWN complete original partial releases of all liens and claims signed by all Subcontractors, materialmen, suppliers, and vendors, indicating amount of partial payment, on a form approved by the TOWN, and an affidavit that so far as the CONTRACTOR has knowledge or information, the releases include and cover all Materials and Work for which a lien or claim could be filed for Work completed to date.

5.3. Ten percent (10%) of all monies earned by the Contractor shall be retained by the Town until the Work is totally completed as specified and accepted by the Town. After fifty percent (50%) of the Work has been completed, the Town may reduce the retainage to five percent (5%) of all monies earned.

5.3.1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated above, but, in each case, less the aggregate of payments previously made and less such amounts as TOWN'S

REPRESENTATIVE shall determine, or **TOWN** may withhold, in accordance with the General Conditions.

5.4. The payment of any Application for Payment by TOWN, including the Final Request, does not constitute approval or Acceptance by **TOWN** of any item of the Work in such Request for Payment, nor shall it be construed as a waiver of any of TOWN'S rights hereunder or at law or in equity.

5.5. The Final Application for Payment by **CONTRACTOR** shall not be made until the **CONTRACTOR** delivers to the TOWN complete original releases of all liens and claims signed by all Subcontractors, materialmen, suppliers, and vendors on a form approved by the **TOWN**, and an affidavit that so far as the **CONTRACTOR** has knowledge or information, the releases include and cover all Materials and Work for which a lien or claim could be filed. The **CONTRACTOR** may, if any Subcontractor, materialmen, supplier or vendor refuses to furnish the required Final Waiver of Lien, furnish a bond satisfactory to TOWN to defend and indemnify TOWN and any other property owner, person or entity TOWN may be required to indemnify against any lien or claim.

5.6. Final Payment. Upon final completion and acceptance of the Work in accordance with the General Conditions, **TOWN** shall pay the remainder of the Contract Sum and any retainage as recommended by the **TOWN'S REPRESENTATIVE**.

5.7 The Contractor may requisition payments for Work completed during the Project at intervals of not more than once a month. The Contractor's requisition shall show a complete breakdown of the Project components, the quantities completed and the amount due, together with properly executed releases of liens by all Sub-Contractors, suppliers and material men who were included in the Contractor's current and previous applications for payment and any other supporting documentation as may be required by the CEI or Contract Documents. Each requisition shall be submitted in triplicate to the CEI for approval. The Town shall make payment to the Contractor within thirty (30) days after approval by the CEI of the Contractor's requisition for payment,

5.8 The Town may withhold in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:

5.8.1 Defective Work not remedied.

5.8.2 Claims filed or reasonable evidence indicating the probable filing of claims by other parties against the Contractor.

5.8.3 Failure of the Contractor to make payment to Sub-Contractors or suppliers for materials or labor.

5.8.4 Damage to another Contractor not remedied.

5.8.5 Liability for liquidated damages has been incurred by the Contractor.

5.8.6 Reasonable evidence that the Work cannot be completed for the

unpaid balance of the Contract Sum.

5.8.7 Reasonable evidence that the Work will not be completed within the Contract Time.

5.8.8 Persistent failure to carry out the Work in accordance with the Contract Documents.

When the above grounds are removed or resolved or the Contractor provides a Surety Bond or consent of surety satisfactory to the Town which will protect the Town in the amount withheld, payment maybe made in whole or in part.

Article 6. INSURANCE/INDEMNIFICATION.

6.1. Insurance. The **CONTRACTOR** shall secure and maintain throughout the duration of this Contract, insurance of such type and in such amounts necessary to protect its interest and the interest of the **TOWN** against hazards or risks of loss as specified in the General Conditions and the Contract Documents.

6.2. Indemnification. The **CONTRACTOR** shall indemnify, defend and hold harmless the TOWN, their officials, agents, employees, and volunteers as set forth in General Conditions and the Contract Documents.

Article 7. CONTRACTOR'S REPRESENTATIONS

In order to induce **TOWN** to enter into this Contract, **CONTRACTOR** makes the following representations:

7.1. CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda) and the other related data identified in the Bidding Documents including "technical data."

7.2. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4. CONTRACTOR has made, or caused to be made, examinations, investigations, tests and/or studies as necessary to determine surface and subsurface conditions at or on the site. **CONTRACTOR** acknowledges that **TOWN** does not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to underground facilities at or contiguous to the site. **CONTRACTOR** has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests,

studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by **CONTRACTOR** and safety precautions and programs incident thereto. **CONTRACTOR** does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.5. The **CONTRACTOR** is aware of the general nature of Work to be performed by **TOWN** and others at the site that relates to the Work as indicated in the Contract Documents.

7.6. The **CONTRACTOR** has correlated the information known to **CONTRACTOR**, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

7.7. The **CONTRACTOR** has given the **TOWN'S REPRESENTATIVE** written notice of all conflicts, errors, ambiguities or discrepancies that **CONTRACTOR** has discovered in the Contract Documents and the written resolution thereof by the **TOWN'S REPRESENTATIVE** is acceptable to **CONTRACTOR,** and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

7.8. The **CONTRACTOR** warrants the following:

7.8.1. Anti-Discrimination: The **CONTRACTOR** agrees that it will not discriminate against any employees or applicants for employment or against persons for any other benefit or service under this Contract because of race, color, religion, sex, national origin, or physical or mental handicap where the handicap does not affect the ability of an individual to perform in a position of employment, and to abide by all federal and state laws regarding non-discrimination.

7.8.2. Anti-Kickback: The **CONTRACTOR** warrants that no person has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, and that no employee or officer of the **TOWN** has any interest, financially or otherwise, in the Project. For breach or violation of this warranty, the TOWN shall have the right to annul this Contract without liability or, in its discretion, to deduct from the Contract price or consideration, the full amount of such commission, percentage, brokerage or contingent fee.

7.8.3. Licensing and Permits: The **CONTRACTOR** warrants that it shall have, prior to commencement of Work under this Contract

and at all times during said Work, all required licenses and permits whether federal, state, County or TOWN.

7.8.4. Public Entity Crime Statement: The **CONTRACTOR** warrants that it has not been place on the convicted vendor list following a conviction for public entity crime, as specified in the Instructions to Bidders.

7.8.5 Compliance with Applicable Laws. The **CONTRACTOR** warrants that CONTRACTOR is familiar with and is satisfied as to all federal, state and local laws, regulations and permits that may affect cost, progress, performance and furnishing of the Work. The **CONTRACTOR** warrants and agrees that it will at all times comply with all requirements of the foregoing laws, regulations and permits.

Article 8. CONTRACT DOCUMENTS.

8.1 The Contract Documents listed below, which are listed in their order of precedence for the purpose of resolving conflicts, errors and discrepancies, by this reference shall become a part of the Contract as though physically attached as a part thereof:

8.1.1 Change Orders.

8.1.2 Field Orders.

8.1.3 Contract for Construction.

8.1.4 Exhibits to this Contract.

8.1.5 General Conditions.

8.1.7 Technical Specifications.

8.1.9. Construction Plans or Drawings consisting of a cover sheet and sheets numbered _____ to _____ with each sheet bearing the following general title: _____.

8.1.10. Bid Documents/Project Manual, including but not limited to: Addendum, Invitation to Bid, Instructions to Bidders, Bid Form provided by CONTRACTOR, Notice of Award and Notice to Proceed.

8.1.11. Addenda subject matter takes the same precedence of the respective subject matter that it is modifying. Furthermore, each subsequent addendum takes precedence over previous addenda.

8.1.12. The documents listed above shall be incorporated into this Contract (except as expressly noted otherwise above).

8.1.13. There are no Contract Documents other than those listed above in this Article. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

8.1.14. The Contract Documents shall remain the property of the TOWN. The CONTRACTOR shall have the right to keep one record set of the Contract Documents upon completion of the Project; provided; however, that in no event shall the CONTRACTOR use, or permit to be used, any or all of such Contract Documents on other Projects without the TOWN's prior written authorization.

8.1.15. The General Conditions discuss the bond and surety requirements of the TOWN. This Contract requires bonds, which must be required before the commencement of any Work.

Article 9. DEFAULT AND TERMINATION

Events of Default by the parties and termination rights shall be in accordance with Section XIV (11 and 12) of the General Conditions.

Article 10. MISCELLANEOUS.

10.1. Terms used in this Contract which are defined in the other Contract Documents shall have the meanings indicated in the Contract Documents and shall apply to this Contract.

10.2. Except as otherwise provided in the Contract Documents with respect to Subcontractors, no assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party thereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.3. **TOWN** and **CONTRACTOR** each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

10.4. Severability: Should any provision, paragraph, sentence, word, or phrase contained in this Contract be determined by a court of competent jurisdiction to be invalid, illegal, or otherwise unenforceable under the laws of the State of Florida, such provision, paragraph, sentence, word, or phrase shall be deemed modified to the extent necessary in order to conform with such laws, then shall be deemed severable, and in this Contract, shall remain unmodified and in full force and effect.

10.5. Remedies: If and when any default of this Contract occurs, the **TOWN** may avail itself of any legal or equitable remedies that may apply, including, but not limited to,

actual damages and specific performance. Such remedies may be exercised in the sole discretion of the **TOWN**. Nothing contained in this Contract shall limit the **TOWN** from pursuing any legal or equitable remedies that may apply.

10.6. Access to Public Records: The **CONTRACTOR** shall comply with the applicable provisions of Chapter 119, Florida Statutes. The **TOWN** shall have the right to immediately terminate this Contract for the refusal by the Contractor to comply with Chapter 119, Florida Statutes. The Contractor shall retain all records associated with this Contract for a period of five (5) years from the date of Final Payment or Termination of this Contract.

10.7. Inspection and Audit: During the term of this Contract and for five (5) years from the date of Termination, the **CONTRACTOR** shall allow **TOWN** representatives access during reasonable business hours to **CONTRACTOR'S** records related to this Contract for the purposes of inspection or audit of such records. If upon an audit of such records, the **TOWN** determines the **CONTRACTOR** was paid for services not performed, upon receipt of written demand by the **TOWN**, the **CONTRACTOR** shall remit such payments to the **TOWN**.

10.8. Counterparts: This contract may be signed in one or more counterparts, each of which when executed shall be deemed an original and together shall constitute one and the same instrument.

10.9. Notices: Whenever any party is required to give or deliver any notice to any other party, or desires to do so, such notices shall be sent via certified mail or hand delivery to:

FOR CONTRACTOR:

FOR TOWN:

Town of Medley
7777 N.W. 72nd Avenue
Medley, Florida 33166
ATTN: TOWN Mayor

WITH COPY TO:

_____

_____

_____

_____

10.10. Waiver Of Jury Trial And Venue: The **TOWN** and **CONTRACTOR** knowingly, irrevocably, voluntarily and intentionally waive any right either may have to a trial by jury in State and or Federal court proceedings in respect to any action, proceeding, lawsuit or counterclaim based upon the Contract, arising out of, under, or in connection with the Work, or any course of conduct, course of dealing, statements or actions or inactions of any party. This Contract shall be construed in accordance with and governed by the laws of the State of Florida and venue for any lawsuit arising out of this Contract shall be in Miami-Dade County, Florida.

10.11. Attorneys' Fees; Prevailing Party: If either the **TOWN** or **CONTRACTOR** is required to enforce the terms of the Contract by court proceedings or otherwise, whether or not formal legal action is required, the prevailing party shall be entitled to recover from the other party all such costs and expenses, including, but not limited to, court costs, and reasonable attorneys' fees.

9.12. Amendments: This Contract may only be amended by the prior written approval of the parties or by execution of a Change Order in the form approved by the Town.

IN WITNESS WHEREOF, the parties hereto have made and executed this Contract on the respective dates under each signature: TOWN OF MEDLEY, FLORIDA, signing by and through its Mayor, authorized to execute same by Council action on the ___day of _____ _____, 20___, and by _____ **(Contractor),** signing by and through its **President** , duly authorized to execute same.

TOWN:

ATTEST :

TOWN OF MEDLEY, FLORIDA, a Florida municipal corporation

_____
Town Clerk

_____
Roberto Martell, Mayor

Executed: _____, 20___.

APPROVED AS TO FORM AND LEGALITY FOR THE USE
AND BENEFIT OF TOWN OF MEDLEY ONLY:

_____
Town Attorney

CONTRACTOR:

WITNESS

_____
_____

By: _____ _____

By _____
(Signature and Title)

(Corporate Seal)

_____
(Type Name/Title signed above)

Executed: ___ of _____, 20___.

(*) In the event that the Contractor is a corporation, there shall be attached to each counterpart a certified copy of a resolution of the board of the corporation, authorizing the officer who signs the contract to do so in its behalf.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am of the _____, _____, and that _____, who signed the Bid with the TOWN OF MEDLEY, FLORIDA for _____, is _____ of said Corporation with full authority to sign said Bid on behalf of the Corporation.

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

(SEAL)

_____
Signature

_____
Typed w/Title

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

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

My Commission Expires:

_____
Notary Public

CERTIFICATE AS TO AUTHORIZED CORPORATE PERSONNEL

I, _____, certify that I am the _____ of _____, who signed the Bid with Town of Medley, Florida Miami-Dade County, Florida, for the project titled NW 105TH WAY DRAINAGE IMPROVEMENTS, and that the following persons have the authority to sign payment requests on behalf of the Corporation:

_____
(Signature) (Typed Name w/Title)

_____
(Signature) (Typed Name w/Title)

_____
(Signature) (Typed Name w/Title)

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

(SEAL)

_____
Signature

_____
Typed w/Title

STATE OF FLORIDA
COUNTY OF MIAMI-DADE

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

My Commission Expires:

_____
Notary Public

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PART 3

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION OF WORK

Work is located in the Town of Medley, FL. Exact location is shown on the Drawings.

1.02 WORK TO BE PERFORMED

The Work to be performed under this Contract shall consist of providing equipment, materials, supplies, and manufactured articles; and for furnishing transportation and services, including fuel, power, water, and essential communications; and for the performance of labor, work, or other operations in strict accordance with this Project Manual.

Wherever the Project Manual address a third party, i.e., subcontractor, manufacturer, vendor, etc., it is to be considered as the Contractor through the third party. Wherever a reference to number of days is noted, it shall mean calendar days.

1.03 SEQUENCE OF CONSTRUCTION

A. Following receipt of Notice to Proceed with the Work, the Contractor shall notify the Town at least 5-days before he is ready to start actual construction to allow the Town time to make arrangements for inspection of the Work.

B. Work under the Contract shall be scheduled and performed in such a manner as to result in the least possible disruption to residents.

C. Submit a sequence of construction schedule for the entire project.

D. The Contractor shall note that some areas of the Work may require deep excavation and dewatering, which may require sheeting and by-pass pumping. The Contractor shall be responsible for adhering to all permit requirements.

E. Cancellation of Planned Shutdown: A planned shutdown may be cancelled by the Town upon 24-hour notification by the Town/CEI to the Contractor. Such cancellation shall be expected due to wet weather conditions or other conditions beyond the control of the Town, CEI, or Contractor. All efforts shall be taken to check weather forecasts and the like prior to scheduling shutdowns. However, if a cancellation must occur, the Town shall not be responsible for any additional costs associated with mobilization and demobilization.

1.04 DEMOLITION AND SALVAGE OF EXISTING FACILITIES

Coordinate any demolition activities with CEI.

1.05 REHABILITATION

The Contractor shall be responsible for the restoration of driveway approaches, and others areas affected by the work necessary to complete this Work.

1.06 DISPOSAL OF DEBRIS

All debris, materials, piping, and miscellaneous waste products from the Work described in the section shall be removed from the project as soon as possible. They shall be disposed of in accordance with applicable federal, state, and local regulations. The Contractor is responsible for determining these regulations and shall bear all costs or retain any profit associated with disposal of these items.

1.07 CONTRACTOR USE OF PROJECT SITE

The Contractor's use of the project site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices, as noted on Drawings.

1.08 TOWN USE OF THE PROJECT SITE

The Town may utilize all or part of the existing facilities during the entire period of construction for the conduct of the Town's normal operations. The Contractor shall cooperate with the Town to minimize interference with the Contractor's operations and to facilitate the Town's operations.

1.09 COORDINATION WITH OTHER CONTRACTS

The Contractor shall coordinate the construction work and activities with the construction activities of any adjacent contractors.

1.10 PARTIAL UTILIZATION OF THE WORK BY THE TOWN

The Contractor is hereby advised that the Town may accept the responsibility for the maintenance and protection of a specific portion of the Project if utilized prior to Completion. However, the Contractor shall retain full responsibility for satisfactory completion of the project.

1.11 PERMITS

A. It shall be the Contractor's responsibility to secure all permits required to complete the work under this contract, except permits obtained by the Town.

B. No separate or direct payment will be made to the Contractor for permits and inspection requirements, but all such costs shall be included in the bid proposal. The Town will furnish signed and sealed sets of Contract Documents for permit use as required.

1.12 LAND SURVEYING

The Contractor shall employ a Land Surveyor registered in the State of Florida and acceptable to the Town. The Contractor shall locate and protect survey control and reference points.

1.13 LOCATIONS OF EXISTING UTILITIES

Where the existing utilities such as electric conduits, force mains, water mains, sewer pipes, gas main and other utilities are in conflict with the new works, the Contractor shall verify the location in the field and notify the CEI immediately.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

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SECTION 01016

SAFETY REQUIREMENTS AND PROTECTION OF PROPERTY

PART 1 - GENERAL

1.01 CONTRACTOR'S RESPONSIBILITY FOR SAFETY

Conduct whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees) and property during the construction of the project. This requirement shall apply continuously and not be limited to normal working hours.

1.02 FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS

A. Safety provisions shall conform to the Federal and State Departments of Labor Occupational Safety and Health Act (OSHA), and all other applicable Federal, State, County, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these specifications. Where any of these are in conflict, the more stringent requirements shall prevail. Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

B. All open excavations made in the earth shall be performed in compliance with the State of Florida Trench Safety Act, OSHA 29 CFR 1926.650, Subpart P (Chapter 90-96, Laws of Florida). The Contractor shall appoint a "competent person", in accordance with Subpart P, who shall be present at the jobsite. A "competent person" shall mean one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

C. The Contractor shall familiarize himself with the "Underground Facility Damage Prevention and Safety Act", Florida Statute 556. The Contractor shall contact the Sunshine State One-Call Center, at 1-800-432-4770, forty-eight hours prior to any excavation. Failure to familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

D. Conduct operations in such a manner utilizing warning devices, such as traffic cones, barricades and warning lights that traffic, pedestrian and Town personnel are given adequate warning of hazards of the worksite as may be deemed necessary by the Town, Engineer of Record, and governing agency having jurisdiction over the work or political subdivision.

1.03 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

The Contractor shall at all times provide proper facilities for safe access to the work by authorized government officials.

1.04 CONSTRUCTION SAFETY PROGRAM

A. Develop and maintain for the duration of this project, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

B. Certain products specified in these specifications contain warnings by the manufacturers that under certain conditions, if instructions for use are not followed, a hazardous condition may exist. It is the Contractor's responsibility to instruct his workmen in the safe use of the product, or any product substitution.

C. The duty of the Engineer of Record to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

1.05 SAFETY EQUIPMENT

A. As part of the safety program, maintain at office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and establish the procedure for the immediate relocation to a hospital or a doctor's care of any person who may be injured on the jobsite.

B. Perform all necessary work to protect the general public from hazards, including, but not limited to, surface irregularities or unramped grade changes in pedestrian walkway or sidewalk, and trenches or excavations in roadway. Furnish barricades, lanterns, and proper signs to safeguard the public and work.

C. The performance of all work and all completed construction, particularly with respect to ladders, platforms, structure openings, scaffolding, fall protection devices, shoring, logging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.

D. During construction, construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railings, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety.

1.06 STORAGE OF HAZARDOUS MATERIALS

A. The Contractor is hereby cautioned that he cannot store any environmentally hazardous materials such as solvents, greases, lubricants or any other type of chemical substances at the project site. The Contractor shall be allowed to keep such materials at the site which is to be used for immediate use only.

B. The materials shall be stored and handled in a proper and safe manner and upon its use immediately dispose of the containers, cans, rags and remnants of the materials in a manner approved by PERA at the Contractor's own cost. The Contractor cannot store empty containers at the site. In case of any violation, the Town will report such violation to PERA and the Contractor shall be subject to all the penalties and fines as required by State and County regulations.

1.07 TRAFFIC SAFETY AND ACCESS TO PROPERTY

A. Comply with all rules and regulations of the city, state, and county authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the Town. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved barricades, signs, and lights where necessary for the safety of the public. The convenience of the general public and residents and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

B. Where traffic will pass over backfilled trenches before they are paved, the top of the trench shall be maintained in a condition that will allow normal vehicular traffic to pass over. Temporary access driveways must be provided where required. Cleanup operations shall follow immediately behind backfilling and the worksite shall be kept in an orderly condition at all times.

C. When flagmen and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic control devices.

1.08 FIRE PREVENTION AND PROTECTION

A. Perform all work in fire-safe manner. Furnish and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. Comply with applicable federal, local, and state fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

B. The Contractor shall have a Hot Work Permit Program and shall complete a permit prior to cutting or welding. A Fire Watch shall be designated to help monitor the hot work operation.

1.09 TRAFFIC CONTROL AND USE OF PUBLIC STREETS

A. The Contractor shall be responsible for traffic control as specified hereinafter. Any reference to Miami-Dade County, its departments, or its published regulations, permits and data, shall be synonymous and interchangeable with other recognized governing bodies over particular areas of streets or their departments, published regulations, permits, or data. Abide by all applicable laws, regulations and codes thereof, pertaining to maintenance of public streets, detour of traffic, traffic control and other provisions as may be required for this project.

B. The Contractor shall be fully responsible for the maintenance of public streets, detour of traffic (including furnishing and maintaining regulatory and informative signs along the detour route), traffic control and other provisions, throughout the project as required by the Town and the Miami-Dade County Department of Public Works, Traffic Engineering Division (Traffic Division). Traffic shall be maintained according to corresponding typical traffic control details as outlined in the Dade County Public Works Manual. No street shall be completely blocked nor blocked more than one-half at any time, keeping the other half open for traffic without specific approval.

C. If required by the Town, employ the required number of uniformed off-duty policemen to maintain and regulate the flow of traffic through the construction area. The number of men required and the number of hours on duty necessary for the maintenance and regulation of the traffic flow shall be subject to their approval. If required for traffic control permits or agencies, the Contractor shall work odd or night hours, as required for traffic control reasons, and the cost of such work shall be considered as incidental to construction.

D. The Contractor shall provide all barricades and/or flashing warning lights necessary to warn motorist of the construction throughout the project.

E. Excavated or other material stored adjacent to or partially upon a roadway pavement shall be adequately marked for traffic safety at all times. Provide necessary access to all adjacent property during construction.

F. The contractor shall be responsible for the provision, installation and maintenance of all traffic control and safety devices, in accordance with specifications outlined in the Dade County Public Works Manual. In addition, provide for the resetting of all traffic control and information signing removed during the construction period.

G. Where excavations are to be made in the vicinity of signalized intersections, attention is directed to the fact that vehicle loop detectors may have been embedded in the

pavement. Verify these locations by inspecting the site of the work and by contacting the Sunshine State One-Call Center at 1-800-432-4770. Any loop detector which is damaged, whether shown on the Drawings or not, shall be repaired or replaced to the satisfaction of the Town.

H. Notify the Town 24 hours in advance of the construction date, and 48 hours in advance of construction within any signalized intersection.

I. Temporary pavement will be required over all cuts in pavement areas, and also where traffic is to be routed over swale or median areas. When the temporary pavement for routing traffic is no longer necessary, it shall be removed and the swale or median area restored to their previous condition.

1.10 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the Contractor's operation could cause damage or inconvenience to railway, telephone, fiber optic, television, electrical power, oil, gas, water, sewer, or irrigation systems, the Contractor shall make all arrangements necessary for the protection of these utilities and services or any other known utilities.

B. Notify all utility companies that are affected by the construction operation at least 48 hours in advance. Under no circumstance expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities and utility poles where necessary.

C. The Contractor and his subcontractors shall be solely and directly responsible to the owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this project.

D. Neither the Town nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.

E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no event shall interruption of any utility service be allowed outside working hours unless granted by the owner of the utility.

F. In the event water service lines that interfere with trenching are encountered, the Contractor may, by obtaining prior approval of the water utility, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense and as approved by the Town.

G. Drainage culverts that are at or near right angles to a pipeline and are removed by the Contractor shall be replaced in kind at the expense of the Contractor unless otherwise noted.

H. Replace, with material approved by the Town, at Contractor's expense, any and all other laterals, existing utilities or structures removed or damaged during construction, unless otherwise provided for in these specifications and as approved by the Town.

1.11 HURRICANE PREPAREDNESS

A. General

During such periods of time as are designated by the United States Weather Bureau as being a hurricane alert, the Contractor shall perform all precautions as necessary to safeguard the work and property, including the removal of all small equipment and materials from the site, lashing all other equipment and materials to each other and to rigid construction, and any other safety measures as may be directed by the Engineer.

B. Upon Notification of a Hurricane Watch

The Contractor should prepare or have in place a Plan of Action for the specific actions to be taken on their particular projects.

C. Upon Notification of a Hurricane Warning

1. The Contractor shall implement their Plan of Action to protect the project and the public.
2. For construction projects within the public right-of-ways, the Contractor shall suspend his construction operations, backfill all open trenches, remove all construction equipment and materials from the right-of-way, remove unnecessary traffic barricades and signs and secure remaining barricades by "half burial" or "double sand bags".

1.12 WORKING IN CONFINED SPACES

Where a Contractor needs to work in a confined space, the Contractor must comply with the General Industry, OSHA Confined Space Standard, CFR 1910.146 or the equivalent Confined Space Standard in DFR 1926, Construction Standards.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SPECIFICATIONS

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DIVISION 100 GENERAL CONSTRUCTION OPERATIONS

DIVISION 700 TRAFFIC CONTROL

DIVISION 100 GENERAL CONSTRUCTION OPERATIONS

101 MOBILIZATION (REV. 03-12-2013)

A. Description.

1. Perform preparatory work and operations in mobilizing for beginning work on the Project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site(s) and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities.
2. Include the costs of bonds and any required insurance and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials.

B. Basis of Payment.

1. When No Separate Item for Mobilization is Included in the Contract:
   a. All work and incidental costs specified as being covered under this Article will be included for payment under the several scheduled items of the overall Contract, and no separate payment will be made therefore.
2. When a Separate Pay Item for Mobilization is Included in the Contract:
   a. The work and incidental costs specified as being covered under this Article will be paid for at the Contract lump sum price for the Mobilization pay item, after an executed Notice to Proceed has been issued, by partial payments made in accordance with the following:
      1) For contracts of 120 contract days duration or less, partial payment will be made at 50% of the bid price per month for the first two months. For contracts in excess of 120 contract days duration, partial payment will be made at 25% of the bid price per month for the first four months. In no event shall more than 50% of the bid price be paid prior to commencing construction on the project site.
      2) Total partial payments for Mobilization on any project, including when more than one project or job is included in the Contract, will be limited to 10% of the original Contract amount for that project. Any remaining amount will be paid upon completion of all work on the Contract.
      3) Retainage, as specified in the Contract Documents, will be applied to all partial payments.
      4) Partial payments made on this Subarticle will in no way act to preclude or limit any of the provisions for partial payments otherwise provided for by the Contract.
3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

102 MAINTENANCE OF TRAFFIC (REV. 12-15-2015)

A. Description.

1. General:
   a. Maintain, for the duration of the construction period including any temporary suspensions of the Work, all traffic including pedestrian traffic within the limits of the Project starting the day work begins on the Project or the first day Contract time is charged, or on the day work begins on the work order, whichever is earlier .
   b. Construct and maintain detours.
   c. Provide facilities for access to residences, businesses, etc., along the Project.
   d. Furnish, install and maintain traffic control and safety devices during construction in accordance with FDOT Index 600 Series of the FDOT Design Standards, or as directed by Engineer. MOT includes all facilities, devices and operations as required for safety and convenience of the public within the work zone. Provide pickup, removal and disposal of litter and mow turf or vegetation within the MOT limits as required by Article 107.
   e. Furnish and install work zone pavement markings for maintenance of traffic (MOT) in construction areas.
   f. Provide any other special requirements for safe and expeditious movement of traffic specified in the Plans or directed by Engineer.
2. Unless otherwise directed by Engineer or required by the Contract Documents, do not maintain traffic over those portions of the Project where no work is to be accomplished or where construction operations will not affect existing roads including sidewalks.
3. Do not obstruct or create a hazard to any traffic during the performance of the Work, and repair any damage to existing pavement open to traffic.
4. Traffic may be detoured only upon approval by the County Engineer. Contractor must submit for review and approval an updated MOT plan prior to closure of any roads.
5. The Department may temporarily suspend all activities, except traffic, erosion control and such other activities that are necessary for project maintenance and safety, for failure to comply with these provisions.
6. Due to traffic congestion, work hours other than normal established hours may be required by the Engineer. In the case of extreme traffic or weather conditions, Contractor may be required to remove their operation from the roadway and/or right of way, at the discretion of the Engineer or the Traffic Control Officer at no additional compensation.

B. Materials.

1. Meet the following requirements:

Bituminous Adhesive	FDOT Section 970
Temporary Retroreflective Pavement Markers	FDOT Section 990
Paint	FDOT Section 971
Removable Tape	FDOT Section 990
Glass Spheres	FDOT Section 971
Temporary Traffic Control Device Materials	FDOT Section 990
Retroreflective and Nonreflective Sheeting for Temporary Traffic Control Devices	FDOT Section 994

2. Temporary Traffic Control Devices: Use only the materials meeting the requirements of FDOT Section 990, FDOT Section 994, FDOT Design Standards and the Manual on Uniform Traffic Control Devices (MUTCD).
3. Detour: Provide all materials for the construction and maintenance of all detours.
4. Commercial Materials for Driveway Maintenance: Provide materials of the type typically used by FDOT for roadway base construction, including reclaimed asphalt pavement material, and having stability and drainage properties that will provide a firm surface under wet conditions.

C. Worksite Traffic Supervisor.

1. Provide a worksite traffic supervisor meeting the requirements of Article 105. Provide the worksite traffic supervisor with all equipment and materials needed to set up, take down, maintain traffic control, and handle traffic-related situations.
2. Ensure that the worksite traffic supervisor performs the following duties:
   a. On site direction of all traffic control on the Project.
   b. Is on site during all MOT set up and take down, and performs a drive through inspection immediately after set up.
   c. Is on site during all nighttime operations to ensure proper MOT.
   d. Immediately corrects all safety deficiencies and does not permit minor deficiencies that are not immediate safety hazards to remain uncorrected for more than 24 hours.
   e. Is available on a 24 hour per day basis and present within 45 minutes after notification of an emergency situation and is prepared to positively respond to repair the work zone traffic control or to provide alternate traffic arrangements.
   f. Conducts daily daytime and weekly nighttime inspections of projects with predominately daytime work activities, and daily nighttime and weekly daytime inspections of projects with predominantly nighttime work activities of all traffic control devices, traffic flow, pedestrian, bicyclist, and business accommodations. Advise Engineer and the Project personnel of the schedule of these inspections and give them the opportunity to join in the inspection as is deemed necessary.
3. The Department may disqualify and remove from the Project a worksite traffic supervisor who fails to comply with the provisions of this Article.

D. Submittals

1. Traffic Control Plan
   a. Submit at Contractor's own expense a Traffic Control Plan (TCP) for approval by the County when a final TCP was not provided by the County as part of the original Contract Documents. Sequence the Work in a manner that will minimize disruption of vehicular and pedestrian access through and around the Project's construction area(s).
   b. The TCP must detail procedures and protective measures proposed by Contractor to provide for protection and control of traffic affected by the Work consistent with the following applicable standards:
      1) The Contract Documents;
      2) "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD) and subsequent revisions and addendums, as published by the U.S. Department of Transportation, Federal Highway Administration;
      3) The 600 Series indices of the FDOT Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System; and
      4) The Miami-Dade County Public Works Manual.
   c. All references to the respective agencies in the above referenced standards shall be construed to also include more stringent requirements of the jurisdictional municipality as applicable for this Work.
   d. The TCP must be signed and sealed by a Professional Engineer registered in the state of Florida and shall include proposed locations and time durations of the following, as applicable:
      1) Pedestrian and public vehicular traffic routing.
      2) Lane and sidewalk closures, other traffic blockage and lane restrictions and reductions anticipated to be caused by construction operations. Show and describe the proposed location, dates, hours and duration of closure, vehicular and pedestrian traffic routing and management, traffic control devices for implementing pedestrian and vehicular movement around the closures, and details of barricades.
      3) Location, type and method of shoring to provide lateral support to the side of an excavation or embankment parallel to an open travel-way.
      4) Allowable on-street parking within the immediate vicinity of worksite.
      5) Access to buildings immediately adjacent to worksite.
      6) Driveways blocked by construction operations.

7) Temporary traffic control devices, temporary pavement striping and marking of streets and sidewalks affected by construction

8) Temporary commercial and industrial loading and unloading zones.

9) Construction vehicle reroutes, travel times, staging locations, and number and size of vehicles involved.

e. Obtain and submit prior to erection, or otherwise impacting traffic, all required permits from all authorities having jurisdiction, including the Department, if applicable.

2. Alternative Traffic Control Plan.

a. Where a TCP is provided by the County with the Contract Documents, Contractor may still propose an alternative TCP to the plan presented in the Contract Documents. Prepare the TCP in conformance with the requirements stipulated in this Specification and in the form outlined in the current version of FDOT's Plans Preparation Manual. Indicate in the plan a TCP for each phase of activities. Have Contractor's Engineer of Record sign and seal the alternative plan. Take responsibility for identifying and assessing any potential impacts to a utility that may be caused by the alternate TCP proposed by Contractor, and notify the Department in writing of any such potential impacts to utilities.

b. Engineer's approval of the alternate TCP does not relieve Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those in the original Contract Specifications, Design Plans (including TCPs) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

c. The Department reserves the right to reject any alternative TCP. Obtain Engineer's written approval before beginning work using an alternate TCP. Engineer's written approval is required for all modifications to the TCP. Engineer will only allow changes to the TCP in an emergency without the proper documentation.

3. Comprehensive Weekly Report:

a. Submit to Engineer a comprehensive weekly report of the daily inspections performed and detailing the condition of all traffic control devices (including pavement markings) being used.

b. Include assurances in the report that pedestrians are accommodated with a safe, accessible travel path around work sites separated from mainline traffic in compliance with the Americans with Disabilities Act (ADA) Standards for Transportation Facilities, that existing or detoured bicyclist paths are being maintained satisfactorily throughout the Project limits, and that existing businesses in work areas are being provided with adequate entrances for vehicular and pedestrian traffic during business hours.

c. When deficiencies are found, the worksite traffic supervisor is to note such deficiencies and include the proposed or implemented corrective actions, including the date corrected.

d. Have the worksite traffic supervisor sign the report and certify that all of the above issues are being handled in accordance with the Contract Documents.

E. Traffic Control.

1. Standards: FDOT Design Standards are the minimum standards for the use in the development of all TCPs. The MUTCD, Part VI is the minimum national standard for traffic control for highway construction, maintenance, and utility operations. Follow the basic principles and minimum standards contained in these documents for the design, application, installation, maintenance, and removal of all traffic control devices, warning devices and barriers which are necessary to protect the public and workers from hazards within the Project limits.

2. Maintenance of Roadway Surfaces:

a. Maintain all lanes that are being used for the MOT, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonably free of dust, potholes and rutting. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions.

3. Number of Traffic Lanes:

a. Maintain one lane of traffic in each direction.

b. Maintain two lanes of traffic in each direction at existing four (or more) lane cross roads, where necessary to avoid undue traffic congestion.

c. Construct each lane used for MOT at least as wide as the traffic lanes existing in the area before commencement of construction.

d. Do not allow traffic control and warning devices to encroach on lanes used for MOT.

e. Engineer may allow Contractor to restrict traffic to one-way operation for short periods of time provided that Contractor employs adequate means of traffic control and does not unreasonably delay traffic. When a construction activity requires restricting traffic to one-way operations, locate the flaggers within view of each other when possible. When visual contact between flaggers is not possible, equip them with 2-way radios, official, or pilot vehicles, or use traffic signals.

4. Crossings and Intersections:

a. Provide and maintain adequate accommodations for intersecting and crossing traffic. Do not block or unduly restrict any road or street crossing the Project unless approved by Engineer. Before beginning any construction, provide Engineer the names and phone numbers of persons that can be contacted when signal operation malfunctions.

5. Access for Residences and Businesses: Provide continuous access to all residences and all places of business.

6. Protection of the Work from Injury by Traffic: Where traffic would be injurious to a base, surface course, or structure constructed as a part of the work, maintain all traffic outside the limits of such areas until the potential for injury no longer exists.

7. Flagger: Provide trained flaggers in accordance with Article 105.

8. Conflicting Pavement Markings:

   a. Where the lane use or where normal vehicle or pedestrian paths are altered during construction, remove all pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) that will conflict with the adjusted vehicle or pedestrian paths. Use of paint to cover conflicting pavement markings is prohibited. Remove conflicting pavement markings using a method that will not damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

   b. Remove all pavement markings that will be in conflict with "next phase of operation" vehicle pedestrian paths as described above, before opening to vehicle traffic or use by pedestrians.

   c. Cost for removing conflicting pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) to be included in the Project costs for Maintenance of Traffic (General).

9. Vehicle and Equipment Visibility:

   a. Equip all pickups and automobiles used on the Project with a minimum of one Class 2 amber or white warning light that meets the Society of Automotive Engineers Recommended Practice SAE J595, dated November 1, 2008, or SAE J845, dated December 1, 2007, and incorporated herein by reference. Existing lights that meet SAE J845, dated March, 1992, or SAE J1318, dated April, 1986, may be used to its end of service life. Warning lights shall be a high intensity amber or white rotating, flashing, oscillating or strobe light. Lights should be unobstructed by ancillary vehicle equipment such as ladders, racks or booms. If the light is obstructed, additional lights will be required. The lights shall be operating when a vehicle is in a work area where a potential hazard exists, when operating the vehicle at less than the average speed for the facility while performing work activities, making frequent stops or called for in the Plans or FDOT Design Standards.

   b. Equip all other vehicles and equipment with a minimum of 4 square feet of retroreflective sheeting or flashing lights.

   c. To avoid distraction to motorists, do not operate the lights on the vehicles or equipment when the vehicles are outside the clear zone or behind a barrier.

10. No Waiver of Liability: Conduct operations in such a manner that no undue hazard results due to the requirements of this Article. The procedures and policies described herein in no way acts as a waiver of any terms of the liability of Contractor or his surety.

F. Detours.

1. General: Construct and maintain detour facilities wherever it becomes necessary to divert traffic from any existing roadway or bridge, or wherever construction operations block the flow of traffic.

2. Construction: Plan, construct, and maintain detours for the safe passage of traffic in all conditions of weather. Provide the detour with all facilities necessary to meet this requirement. Where pedestrian facilities are detoured, blocked or closed during the work, provide safe alternate accessible routes through or around the work zone meeting the requirements of the ADA Standards for Transportation Facilities.

3. Construction Methods: Select and use construction methods and materials that provide a stable and safe detour facility. Construct the detour facility to have sufficient durability to remain in good condition, supplemented by maintenance, for the entire period that the detour is required.

4. Removal of Detours: Remove detours when they are no longer needed and before the Contract is completed. Take ownership of all materials from the detour and dispose of them, except for the materials on loan from the Department with the stipulation that they are returned.

5. Detours Over Existing Roads and Streets: When the Department specifies that traffic be detoured over roads or streets outside the Project area, do not maintain such roads or streets. However, maintain all signs and other devices placed for the purpose of the detour.

6. Operation of Existing Movable Bridges:

   a. At the pre-construction meeting, the Engineer and the Contractor will select a date for the County to turn over the bridge maintenance and operations responsibilities. In the event that this date is not discussed, the Contractor will take full responsibility at the NTP date.

   b. In addition to bridge maintenance responsibilities during the duration of the project, Contractor is responsible for having qualified and sufficient number of bridge operators to be able to operate the bridge in accordance USCG regulations – specifically, Title 33-Navigation and Navigable Waters, Chapter I - U.S. Coast Guard, Department of Homeland Security, Subchapter J-Bridges, Part 117--Drawbridge Operation Regulations, Subpart B--Specific Requirements § 117.5.

   c. County's bridge operators are scheduled as follows:

      1st Shift: 12am to 8am

      2nd Shift: 8am to 4pm

      3rd Shift: 4pm to 12am

   d. This allows the bridge to be operational on a 7 days/week, 365 days per year basis.

   e. When removing bridges: Once the bridge is removed Contractor is relieved of this responsibility; however, upon completion of the construction of the new bridge and until the new bridge is officially returned to the County, the contractor is obligated to operate the

bridge in accordance with the established USCG regulation.

f. Make immediate repairs of any damage to such structures caused by use or operations related to the work at no expense to the County, but do not provide routine repairs or maintenance. In the event that use or operations result in damage to a bridge requiring repairs, give such repairs top priority to any equipment, material, or labor available.

G. Traffic Control Officer.

1. Provide uniformed law enforcement officers, including marked law enforcement vehicles, to assist in controlling and directing traffic in the work zone as required by Engineer and when the following types of work is necessary on projects:

   a. Directing traffic/overriding the signal in a signalized intersection.

   b. When FDOT Design Standards, Index No. 655 Traffic Pacing for overhead work is called for in the Plans or approved by Engineer.

   c. When pulling conductor/cable above an open traffic lane on limited access facilities, when called for in the Plans or approved by Engineer.

   d. When FDOT Design Standards, Index No. 625 Temporary Road Closure 5 Minutes or Less is used.

H. Driveway Maintenance.

1. General: Ensure that each residence and business has safe, stable, and reasonable access.

2. Construction Methods:

   a. Place, level, manipulate, compact, and maintain the material, to the extent appropriate for the intended use.

   b. As permanent driveway construction is accomplished at a particular location, Contractor may salvage and reuse previously placed materials that are suitable for reuse on other driveways.

I. Temporary Traffic Control Devices.

1. Installation and Maintenance:

   a. Install and maintain temporary traffic control devices as detailed in the Plans, Index 600 of the FDOT Design Standards and when applicable, in accordance with the approved vendor drawings, as provided on FDOT's Approved Products List (APL) and the TSSQPL. Erect the required temporary traffic control devices to prevent any hazardous conditions and in conjunction with any necessary traffic re-routing to protect the traveling public, workers, and to safeguard the work area. Use only those devices that are on the FDOT APL and the TSSQPL. Immediately remove or cover any devices that do not apply to existing conditions.

   b. All temporary traffic control devices must meet the requirements of National Cooperative Highway Research Program Report 350 (NCHRP 350) or the Manual for Assessing Safety Hardware 2009 (MASH) and current FHWA directives.

   c. For devices requiring field assembly or special site preparation, vendor drawings shall include all field assembly details and technical information necessary for proper application and installation and must be signed and sealed by a Professional Engineer registered in the State of Florida.

   d. Ensure that the FDOT APL number is permanently marked on the device at a readily visible location. Sheeting used on devices is exempt from this marking requirement.

   e. Notify Engineer of any scheduled operation which will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit his review of the plan for the proposed installation of temporary traffic control devices.

   f. Ensure an employee is assigned the responsibility of maintaining the position and condition of all temporary traffic control devices throughout the duration of the Contract. Keep Engineer advised at all times of the identification and means of contacting this employee on a 24 hour basis.

   g. Keep temporary traffic control devices in the correct position, properly directed, clearly visible and clean, at all times. Ensure that all traffic control devices meet acceptable standards as outlined in American Traffic Safety Services Association (ATSSA) "Quality Guidelines for Temporary Traffic Control Devices and Features". Immediately repair, replace or clean damaged, defaced or dirty devices. Traffic control devices shall not be cleaned while installed/used. Use of warning lights on any temporary traffic control device is prohibited.

2. Work Zone Signs:

   a. Furnish, install, maintain, remove and relocate signs in accordance with the Plans and FDOT Design Standards, Index No. 600. Use signs that meet the material and process requirements of FDOT Section 994. Use Type IV sheeting for fluorescent orange work zone signs. Roll-up signs must meet the requirements of Type VI sheeting. Use Type IV or Type XI sheeting for all other work zone signs. Attach the sign to the sign support using hardware meeting the manufacturer's recommendations on the FDOT APL vendor drawings or as specified in the FDOT Design Standards.

      1) Post Mounted Signs:

         a) Meet the requirements of FDOT Section 990-8.

      2) Portable Signs:

         a) Use only approved systems, which includes sign stands and attachment hardware (nuts, bolts, clamps, brackets, braces, etc.), meeting the vendor requirements specified on the FDOT APL drawings.

         b) Provide Federal Highway Administration's (FHWA) accepted sign substrate for use with accepted sign stands on the National Highway System (NHS) under the provisions of the NCHRP Report 350 "Recommended

Procedures for the Safety Performance Evaluation of Highway Features."

3) Barrier Mounted Signs:

a) When post mounting criteria cannot be achieved in accordance with FDOT Design Standards, Index No. 600 and a barrier or traffic railing exists, use temporary sign criteria provided in FDOT Design Standards, Index No. 11871.

3. Business Signs:

a. Provide and place signs in accordance with the Plans and FDOT Design Standards, Index No. 600 series. Furnish signs having retroreflective sheeting meeting the requirements of FDOT Section 990.

4. High Intensity Flashing Lights:

a. Furnish Type B lights in accordance with the Plans and FDOT Design Standards.

5. Warning/Channelizing Devices:

a. Furnish warning/channelizing devices in accordance with the Plans and FDOT Design Standards.

b. Retroreflective Collars for Traffic Cones:

1) Use collars for traffic cones listed on the FDOT APL that meets the requirements of FDOT Section 990. Use cone collars at night designed to properly fit the taper of the cone when installed. Place the upper 6 inch collar a uniform 3-1/2 inches distance from the top of the cone and the lower 4 inch collar a uniform 2 inches distance below the bottom of the upper 6 inch collar. Ensure that the collars are capable of being removed for temporary use or attached permanently to the cone in accordance with the manufacturer's recommendations. Provide a white sheeting having a smooth outer surface and that has the property of a retroreflector over its entire surface.

c. Barrier Wall (Temporary):

1) Furnish, install, maintain, remove and relocate a temporary barrier wall in accordance with the Plans. Ensure that temporary concrete barrier wall for use on roadway sections, complies with FDOT Design Standards, Index Nos. 412, 415 or 414 as specified in the Plans. Ensure that temporary concrete barrier wall for use on bridge and wall sections, complies with FDOT Design Standards, Index No 414 as specified in the Plans.

2) Ensure that temporary water filled barrier wall used on roadway sections meets the NCHRP Report 350 criteria or the MASH and is listed on the FDOT APL. Barriers meeting the requirements of FDOT Design Standards, Index Nos. 412, 415 or temporary water filled barriers on the FDOT APL will not be accepted as an alternate to barriers meeting the requirements of FDOT Design Standards, Index No. 414.

3) Trailer mounted barriers listed on the FDOT APL may be used at the option of the Contractor. Trailer mounted barriers listed on the FDOT APL must have an FHWA eligibility letter and be successfully crash tested in accordance with MASH TL-3 criteria. All trailer mounted barriers must be equipped with an FDOT APL listed truck mounted attenuator, an FDOT APL listed vehicle mounted arrow board and vehicle warning lights in accordance with this Article

4) Temporary Barrier Wall Meeting the Requirements of Design Standards, Index Nos. 412 and 414:

a) Ensure the marking requirements of the respective Index are met.

5) Proprietary Precast Temporary Barrier Wall Fabricated prior to 2005:

a) Contractor must submit a certification stating that all unmarked barrier wall units meet the requirements of the Specifications and the FDOT Design Standards. Certifications will be project specific and non-transferable

6) Proprietary Precast Temporary Barrier Wall Fabricated in 2005 or later:

a) Ensure each wall unit has permanent clear markings, showing the manufacture date, serial number, manufacturer's name or symbol, and the FDOT APL number. Label the markings on a plate, plaque, or cast in the unit. Proprietary barrier wall fabricated prior to 2016 and marked with the "INDX 521" in lieu of the FDOT APL number will be permitted.

7) Glare Screen (Temporary):

a) Use temporary glare screens listed on the FDOT APL that meet the requirements of FDOT Section 990. Furnish, install, maintain, remove and relocate glare screen systems in conjunction with temporary barrier wall at locations identified in the Plans.

b) Ensure the anchorage of the glare screen to the barrier is capable of safely resisting an equivalent tensile load of 600 pounds per foot of glare screen, with a requirement to use a minimum of three fasteners per barrier section.

c) When glare screen is utilized on temporary barrier wall, warning lights will not be required.

8) Longitudinal Channelizing Devices (LCDs):

a) Furnish LCDs in accordance with the Plans and FDOT Design Standards. LCDs are categorized as vehicular or pedestrian and shall be interlocked. For LCDs requiring internal ballasting, an indicator that clearly identifies the proper ballast level will be required.

b) Use alternating orange and white pattern for solid color vehicular LCDs. Vehicular LCDs may be substituted for drums, vertical panels, or barricades.

6. Temporary Crash Cushion (Redirective/Gating):

a. Furnish, install, maintain and subsequently remove temporary crash cushions in accordance with the details and notes shown in the Plans, the FDOT Design Standards, and requirements of the pre-approved alternatives listed on the FDOT APL.

b. Maintain the crash cushions until their authorized removal. Repair all attachment scars to permanent structures and pavements after crash cushion removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the Department.

c. Restore crash cushions damaged by the traveling public within 24 hours after notification as authorized by Engineer.

7. Guardrail (Temporary):

a. Furnish guardrail (temporary) in accordance with the Plans and Design Standards. Meet the requirements of Article 536.

8. Arrow Board:

a. Furnish arrow boards that meet the requirements of FDOT Section 990 as required by the Plans and Design Standards to advise approaching traffic of lane closures or shoulder work.

b. Type B arrow boards may be used on low to intermediate speed (0 mph to 50 mph) facilities or for maintenance or moving operations on any speed facility.

c. Type C arrow boards shall be used for all other operations on high-speed (50 mph and greater) facilities and may be substituted for Type B arrow boards on any speed facility.

9. Portable Changeable Message Sign (PCMS):

a. Furnish PCMSs or truck mounted changeable message signs that meet the requirements of FDOT Section 990 as required by the Plans and FDOT Design Standards to supplement other temporary traffic control devices used in work zones.

10. Portable Regulatory Signs (PRS):

a. Furnish PRSs that meet the requirements of FDOT Section 990 as required by the Plans and FDOT Design Standards.

b. Activate portable regulatory signs only during active work activities and deactivate when no work is being performed.

11. Radar Speed Display Unit (RSDU):

a. Furnish RSDUs that meet the requirements of FDOT Section 990 as required by the Plans and FDOT Design Standards to inform motorists of the posted speed and their actual speed.

b. Activate the radar speed display unit only during active work activities and deactivate when no work is being performed.

12. Temporary Signalization and Maintenance:

a. Provide temporary signalization and maintenance at existing, temporary, and new intersections including but not limited to the following:

1) Installation of temporary poles and span wire assemblies as shown in the Plans,

2) Temporary portable traffic signals as shown in the Plans,

3) Adding or shifting signal heads,

4) Trouble calls,

5) Maintaining intersection and coordination timing and preemption devices.

b. Restore any loss of operation within 12 hours after notification.

c. Provide traffic signal equipment that meets the requirements of Article 603 of FDOT Design Standards. Engineer may approve used signal equipment if it is in acceptable condition. Replacement components for traffic signal cabinet assemblies will be provided by the maintaining agency.

13. Temporary Traffic Detection and Maintenance:

a. Provide temporary traffic detection and maintenance at existing, temporary, and new signalized intersections. Provide temporary traffic detection equipment listed on the FDOT APL. Restore any loss of detection within 12 hours. Ensure 90% accuracy per signal phase, measured at the initial installation and after any lane shifts, by comparing sample data collected from the detection system with ground truth data collected by human observation. Collect the sample and ground truth data for a minimum of five minutes during a peak and five minutes during an off-peak period with a minimum three detections for each signal phase. Perform the test in the presence of Engineer.

14. Truck Mounted Attenuators and Trailer Mounted Attenuators:

a. Furnish, install and maintain only those attenuators that meet the requirements of NCHRP 350 or the MASH.

b. Use truck mounted attenuators or trailer mounted attenuators, when called for in the FDOT Design Standards. Use attenuators listed on the FDOT APL.

c. When attenuators are called for, use either a truck mounted attenuator or a trailer mounted attenuator system designed and installed in accordance with the manufacturers recommendations.

d. Equip the attenuator cartridge with lights and reflectors in compliance with applicable Florida motor vehicle laws, including turn signals, dual tail lights, and brake lights. Ensure that lights are visible in both the raised and lowered positions if the unit is capable of being raised.

e. Install either alternating black with yellow or white with orange sheeting on the rear of trailer mounted attenuators and on truck mounted attenuators, in both the operating and raised position. Use Type III (work zone) or Type IV sheeting consisting of 4 or 6 inch wide stripes installed to form chevrons that point upward. All sheeting except black shall be retroreflective.

f. Attenuators will not be paid for separately. Include the cost of the truck with either a truck mounted attenuator or a trailer mounted attenuator under Maintenance of Traffic (General). Payment includes all costs, including furnishing, maintaining and removal when no longer required, and all materials, labor, tools, equipment and incidentals required for attenuator maintenance.

15. Temporary Raised Rumble Strip Sets:

a. When called for in the Plans, furnish, install, maintain, remove, and reinstall temporary raised rumble strip sets.

b. Install the temporary raised rumble strip sets per the manufacturer's recommendations and in accordance with FDOT Design Standards, Index No. 603.

c. The temporary raised rumble strip may be either a removable polymer striping tape or a molded engineered polymer material.

16. Automated Flagger Assistance Devices (AFAD):

a. Furnish, install, maintain, remove and relocate AFADs in accordance with the Plans and FDOT Design Standards. Position AFADs where they are clearly visible to oncoming traffic and out of the lane of traffic. The devices may be operated either by a single flagger at one end of the traffic control zone, from a central location, or by a separate flagger near each device's location.

b. AFADs may be either a remotely controlled Stop/Slow AFAD mounted on either a trailer or a movable cart system, or a remotely controlled Red/Yellow Lens AFAD.

c. AFADs will not be paid for separately. AFADs may be used as a supplement or an alternate to flaggers in accordance with FDOT Index 603. Include the cost for AFADs in Maintenance of Traffic (General).

17. Temporary Lane Separator:

a. Furnish, install, maintain, remove and relocate temporary lane separator in accordance with the Plans and FDOT Design Standards, Index No 600.

b. Anchor the portable temporary lane separator with a removable anchor bolt. Use epoxy on bridge decks where anchoring is not allowed. Remove the epoxy from the bridge deck by hydroblasting or other method approved by Engineer.

J. Work Zone Pavement Marking.

1. Description:

a. Furnish and install work zone pavement markings for MOT in construction areas and in close conformity with the lines and details shown in the Plans and FDOT Design Standards.

b. Centerlines, lane lines, edge lines, stop bars and turn arrows will be required in work zones prior to opening the road to traffic.

c. The most common types of work zone pavement markings are painted pavement markings and removable tape. Other types of work zone pavement markings may be identified in the Plans.

2. Painted Pavement Markings:

a. General: Use painted pavement markings meeting the requirements of Article 710. Use standard waterborne paint unless otherwise identified in the Plans or approved by Engineer.

3. Removable Tape:

a. General: Use removable tape listed on the FDOT APL and meeting the requirements of FDOT 990-4.

b. Application: Apply removable tape with a mechanical applicator to provide pavement lines that are neat, accurate and uniform. Equip the mechanical applicator with a film cut-off device and with measuring devices that automatically and accumulatively measure the length of each line placed within an accuracy tolerance of plus or minus 2%. Ensure removable tape adheres to the road surface. Removable tape may be placed by hand on short sections, 500 feet or less, if it is done in a neat accurate manner.

c. Retroreflectivity: Apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 300 mcd/lx·m2 for white and contrast markings and not less than 250 mcd/lx·m2 for yellow markings. Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m2. At the end of the six month service life, the retroreflectance of white and yellow removable tape shall not be less than 150 mcd/lx·m2.

d. Removability: Provide removable tape capable of being removed from bituminous concrete and portland cement concrete pavement intact or in substantially large strips, either manually or by a mechanical roll-up device, at temperatures above 40ºF, without the use of heat, solvents, grinding or blasting.

4. Temporary Retroreflective Pavement Markers (RPM's): Use markers listed on the FDOT APL and meeting the requirements of FDOT 990-5. Apply all markers in accordance with the FDOT Design Standards, Index Nos. 600 and 17352, prior to opening the road to traffic. Replace markers any time after installation when more than three consecutive markers fail or are missing, at no expense to the Department, in a timely manner, as directed by Engineer.

K. Method of Measurement.

1. General:

a. Devices installed/used on the Project on any calendar day or portion thereof, within the allowable Contract Time, including time extensions which may be granted, will be paid for at the Contract unit price for the applicable pay item, except those paid for as Maintenance of Traffic (General).

b. One or more of the following items may appear in a contract in addition to a direct payment item for Maintenance of Traffic (Lump Sum). Unless otherwise stipulated in the Contract Documents, only those items with an Awarded Unit Price will be considered for direct payment.

2. Traffic Control Officers:

a. The County will reimburse Contractor for the services of uniformed law enforcement officers authorized to serve as traffic control officers for the purpose of controlling or directing traffic in the work zone as part of the County approved Traffic Control Plan and Maintenance of Traffic provided by Contractor pursuant to the Contract Documents.

b. The quantity to be paid for will be the invoice unit price per hour for the actual number of officers certified to be on the project site, including any law enforcement vehicles and all other direct and indirect costs.

c. Payment will be made at invoice cost from an appropriate dedicated allowance established by the County.

d. Payment will be made only for those Traffic Control Officers specified in the Plans and authorized by the Engineer. The necessary invoices and documentation must be submitted to the Engineer along with the payment request.

3. Special Detours:

a. When a detour facility is specifically detailed in the Plans, or is otherwise described or detailed as a special item, and an item for separate payment is included in the proposal, the work of constructing, maintaining, and subsequently removing such detour facilities will be paid for separately. Traffic control devices, warning devices, barriers, signing, and pavement markings for special detours will also be paid for separately.

b. When the Plans show more than one detour, each detour will be paid for separately, at the Contract lump sum price for each.

c. Where a separate item for a specific detour facility is included in the proposal, payment will be made under special detour.

4. Commercial Material for Driveway Maintenance:

a. The quantity to be paid for will be the certified volume, in cubic yards, of all materials authorized by the Engineer, acceptably placed, compacted and maintained for driveway maintenance. The volume, which is authorized to be reused, and which is acceptably salvaged, placed, compacted and maintained in other designated driveways will be included again for payment.

b. Arrow Board: The quantity to be paid at the contract unit price will be for the number of arrow boards certified as installed/used on the project on any calendar day or portion thereof within the contract time.

5. Work Zone Signs:

a. The number of temporary post-mounted signs (temporary regulatory, warning and guide) certified as installed/used on the project will be paid for at the Contract unit price for work zone signs. When multiple signs are located on single or multiple posts, each sign panel will be paid individually. Signs greater than 20 square feet and detailed in the Plans will be paid for under Maintenance of Traffic (General).

b. Temporary portable signs (excluding mesh signs) and vehicular mounted signs will be included for payment under work zone signs, only if used in accordance with the FDOT Design Standards.

c. The number of temporary barrier mounted signs (temporary regulatory, warning and guide) certified as installed/used on the project will be paid for at the Contract unit price for barrier mounted work zone signs.

6. Business Signs:

a. The number of business signs certified as installed/used on the project will be paid for at the Contract unit price for business signs.

7. High Intensity Flashing Lights:

a. The number of high intensity flashing lights (Type B) certified as installed/used on the project will be paid for at the Contract unit price for high intensity flashing lights (temporary - Type B).

8. Channelizing Devices:

a. The number of drums, vertical panels, pedestrian LCDs, and Type I, Type II, Type III, or direction indicator barricades, certified as installed/used on the project meeting the requirements of FDOT Design Standards, Index No. 600 and have been properly maintained will be paid for at the Contract unit prices for channelizing device.

b. Payment for vehicular LCDs will be paid as the length in feet installed divided by the device spacing for barricades, vertical panels, and drums and certified as installed/used on the project meeting the requirements of FDOT Design Standards, Index No. 600 and have been properly maintained will be paid for at the Contract unit price for channelizing device.

c. Payment will not be made for channelizing devices unsatisfactorily maintained, as determined by the Engineer.

d. Payment will be made for each channelizing device that is used to delineate trailer mounted devices.

e. Payment will be made for channelizing devices delineating portable changeable message signs during the period beginning 14 working days before Contract Time begins as authorized by the Engineer.

9. Barrier Wall (Temporary):

a. The Contract unit price for barrier wall (temporary) will be full compensation for furnishing, installing, maintaining, and removing the barrier wall. When called for, the Contract unit price for barrier wall (temporary/relocate) will be full compensation for relocating the barrier. The certified quantity to be paid for will be determined by the number of sections times the nominal length of each section.

10. Barrier Delineators:

a. The number of barrier delineators, installed on top of barrier wall, used on the project, meeting the requirements of FDOT Design Standards and Article 705.

11. Lights, Temporary, Barrier Wall Mount:

a. The number of Type C steady burn lights, mounted on barrier wall, certified as installed/used on the project, meeting the requirements of the Design Standards and have been properly maintained will be paid for at the Contract unit price for lights temporary, barrier wall mount.

12. Glare Screen (Temporary):

a. The certified quantity to be paid for will be determined by the number of sections times the nominal length of each section.

13. Temporary Crash Cushions:

a. Redirective:

1) The quantity to be paid for will be the number of temporary crash cushions (redirective) certified as installed/used and maintained on the project, including object marker.

b. Gating:

1) The quantity to be paid for will be the number of temporary crash cushions (gating) certified as installed/used and maintained on the project, including object marker.

14. Temporary Guardrail:

a. The quantity to be paid for will be the length, in feet, of temporary guardrail constructed and certified as installed/used on the project. The length of a run of guardrail will be determined as a multiple of the nominal panel lengths.

15. Arrow Board:

a. The quantity to be paid at the Contract unit price will be for the number of arrow boards certified as installed/used on the project on any calendar day or portion thereof within the Contract time.

16. Portable Changeable Message Sign:

a. The quantity to be paid at the Contract unit price will be for the number of portable changeable message signs or truck mounted changeable message signs certified as installed/used on the project on any calendar day or portion thereof within the Contract time.

b. Payment will be made for each portable changeable message sign that is used during the period beginning fourteen working days before Contract Time begins as authorized by Engineer.

17. Portable Regulatory Signs:

a. The quantity to be paid for will be the number of portable regulatory signs certified as installed/used on the project on any calendar day or portion thereof within the Contract time, will be paid for the Contract unit price for portable regulatory sign.

18. Radar Speed Display Unit:

a. The quantity to be paid for will be the number of radar speed display units certified as installed/used on the project on any calendar day or portion thereof within the Contract Time, will be paid for the Contract unit price for radar speed display unit.

19. Temporary Signalization and Maintenance:

a. For existing intersections, the quantity to be paid for will be the number of signalized intersections per day for the full duration of the Contract. For temporary intersections, the quantity to be paid for will be the number of signalized intersections per day for the duration of the temporary intersection. No separate payment will be made for temporary signalization and maintenance at new intersections.

20. Temporary Traffic Detection and Maintenance:

a. For existing intersections, the quantity to be paid for will be the number of signalized intersections per day beginning the day Contract Time begins and ending the day the permanent detection is operational and the final lane configuration is in place. For temporary and new intersections, the quantity to be paid for will be the number of signalized intersections per day beginning the day the temporary detection is functional and ending the day the permanent detection is operational and the final lane configuration is in place for a new intersection; or, when the detection is removed for a temporary intersection.

21. Work Zone Pavement Markings:

a. The quantities, furnished and installed, to be paid for will be the length of skip and solid pavement markings, and the area of pavement markings placed as follows:

1) The total transverse distance, in feet, of skip pavement marking authorized and acceptably applied. The length of actual applied line will depend on the skip ratio of the material used. Measurement will be the distance from the beginning of the first stripe to the end of the last stripe with proper deductions made for unpainted intervals as determined by plan dimensions or stations, subject to the requirements of the Contract Documents.

2) The net length, in feet, of solid pavement marking authorized and acceptably applied.

3) The number of directional arrows or pavement messages authorized and acceptably applied.

4) The number of temporary RPM's authorized and acceptably applied.

22. Temporary Raised Rumble Strips:

a. The quantity to be paid for will be the number of temporary raised rumble strip sets certified as installed/used on the project on any calendar day or portion thereof within the Contract Time.

b. The number of strips used must meet the requirements of FDOT Design Standards, Index No. 603. No adjustment will be made to the per day measurement for the number of strips or sets used, or for the number of times the sets are relocated.

23. Temporary Lane Separator:

a. The quantity of temporary lane separator to be paid for will be plan quantity, in feet, including drainage gaps, completed and accepted.

L. Submittals.

1. Submittal Instructions:

a. Prepare a certification of quantities for certified MOT payment items for each project in the Contract. Submit the certification of quantities to Engineer. The

Department will not pay for any disputed items until Engineer approves the certification of quantities.

2. Contractor's Certification of Quantities:

   a. Request payment by submitting a certification of quantities as directed by Engineer, based on the amount of work done or completed. Ensure the certification consists of the following:

   b. Contract Number, Certification Date and the period that the certification represents.

   c. The basis for arriving at the amount of the progress certification, less payments previously made and less an amount previously retained or withheld. The basis will include a detail breakdown provided on the certification of items of payment in accordance with 102-M. After the initial setup of the MOT items and counts, the interval for recording the counts will be made weekly on the certification sheet unless there is a change. This change will be documented on the day of occurrence. Some items may necessitate a daily interval of recording the counts.

M. Basis of Payment.

1. Maintenance of Traffic (General):

   a. No Direct Payment Provided: When no item for direct payment of Maintenance of Traffic (Lump Sum) is provided by the Contract, the costs for performing all work and requirements specified under this Article, except as may be specifically covered for payment under other items, will be included among the various scheduled items of the Contract.

   b. Direct Payment Provided: When direct payment for Maintenance of Traffic (Lump Sum) is provided in the Contract, the quantity to be paid all work and costs specified under this Article, except as may be specifically covered for payment under other items, will be the lump sum Contract Price.

2. Additional items of Direct Payment. Only those items with an Awarded Unit Price will be considered for direct payment.

   a. Traffic Control Officers:

      1) Price and payment will be full compensation for the services of the traffic control officers at invoice cost as specified under subarticle 102.K.2 above.

   b. Special Detours:

      1) Price and payment will be full compensation for providing all detour facilities shown in the Plans and all costs incurred in carrying out all requirements of this Article for general MOT within the limits of the detour, as shown in the Plans.

   c. Commercial Materials for Driveway Maintenance:

      1) Price and payment will be full compensation for all work and materials specified for this item, including specifically all required shaping and maintaining of driveways.

   d. Work Zone Signs:

      1) Price and payment will be full compensation for all work and materials for furnishing signs, supports and necessary hardware, installation, relocating, maintaining and removing signs.

   e. Business Signs:

      1) Price and payment will be full compensation for all materials and labor required for furnishing, installing, relocating, maintaining, and removing the signs as well as the cost of installing any logos provided by business owners.

   f. High Intensity Warning Lights:

      1) Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing high intensity flashing lights (Type B).

   g. Channelizing Devices:

      1) Prices and payment will be full compensation for furnishing, installing, relocating, maintaining and removing the channelizing devices, including the costs associated with attached warning lights as required.

   h. Barrier Wall (Temporary):

      1) Price and payment will be full compensation for furnishing, installing, maintaining, and removing the barrier. When called for, barrier wall (temporary) (relocate) will be full compensation for relocating the barrier.

   i. Lights, Temporary, Barrier Wall Mount:

      1) Price and payment will be full compensation for all work and materials for furnishing, installing and maintaining the warning lights mounted on barrier wall. Payment will not be made for lights that are improperly placed or are not working.

   j. Barrier Delineators:

      1) No separate payment will be made for barrier delineators installed on top of temporary barrier wall. The cost of furnishing, installing and maintaining the barrier delineators will be included in the cost of the temporary barrier wall.

   k. Glare Screen (Temporary):

      1) Price and payment will be full compensation for furnishing, installing, maintaining, and removing the glare screen certified as installed/used on the project. When called for, glare screen (relocate) will be full compensation for relocating the glare screen.

   l. Temporary Crash Cushion (Redirective/Gating):

      1) Price and payment will be full compensation for furnishing, installing, maintaining and subsequently removing such crash cushions. Payment for restoring damaged crash cushions will be the manufacturer's/distributor's invoice price for the new materials/parts plus 20% markup. The 20% markup is compensation for all necessary work including; but not limited to, labor, equipment, supplies and profit, as authorized by Engineer.

Additional MOT required for the repair of the crash cushion will be paid for under the appropriate MOT pay item.

m. Temporary Guardrail:

1) Price and payment will be full compensation for furnishing all materials required for a complete installation, including end anchorage assemblies and any end connections to other structures and for installing, maintaining and removing guardrail.

n. Arrow Board:

1) Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing arrow boards.

o. Portable Changeable Message Sign:

1) Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing portable changeable message signs.

p. Portable Regulatory Signs:

1) Price and payment will be full compensation for furnishing, installing, relocating, maintaining and removing a completely functioning system as described in these Specifications portable regulatory signs. Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing portable regulatory signs.

2) Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and/or MOT operations.

q. Radar Speed Display Unit:

1) Price and payment will be made only for a completely functioning system as described in these specifications. Payment will include all labor, hardware, accessories, signs, and incidental items necessary for a complete system.

2) Payment will include any measurements needed to insure that the unit conforms to all specification requirements.

3) Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and/or MOT operations. Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing radar speed display unit.

r. Temporary Signalization and Maintenance:

1) Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing temporary traffic control signals including all equipment and components necessary to provide an operable traffic signal. Payment will be withheld for each day at each intersection where the temporary signalization is not operational within 12 hours after notification.

s. Temporary Traffic Detection and Maintenance:

1) Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing temporary traffic detection including all equipment and components necessary to provide an acceptable signalized intersection. Take ownership of all equipment and components. Payment will be withheld for each day at each intersection where the temporary detection is not operational within 12 hours after notification.

t. Temporary Raised Rumble Strips:

1) Price and payment will be full compensation for all work and materials described in this Article, including all cleaning and preparing of surfaces, disposal of all debris, furnishing of all materials, application, curing, removal, reinstalling and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.

u. Work Zone Pavement Markings:

1) Price and payment will be full compensation for all work specified including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

2) Removable tape may be substituted for work zone paint at no additional cost to the Department.

3) Payment for temporary RPMs used to supplement line markings will be paid for under temporary retroreflective pavement markers. Install these markers as detailed in the Design Standards.

v. Temporary Lane Separator:

1) Price and payment will be full compensation for all work specified in this Article.

3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

104 PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION (REV. 01-09-12)

A. Description.

1. Provide erosion control measures on the Project and in areas outside the right-of-way where work is accomplished in conjunction with the Project, so as to prevent pollution of water, detrimental effects to public or private property adjacent to the Project right-of-way, and damage to work on the Project.

2. Construct and maintain temporary erosion control features and, as required, construct and maintain permanent erosion control features as shown in the Plans or as may be directed by Engineer.

B. General.

1. Coordinate the installation of temporary erosion control features with the construction of the permanent erosion control features to the extent necessary to ensure economical, effective, and continuous control of erosion and water pollution throughout the life of the Contract.
2. Maintain, at the work site, copies of all documents referenced by this Specification including: the Departmental Stormwater Pollution Prevention Plan (if provided); the approved contractor Erosion Control Plan; and applicable inspection reports, permits and certifications. Document compliance with all requirements pertaining to the aforementioned documents and this Specification.
3. Engineer may direct, when warranted by unforeseen conditions, the use of control features or methods other than those included in the original Contract. In such event, the Department will pay for this additional work as unforeseeable work.

C. Control of Contractor's Operations Which May Result in Water Pollution.

1. Prevent pollution of streams, canals, lakes, reservoirs, and other water impoundments with fuels, oils, bitumens, calcium chloride, or other harmful materials.
2. Conduct and schedule operations to avoid or otherwise minimize pollution or siltation of such water impoundments, and to avoid interference with movement of migratory fish. Do not dump any residue from dust collectors or washers into any water body.
3. Restrict construction operations in rivers, streams, lakes, tidal waters, reservoirs, canals, and other water impoundments to those areas where it is necessary to perform filling or excavation to accomplish the work shown in the Plans and to those areas which must be entered to construct temporary or permanent structures. As soon as conditions permit, promptly clear rivers, streams, and impoundments of all obstructions placed therein or caused by construction operations.
4. Do not frequently ford live streams with construction equipment. Wherever an appreciable number of stream crossings are necessary at any one location, use a temporary bridge or other structure.
5. Except as necessary and authorized for Project construction, do not deposit excavated material in rivers, streams, canals, or impoundments, or in a position close enough thereto, to be washed away by high water or runoff.
6. Where pumps are authorized for use in removing highly turbid waters from enclosed construction areas such as cofferdams or forms, treat the water by one or more of the following methods prior to discharge into State waters:
   a. Pumping into grassed swales or appropriate vegetated areas or sediment basins.
   b. Confined by an appropriate enclosure such as turbidity barriers when other methods are not considered appropriate.
7. Do not disturb lands or waters outside the limits of construction as staked, except as authorized by Engineer.
8. Obtain Engineer's approval for the location of, and method of operation in, borrow pits, material pits, and disposal areas furnished for waste material from the project (other than commercially operated sources) such that erosion during and after completion of the work will not result in probability of detrimental siltation or water pollution.

D. Materials for Temporary Erosion Control.

1. Engineer will not require testing of materials used in construction of temporary erosion control features other than as provided for geotextile fabric in FDOT 985-3 unless such material is to be incorporated into the completed Project.
2. When no testing is required, Engineer will base acceptance on visual inspection.
3. Contractor may use new or used materials, subject to Engineer's approval, for the construction of temporary silt fence, staked turbidity barriers, and floating turbidity barrier not to be incorporated into the completed Project.

E. Erosion Control Plan.

1. Prepare the Erosion Control Plan (ECP) in a format acceptable to the Department and in accordance with the planned sequence of operations.
2. At the Preconstruction Conference, submit to the Department an ECP that:
   a. Meets the requirements or conditions of all permits authorizing construction of the Project. Where no permits are required or the approved permits do not contain conditions that specifically addresses erosion and water pollution, the requirements of the ECP will be governed by the Contract Documents and all applicable laws, rules, or regulations.
   b. Accompanies the Department's Stormwater Pollution Prevention Plan (SWPPP) when a SWPPP is provided for the Project.
   c. Includes and describes for each phase of construction operations or activities the following:
      1) Locations of all erosion control devices
      2) Types of all erosion control devices
      3) Estimated time erosion control devices will be in operation
      4) Monitoring schedules for maintenance of erosion control devices
      5) Methods of maintaining erosion control devices

6) Containment or removal methods for pollutants or hazardous wastes

7) The name and telephone number of the person responsible for monitoring and maintaining the erosion control devices.

d. Includes procedures to control off-site tracking of soil by vehicles and construction equipment and a procedure for cleanup and reporting of non-stormwater discharges.

e. Describes all phases of operations, the prevention, control, and abatement of erosion and water pollution items or activities necessary for the Project, to include:

1) Types and locations of all erosion control devices

2) Estimated time erosion control devices will be in operation

3) Monitoring schedules for maintenance of erosion control devices

4) Methods for maintaining erosion control devices

5) Containment or removal methods for pollution or hazardous wastes

6) Name and telephone number of the person responsible for monitoring and maintaining the erosion control devices.

3. Contractor must obtain Engineer's written approval of the ECP prior to commencing any construction activities.

4. For project requiring a Florida Department of Environmental Protection (FDEP) Generic Permit for Stormwater Discharge from Large and Small Construction Activities (Generic Permit):

a. Failure to sign any documents or certification statements required by the FDEP Generic Permit will be considered a default of the Contract.

b. Any soil disturbing activities performed without the required signed documents or certifications statements may be considered a violation of the FDEP Generic Permit.

F. Construction Requirements.

1. Limitation of Exposure of Erodible Earth:

a. Engineer may limit the surface areas of unprotected erodible earth exposed by the construction operation and may direct Contractor to provide erosion or pollution control measures to prevent contamination of any river, stream, lake, tidal waters, reservoir, canal, or other water impoundments or to prevent detrimental effects on property outside the Project right-of-way or damage to the Project.

b. Limit the area in which excavation and filling operations are being performed so that it does not exceed the capacity to keep the finish grading, turf, sod, and other such permanent erosion control measures current in accordance with the accepted schedule.

c. Do not allow the surface area of erodible earth that clearing and grubbing operations or excavation and filling operations expose to exceed 750,000 square feet without specific prior approval by Engineer. This limitation applies separately to clearing and grubbing operations and excavation and filling operations.

d. Engineer may increase or decrease the amount of surface area the Contractor may expose at any one time.

2. Incorporation of Erosion and Sediment Control Features:

a. Incorporate permanent erosion control features into the project at the earliest practical time. Use temporary erosion and sediment control features found in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (E&SC Manual) to correct conditions that develop during construction which were not foreseen at the time of design, to control erosion and sediment prior to the time it is practical to construct permanent control features, or to provide immediate temporary control of erosion and sediment that develops during normal construction operations, which are not associated with permanent erosion control features on the project. An electronic version of the E&SC Manual can be found at the following URL: http://www.dot.state.fl.us/specificationsoffice/Implemented/URLinSpecs/Files/FLErosionSedimentManual060709.pdf

b. Install all sediment control devices in a timely manner to ensure the control of sediment and the protection of lakes, streams, gulf or ocean waters, or any wetlands associated therewith and to any adjacent property outside the right-of-way as required.

c. At sites where exposure to such sensitive areas is prevalent, complete the installation of any sediment control device prior to the commencement of any earthwork.

d. After installation of sediment control devices, repair portions of any devices damaged at no expense to the Department. Engineer may authorize temporary erosion and sediment control features when finished soil layer is specified in the Contract and the limited availability of that material from the grading operations will prevent scheduled progress of the work or damage the permanent erosion control features.

3. Scheduling of Successive Operations:

a. Schedule operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations, and the duration of exposure of uncompleted construction to the elements is as short as practicable.

b. Schedule and perform clearing and grubbing so that grading operations can follow immediately thereafter. Schedule and perform grading operations so that permanent erosion control features can follow immediately thereafter if conditions on the project permit.

4. Details for Temporary Erosion and Sediment Control Features:

a. General: Use temporary erosion, sediment and water pollution control features found in the E&SC Manual.

These features consist of, but are not limited to, temporary turf, rolled erosion control products, sediment containment systems, runoff control structures, sediment barriers, inlet protection systems, silt fences, and turbidity barriers. For design details for some of these items, refer to the Plans, the FDOT Design Standards and E&SC Manual.

b. Temporary Sod: Engineer may designate certain areas of sod constructed in accordance with the Specifications as temporary erosion control features. For areas not defined as sod, constructing temporary turf by seeding only is not an option for temporary erosion control under this Article. Engineer may waive the turf establishment requirements of the Specifications for areas with temporary sod that will not be a part of the permanent construction. The work of placing temporary sod, approved as a temporary erosion control feature where directed by Engineer and in accordance with these Specifications, will be paid for as unforeseeable work.

c. Runoff Control Structures: Construct runoff control structures in accordance with the details shown in the Plans, the E&SC Manual, or as may be approved as suitable to adequately perform the intended function.

d. Sediment Containment Systems: Construct sediment containment systems in accordance with the details shown in the Plans, the E&SC Manual, or as may be approved as suitable to adequately perform the intended function. Clean out sediment containment systems as necessary in accordance with the Plans or as directed.

e. Sediment Barriers: Provide and install sediment barriers according to details shown in the Plans, as directed by Engineer, or as shown in the E&SC Manual to protect against downstream accumulation of sediment. Sediment Barriers include, but are not limited to synthetic bales, silt fence, fiber logs and geosynthetic barriers. Reusable barriers that have had sediment deposits removed may be reinstalled on the Project as approved by Engineer.

f. Silt Fence:

1) General: Furnish, install, maintain, and remove silt fences, in accordance with the manufacturer's directions, these Specifications, the details as shown on the Plans, the FDOT Design Standards, and the E&SC Manual.

2) Materials and Installation: Use a geotextile fabric made from woven or nonwoven fabric, meeting the physical requirements of FDOT Section 985 according to those applications for erosion control. Choose the type and size of posts, wire mesh reinforcement (if required), and method of installation. Do not use products which have a separate layer of plastic mesh or netting. Provide a durable and effective silt fence that controls sediment comparable to the FDOT Design Standards and the E&SC Manual. Erect silt fence at upland locations, across ditch lines and at temporary locations shown on the plans or approved by Engineer where continuous construction activities change the natural contour and drainage runoff. Do not attach silt fence to existing trees unless approved by Engineer.

3) Inspection and Maintenance: Inspect all silt fences immediately after each rainfall and at least daily during prolonged rainfall. Immediately correct any deficiencies. In addition, make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, install additional silt fences as directed by Engineer. Remove sediment deposits when the deposit reaches approximately 1/2 of the volume capacity of the silt fence or as directed by Engineer. Dress any sediment deposits remaining in place after the silt fence is no longer required to conform with the finished grade, and prepare them in accordance with the Contract Documents and as directed by Engineer.

4) Operate turbidity barriers in such a manner to avoid or minimize the degradation of the water quality of the surrounding waters and minimize damage to areas where floating barriers installed.

g. Inlet Protection System: Furnish and install inlet protection systems as shown in the Plans, FDOT Design Standards and the E&SC Manual.

h. Rolled Erosion Control Products (RECPs):

1) General: Install RECPs in locations where temporary protection from erosion is needed. Two situations occur that require artificial coverings each having differing material requirements.

a) Temporary pauses in construction: Use RECPs composed of natural or synthetic fiber mats, plastic sheeting, or netting as protection against erosion, when directed by Engineer, during temporary pauses in construction caused by inclement weather or other circumstances. Remove the material when construction resumes.

b) Facilitating plant growth: Use RECPs as erosion control blankets, at locations shown in the plans, to facilitate plant growth while permanent grassing is being established. For the purpose described, use non-toxic, biodegradable, natural or synthetic woven fiber mats. Install erosion control blankets capable of sustaining a maximum design velocity of 6.5 ft/sec as determined from tests performed by Utah State University, Texas Transportation Institute or an independent testing laboratory approved by the Department. Furnish to Engineer, two certified copies of manufacturers test reports showing that the erosion control blankets meet the requirements of this Specification. Certification must be attested, by a person having legal authority to bind the manufacturing company. Also, furnish two 4 by 8 inch samples for product identification. The manufacturers test records shall be made available to the Department upon request. Leave the material in place, as installed, to biodegrade.

5. Removal of Temporary Erosion Control Features: In general, remove or incorporate into the soil any temporary erosion control features existing at the time of

construction of the permanent erosion control features in an area of the Project in such a manner that no detrimental effect will result. Engineer may direct that temporary features be left in place.

G. Maintenance of Erosion and Sediment Control Features.

1. General: Provide routine maintenance of permanent and temporary erosion and sediment control features, at no expense to the Department, until the Project is complete and accepted. If reconstruction of such erosion and sediment control features is necessary due to Contractor's negligence or carelessness or, in the case of temporary erosion and sediment control features, failure by the Contractor to install permanent erosion control features as scheduled, Contractor must replace such erosion control features at no expense to the Department. If reconstruction of permanent or temporary erosion and sediment control features is necessary due to factors beyond the control of Contractor, the Department will pay for replacement under the appropriate Contract pay item or items.
2. Inspect all erosion and sediment control features at least once every seven calendar days and within 24 hours of the end of a storm of 0.50 inches or greater. Maintain all erosion control features as required in the SWPPP, Contractor's ECP, the E&SC Manual, and as specified in the State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

H. Protection During Suspension of Contract Time.

1. If it is necessary to suspend the construction operations for any appreciable length of time, shape the top of the earthwork in such a manner to permit runoff of rainwater, and construct earth berms along the top edges of embankments to intercept runoff water. Provide temporary slope drains to carry runoff from cuts and embankments that are in the vicinity of rivers, streams, canals, lakes, and impoundments. Locate slope drains at intervals of approximately 500 feet, and stabilize them by paving or by covering with waterproof materials. Should such preventive measures fail, immediately take such other action as necessary to effectively prevent erosion and siltation. Engineer may direct Contractor to perform, during such suspensions of operations, any other erosion and sediment control work deemed necessary.

I. Method of Measurement.

1. Direct Payment Provided:
   a. When separate items for temporary erosion control features are included in the Contract and have awarded Contract prices, the quantities to be paid for will be the:
      1) Area, in square yards, of Rolled Erosion Control Products.
      2) Length, in feet, of Runoff Control Structures, measured along the surface of the work constructed.
      3) Number of Sediment Containment Systems constructed and accepted.
      4) Number of Sediment Containment System Cleanouts accomplished and accepted.
      5) Length, in feet, of Sediment Barriers.
      6) Length, in feet, of Floating Turbidity Barrier.
      7) Length, in feet, of Staked Turbidity Barrier.
      8) Number of inlet protection systems.
   b. Upon acceptance by the Engineer, the quantity of floating turbidity barriers, sediment barriers, staked turbidity barriers, and inlet protection devices will be paid for regardless of whether materials are new, used, or relocated from a previous approved installation on the Project.
2. No Direct Payment Provided: Unless otherwise specified, when no item for direct payment of temporary erosion control features is provided by the Contract, the costs for performing all work and meeting the requirements of this Article will be included among the various scheduled items of the Contract.

J. Basis of Payment.

1. Prices and payments will be full compensation for all work specified in this Article, including construction and routine maintenance of temporary erosion control features.
2. Any additional costs resulting from compliance with the requirements of this Article, other than construction, routine maintenance, and removal of temporary erosion control features, will be included in the Contract unit prices for the item or items to which such costs are related.
3. Separate payment will not be made for the cost of constructing temporary earth berms along the edges of the roadways to prevent erosion during grading and subsequent operations. Contractor must include these costs in the Contract prices for earthwork items.
4. Additional temporary erosion control features constructed as directed by Engineer will be paid for as unforeseeable work.
5. In case of repeated failure on the part of Contractor to control erosion, pollution, or siltation, Engineer reserves the right to employ outside assistance or to use the Department's own forces to provide the necessary corrective measures. Any such costs incurred, including engineering costs, will be charged to Contractor and appropriate deductions made from the monthly progress estimate.
6. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

105 CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS (REV. 08-23-12)

A. General.

1. Submit to Engineer a Contractor's Quality Control Plan (CQCP) meeting the requirements stipulated in this Article and that addresses the transportation, storage, placement, sampling, inspection of Contract materials and related construction operations; and to ensure that all work and material incorporated into the Project meet the requirements of the Contract Documents.
2. Comply with all personnel qualification requirements stipulated in this Article and elsewhere in the Contract Documents.

B. Guidelines for Development of the CQCP

1. Use the following guidelines for developing the CQCP and include other additional items as necessary.
   a. General. Provide detailed policies, methods and procedures to ensure the specified quality of all applicable materials and related production and field operations.
   b. Process control testing. List the material to be tested by pay item, tests to be conducted, the location of sampling, and the frequency of testing.
   c. Inspection/control procedures. Address each of the following subjects in each phase of construction:
      1) Preparatory phase.
         a) Review all Contract requirements.
         b) Ensure compliance of component material to the Contract requirements.
         c) Coordinate all submittals including certifications.
         d) Ensure capability of equipment and personnel to comply with the Contract requirements.
         e) Ensure preliminary testing is accomplished.
         f) Coordinate surveying and staking of the work.
      2) Start-up phase.
         a) Review the Contract requirements with personnel performing the work.
         b) Inspect start-up of work.
         c) Establish standards of workmanship.
         d) Provide training as necessary.
         e) Establish detailed testing schedule based on the production schedule.
      3) Production phase.
         a) Conduct intermittent or continuous inspection during construction to identify and correct deficiencies.
         b) Inspect completed work before requesting Engineer inspection acceptance.
         c) Provide feedback and system changes to prevent repeated deficiencies.
   d. Description of records. List the records to be maintained.
   e. Personnel qualifications.
      1) Identify the primary contact that will communicate with the Department. Identify roles and responsibilities of the personnel involved in the Quality Control (QC) process. Document the name, authority, relevant experience, and qualifications of person with overall responsibility for the inspection system.
      2) Document the names, authority, and relevant experience of all personnel directly responsible for inspection and testing.
      3) Submit the Training Identification Numbers (TINs) or any other information which will be traceable to the certification agency's training location and dates for all technicians performing sampling, testing and inspection for both field and laboratory tests. Provide the names of the Florida Department of Transportation's Construction Training and Qualification Program (CTQP) certifications and other pertinent certifications held and the expiration dates for each certification for each technician. Include employed and subcontracted technicians.
   f. Subcontractors.
      1) Include the work of all subcontractors.
      2) If a subcontractor is to perform work subject to the requirements of this Article, detail how that subcontractor will interface with Contractor's and other subcontractor's organizations.
   g. Raw Materials:
      1) Source: Identify the sources of raw materials. Provide locations and plant or mine numbers when applicable. Include the mailing address, physical address including county of the plant, telephone and fax numbers, E-mail address, primary contact at the plant, responsible person in charge, facility number provided by the FDOT, Owner information and Vendor Number and other information as required.
      2) Certification: Describe methods of verifying compliance of certification with the Specifications.
      3) Disposition of Failing Materials: Describe the system for controlling non-conforming materials, including procedures for identification, isolation and disposition.
      4) Storage Facilities for Raw Materials: Describe measures and methods, including bedding details, for preventing segregation, contamination and degradation.
      5) Describe methods of identifying individual materials. Where applicable, submit a site plan showing the locations of various materials.
   h. Production Equipment: Describe calibration frequencies, maintenance schedule and procedures for production equipment.
   i. Other Requirements:
      1) Copy of Certification: Attach certifications issued by the plant/Contractor for the products approved by the FDOT that will be used in the Project.

2) Statement of Compliance: Include a statement of compliance with all quality requirements set forth by the Department in the Contract Documents.

3) Information on Producers with Accepted FDOT Quality Control Programs: All producers of materials listed herein in Subarticle 105-G.1 must have FDOT accepted QC Programs and be listed on the FDOT's List of Producers with Accepted QC Programs. Identify the Producers of materials for the Project and include the FDOT's Facility Id number as part of the identification.

4) Describing Documentation Procedure: Identify location of document storage to enable Department review. Include QC charts, qualification/accreditation records, inspection reports, and other pertinent/supporting documents for an approved CQCP.

j. Final Manufactured Product - Plant Operations: Describe inspection schedule and methods for identifying defects and non-compliance with the specifications. Describe corrective actions and methods to resolve them.

1) Storage: When storage of the produced materials is required and it is not defined in the Contract Documents, describe the methods and duration for storage. Include measures and methods for preventing segregation, contamination and degradation during storage.

2) Disposition of Failing Materials: When not described in the specifications, describe the methods and measures for identifying and controlling the failing materials. Include preventive and corrective measures. Describe disposition of failing materials.

k. Final Manufactured Product - Field Operations:

1) Transportation: Describe the method of delivery from the point of production/storage to the point of placement.

2) Storage: When storage of the produced materials is required and it is not defined in the Contract Documents, describe the methods and duration for storage. Include measures and methods for preventing segregation, contamination and degradation during storage.

3) Placement: Describe the methods and identify the type of equipment used in incorporation of the materials into the project.

4) Disposition of Failing Materials: When not described in the specifications, describe the methods and measures for identifying and controlling the failing materials. Include preventive and corrective measures. Describe disposition of failing materials.

C. Quality Control Plan Submittal.

1. Submit the CQCP to Engineer for approval within 21 days after the Contract Award or at the Preconstruction Conference, whichever is sooner. Do not incorporate materials into the Project or begin any work subject to the CQCP prior to Engineer's acceptance of the CQCP.

2. Modifications or additions may be required to any part of the CQCP that is not adequately covered. Acceptance of the CQCP will be based on the inclusion of the required information. Acceptance does not imply any warranty by the County that the CQCP will result in consistent contract compliance. It remains the responsibility of Contractor to demonstrate such compliance.

3. If at any time Contractor is not in compliance with the approved CQCP, or a part thereof, affected portions of the CQCP will be disapproved. Cease work in the affected operation(s) and submit a revision to Engineer. If the CQCP, or a part thereof, must be revised, submit the revision to Engineer. Engineer will review the revision and respond within seven calendar days of receipt.

4. Continue to work on operations that are still in compliance with the approved sections of the CQCP.

5. As work progresses, submit to Engineer for acceptance supplementary documentation to the CQCP whenever quality control or quality control personnel changes are necessary.

D. Quality Control Documentation.

1. Maintain complete testing and inspection records by pay item number and make them accessible to Engineer. When or where required, submit the record and certification within one working day of the work being performed. If the record is incomplete, in error, or otherwise misleading, a copy of the record will be returned with corrections noted. When chronic errors or omissions occur, correct the procedures by which the records are produced.

2. Submission of Materials Certification and Reporting Test Results: Provide certifications prior to placement of materials. Report test results at completion of the test and meet the requirements of the applicable Specifications.

3. Worksheets: Make available to the Department, when requested, worksheets used for collecting test information. Ensure the worksheets at a minimum contain the following:

a. Project Identification Number,
b. Time and Date,
c. Laboratory Identification and Name,
d. Training Identification Numbers (TIN) and initials,
e. Record details as specified within the test method.

4. Inspections to Assure Compliance with Acceptance Criteria.

a. General: The Department is not obligated to make an inspection of materials at the source of supply, manufacture, or fabrication.

b. Quality Control Inspection: Provide all necessary inspection to assure effective Quality Control of the operations related to materials acceptance. This includes but is not limited to sampling and testing,

production, storage, delivery, construction and placement. Ensure that the equipment used in the production and testing of the materials provides accurate and precise measurements in accordance with the applicable Specifications. Maintain a record of all inspections, including but not limited to, date of inspection, results of inspection, and any subsequent corrective actions taken. Make available to the Department the inspection records, when requested.

c. Notification of Placing Order:

1) Order materials sufficiently in advance of their incorporation in the work to allow time for sampling, testing and inspection. Notify Engineer, prior to placing orders for materials.

2) Submit to Engineer a fabrication schedule for all items requiring commercial inspection, before or at the preconstruction meeting. These items include, but are not limited to steel bridge components, overhead cantilevered sign supports with cantilevered arms exceeding 41 feet, moveable bridge components or any other item identified as an item requiring commercial inspection in the Contract Documents.

3) Notify Engineer at least 30 days before beginning any production and include a production schedule.

E. Contractor Certification of Compliance.

1. Provide Engineer with a notarized monthly certification of compliance with the requirements of this Article, to accompany each progress estimate, on a form acceptable by Engineer. The Department may not authorize payment of any progress estimate not accompanied by an executed certification document.

2. Final payment will not be made until a final notarized certification summarizing all QC exceptions has been submitted.

F. Personnel Qualifications.

1. General:

a. Provide qualified personnel for sampling, testing and inspection of materials and construction activities. Ensure that qualifications are maintained during the course of sampling, testing and inspection.

b. Construction operations that require a qualified technician must not begin until Engineer verifies that the technician is on the FDOT CTQP list of qualified technicians.

2. QC Manager:

a. Designate a QC Manager who has full authority to act as Contractor's agent to institute any and all actions necessary for the successful implementation of the CQCP. The QC Manager must speak and understand English. The QC Manager must be on-site at the Project on a daily basis or always available upon four hours notice to administer the CQCP. This includes administering, implementing, monitoring, and as necessary, adjusting the processes to ensure compliance with the Contract Documents. Ensure that the QC Manager is qualified as such through the FDOT CTQP.

b. Under the direction of the QC Manager, and using standard forms approved by Engineer, summarize the daily QC activities including testing and material sampling. Since erasures are strictly prohibited on all reports and forms, use blue or colored ink. Do not use black ink. If manual corrections to original data are necessary, strike through, correct, and date the entry, including the initials of the person making the correction. Make copies of the completed forms available for the Department to review daily unless otherwise required in the specifications. Maintain all QC related reports and documentation for a period of three years from final acceptance of the Project. Make copies available for review by the Department upon request.

3. Worksite Traffic Supervisor:

a. Provide a Worksite Traffic Supervisor who is responsible for initiating, installing, and maintaining all traffic control devices as described in Article 102 (Maintenance of Traffic) and in the Contract Documents. Ensure that the Worksite Traffic Supervisor is certified in the advanced training category by a FDOT approved training Provider. Approved Providers will be posted on the FDOT's website at the following URL address:

1) http://www.dot.state.fl.us/rddesign/MOT/MOT.shtm

b. Use approved alternate Worksite Traffic Supervisors when necessary.

4. Flagger: Provide trained flaggers to direct traffic where one-way operation in a single lane is in effect and in other situations as required. The Worksite Traffic Supervisor or others as approved by the Department will provide training for flaggers.

5. Earthwork Quality Control Personnel:

a. Earthwork Level I: Ensure the technician who samples soil and earthwork materials from the roadway project, takes earthwork moisture and density readings, and records those data in the Density Log Book holds a CTQP Earthwork Construction Inspection Level I qualification.

b. Earthwork Level II: Ensure the technician responsible for determining the disposition of soil and earthwork materials on the roadway, and for interpreting and meeting Contract Document requirements holds a CTQP Earthwork Construction Inspection Level II qualification.

6. Asphalt Quality Control Personnel:

a. Plant Technicians: For asphalt plant operations, provide a QC technician, qualified as a CTQP Asphalt Plant Level II technician, available at the asphalt plant at all times when producing mix for the Department. Perform all asphalt plant related testing with a CTQP Asphalt Plant Level I technician. As an exception, measurements of temperature may be performed by someone under the supervision of a CTQP Plant Level II technician.

b. Paving Technicians: For paving operations (with the exception of miscellaneous or temporary asphalt),

keep a qualified CTQP Asphalt Paving Level II technician on the roadway at all times when placing asphalt mix for the Department, and perform all testing with a CTQP Asphalt Paving Level I technician. As an exception, measurements of cross-slope, temperature, and yield (spread rate) can be performed by someone under the supervision of a CTQP Paving Level II technician at the roadway.

c. Mix Designer: Ensure all mix designs are developed by individuals who are CTQP qualified as an Asphalt Hot Mix Designer.

d. Documentation: Document all QC procedures, inspection, and all test results and make them available for review by Engineer throughout the life of the Contract. Identify in the asphalt producer's Quality Control Plan the Quality Control Manager(s) and/or Asphalt Plant Level II technician(s) responsible for the decision to resume production after a quality control failure.

7. Concrete QC Personnel:

a. Concrete Field Technician - Level I: Ensure technicians performing plastic property testing on concrete for materials acceptance are qualified CTQP Concrete Field Technicians Level I. Plastic property testing will include but not be limited to slump, temperature, air content, water-to-cementitious materials ratio calculation, and making and curing concrete cylinders. Duties will include initial sampling and testing to confirm specification compliance prior to beginning concrete placements, ensuring timely placement of initial cure and providing for the transport of compressive strength samples to the designated laboratories.

b. Concrete Field Inspector - Level II: Ensure field inspectors responsible for the quality of concrete being placed on major bridge projects are qualified CTQP Concrete Field Inspectors Level II. A Level II Inspector must be present on the jobsite during all concrete placements. Prior to the placement of concrete, the inspector will inspect the element to be cast to ensure compliance with Contract Documents. A Level II Inspector's duties may include ensuring that concrete testing, inspection, and curing in the field are performed in accordance with the Contract Documents. The QC Inspector will inform the Verification Inspector of anticipated concrete placements and LOT sizes.

c. Concrete Laboratory Technician:

1) Concrete Laboratory Technician - Level I: Ensure technicians testing cylinders and recording concrete strength for material acceptance are qualified CTQP Concrete Laboratory Technicians Level I. Duties include final curing, compressive strength testing, and the recording/reporting of all test data.

2) Concrete Laboratory Technician – Level II: Ensure that laboratories providing hardened property test results to the Department are under the supervision of a CTQP Concrete Laboratory Technician - Level II. This person is responsible to ensure that the tests are performed in accordance with Standard Test Methods, project specifications and other contract documents.

8. Pipe and Precast Concrete Products Manufacturing Facilities Quality Control Personnel:

a. General: Obtain personnel certifications from FDOT accredited training providers. The list of FDOT approved courses and their accredited providers is available on the State Materials Office website.

b. Precast Concrete Drainage Structures, Precast Concrete Box Culvert, Precast Concrete Pipe, Incidental Precast Concrete, and Flexible Pipe Manufacturing Facilities Quality Control Personnel:

1) Level I Quality Control Inspectors: Ensure that the Level I Inspectors have completed a minimum of a 12-hour, Department approved, Level I QC Inspector training course in the respective work area. As an exception to this, ensure Flexible Pipe Level I QC Inspectors have completed a minimum of an 8-hour, Department approved, Level I QC Flexible Pipe Inspector training course. For Incidental Precast Concrete, as an alternative to the completion of the 12-hour training course, the Department will accept QC personnel meeting the requirements of Subarticle 105-F.11.b.4)a) below and CTQP Concrete Field Technician level I certification or Precast/Prestressed Concrete Institute (PCI) Quality Control Technician/Inspector Level II certification.

2) Level II Quality Control Inspectors: Ensure that Level II Inspectors have completed FDOT approved Level I QC Inspector training and a minimum of a 5-hour, FDOT approved, Level II QC Inspector training course in the respective work areas. For Incidental Precast Concrete, as an alternative to the completion of the 5-hour training course, the Department will accept CTQP Concrete Field Technician Level II or PCI Quality Control Level III certifications.

3) Plant Quality Control Manager: Ensure that QC Manager has completed FDOT approved Level II QC Inspector training and has a minimum of 2 years construction related experience in the specific work area.

4) Additional Requirements for Quality Control Personnel of Precast Concrete Drainage, Precast Concrete Box Culvert, and Incidental Precast Concrete Manufacturing Facilities:

a) Testing Personnel: Ensure the personnel performing plastic property tests have ACI Concrete Field Testing Technician-Grade I certification. Ensure the personnel performing laboratory compressive strength testing have ACI Concrete Laboratory Testing Technician-Grade 1 certification or ACI Concrete Strength Testing Technician certification.

b) Batch Plant Operator: Ensure the concrete batch plant operator is qualified as a CTQP Concrete Batch Plant Operator. As an alternative to CTQP qualification, the Department will accept the completion of a

minimum of a 6-hour, FDOT approved, Batch Plant Operator training course.

107 LITTER REMOVAL AND MOWING (REV. 11-25-2015)

A. Description.

1. Contractor to be responsible for the work below in areas where the County or the property owner has restricted or limited access to maintain the property.

   a. Provide pickup, removal and disposal of litter within the project limits from the outside edge of travel way to the right of way line. Include the median on divided highways, from the inside edge of travel way to the inside edge of travel way. Litter includes; but is not limited to, bottles, cans, paper, tires, tire pieces, lumber, vehicle parts, metal junk, and brush debris. Exclude any inaccessible areas or areas identified in the Plans as new landscaping in accordance with the Contract Documents.

   b. Mow turf or vegetation within the project limits. Turf consists of grasses planted in accordance with FDOT Section 570. Vegetation consists of planted and natural grasses, weeds, and other natural vegetation that have been previously mowed. Exclude any areas identified in the Plans as new landscaping in accordance with the Contract Documents.

B. Operation.

1. Frequency:

   a. Remove litter daily from the beginning of the project until final completion, unless otherwise directed by the Engineer. Continue litter removal until final acceptance.

   b. Begin mowing when directed by the Engineer and continue per the frequency agreed, (every month or less depending of the weather season) unless otherwise directed by the Engineer. Mow all areas to obtain a uniform height of 6 inches. Maintain turf and vegetation height between 6 inches and 12 inches. Do not include seed stalk or wildflowers when measuring height. Continue mowing until final acceptance. After final acceptance perform litter removal and mowing until new turf is established in accordance with FDOT 570-4 at no cost to the County.

   c. Perform litter removal prior to and in conjunction with mowing; however, the Engineer may direct litter pickups in addition to those performed in conjunction with mowing. Do not mow new turf until a healthy root system is established. In designated wildflower areas, avoid cutting wildflowers when in bloom and when re-seeding.

2. General:

   a. Mow shoulders and medians concurrently so that not more than one mile will be left partially mowed at the conclusion of the working day. Mow turf and vegetation on slopes or around appurtenances concurrent with the mowing operation. In areas saturated with standing water, mow or cut to the surface of the water using hand labor or other specialized equipment when standard equipment will cause damage. Do not remove turf or other vegetation cuttings from the right-of-way, or rake or pick up the cuttings unless the cuttings are in the traveled ways, bike lanes, or sidewalk; are obstructing drainage structures; or are the result of cleaning the equipment.

3. Limitations:

   a. Maintain traffic in accordance with Article 102-Maintenance of Traffic. When mowing within four feet of a travel lane, operate the equipment in the same direction of traffic, unless the adjacent lane is closed to traffic due to construction operations. Perform all work during daylight hours.

4. Disposal of Litter and Debris:

   a. During each litter removal cycle, bag and remove all litter or piles at the end of each working day. Dispose of litter in accordance with applicable local and state laws. Do not store or stockpile litter within the project limits.

C. Method of Measurement.

1. No measure is included for litter removal or mowing.

D. Basis of Payment.

1. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

109 FIELD OFFICE (REV. 11-9-15)

A. Description:

1. This section specifies the furnishing, installing, and maintaining of a field office for the exclusive use of the Engineer and Miami-Dade County (MDC) in the administration of the Contract. The aforementioned office shall be separated from, but in close proximity to the Contractor's office. The Contractor shall not use this office or its equipment, in particular the telephone.

2. In the event a mobile office unit cannot be used, the Engineer may direct the Contractor to forgo the aforementioned mobile office unit and instead provide a Field Office located in available commercial space within close proximity to the project site. It shall be the responsibility of the Contractor to identify said availability and to secure the required office space upon the Engineers written approval. All of the requirements and conditions, set forth herein regarding the Field Office Article, shall remain unless otherwise specifically provided in writing from the Engineer.

3. Contractor will provide a proposed field office layout and location to the Engineer for his review within 5 days of the issuance of the "Notice to Proceed." The location of the field office shall be as directed by the Engineer. The Field Office shall be located within one (1) mile from the project site.

4. Utilities, potable water and telephone connection, use and service charges shall be paid by the Contractor during the term of the contract. Long distance calls, made by MDC personnel, will be the responsibility of MDC. (Telephone calls to Monroe, Broward and Palm Beach Counties will not be considered as long distance).

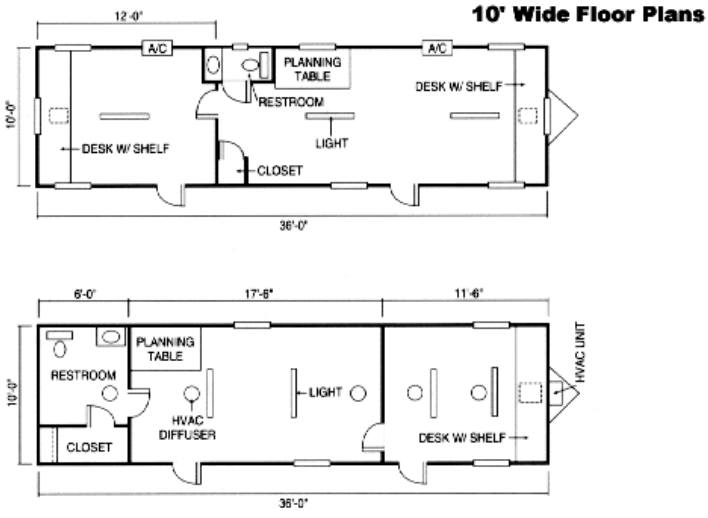
5. No work shall commence until the Field Office is completely set up. Including electricity, functioning telephone/internet and air conditioning along with the appropriate Certificate of Occupancy. No exception will be made unless specifically authorized by the Engineer.

B. Products

1. Field Office

a. Furnish and install one (1) new, factory manufactured, mobile field office unit not less than 10'X36'. Floor space shall be divided and shall include no less than one restroom and one private office. The private office shall be approximately 120 square feet. The Mobile Unit layout shall be consistent with either of the diagrams below. The private office will be located at an end of the mobile unit.

b. Layout:



c. The following items, materials and services shall be included and/or provided:

1) The Field Office shall be weather tight and have a structurally sound foundation and superstructure;

2) Exterior walls, floors, and ceilings shall be insulated;

3) Interior walls and ceilings shall be refinished plywood paneling;

4) Interior Floors shall have resilient flooring;

5) Restroom furnishings shall include: Water closet, lavatory with hot and cold water supply, mirror, soap holder, toilet tissue dispenser, and paper towel dispenser;

6) The interior lighting shall not be less than 100 foot candles at desk height except in the restroom. The restroom lighting shall be adequate. Exterior lighting shall be located over each entrance door;

7) Electrical receptacles shall be of the duplex receptacle type, not more than 10 feet from center-to-center, on all interior walls except in the restroom;

8) An electrical water cooler shall be provided with hot and cold taps, bottled water, and a supply of drinking cups and cup disposal as needed by the Engineer and Staff;

9) An electrical refrigerator, with a capacity of no less than 1.7 c.f. and of energy efficient design shall be provided;

10) The Field Office shall include a Hot Water Heater with no less than a 20 gallon capacity;

11) The Field Office shall have a heating and air-conditioning, thermostatically controlled, system capable of maintaining office spaces at an ambient temperature between 68 and 78 degrees Fahrenheit;

12) The exterior doors to the private office and any interconnecting doors between offices shall be fitted with door locks and keyed alike. Three sets of keys shall be provided to the Engineer. Any door between the central space and the restroom shall have privacy locks;

13) The Field Office shall have one telephone with an answering machine. Additionally, provide a dedicated phone line for a fax machine; and one jack for Internet broadband access;

14) The private office within the Field Office shall be equipped with Broadband Internet service, no less than 1 GB of speed, including e-mail capabilities for the duration of the Contract;

15) Contractor will provide a laptop computer having the following minimum configuration or better:

    a) Processor - Intel® Core i5-5200U CPU (or equivalent)

    b) Graphics Processor - Intel HD Graphics 5500 GPU

    c) Display - 15.4 inch 16:9 format, 1920 x 1080 Pixels, IPS, matte finish

    d) Storage - 250 GB SSD

    e) Memory - 8.0 GB RAM

    f) USB 3.0 Ports (Minimum of 2)

    g) LAN - Gigabit Ethernet Port

    h) WLAN - Dual Band Wireless-AC (802.11 a/b/g/n/ac)

    i) Backlit QWERTY Keyboard

    j) Operating System - Windows 7 Professional Series (or newer)

    k) Replaceable Battery (Not Buit-in)

    l) Kensington Lock/Security Locking Cable (Combination Lock)

    m) Three years Manufacturer's Warranty (parts/labor/on site)

    n) Carrying case

16) Contractor will deliver laptop computer specified above to the County Project Manager no later than 5 days from their receipt of the Notice to Proceed. The Project Manager will submit the laptop to the information Technology Department (ITD) for certification that it meets the minimum specifications set forth herein. The Project Manager will provide a written confirmation to the Contractor upon certification by ITD;

17) Contractor will provide one fax machine, of the plain paper type. The Contractor shall supply an adequate supply of ink/toner for the fax machine, as needed by the Engineer;

18) Contractor will provide one color printer and scanner to be operational in conjunction with the aforementioned computer. The Contractor to provide adequate supply of ink for the referenced printer, as needed by the Engineer;

19) Contractor will provide six Reams (500 count) of standard plain white letter paper to be used with the color printer and the fax machine;

20) Contractor will provide all cables, power cords, surge protector and software required to properly connect and operate the computer, printer, scanner and fax machine;

21) The fax machine and color printer and scanner may be combined into one unit, as long as it is operational in conjunction with the referenced computer;

22) The laptop computer, fax machine, color printer, scanner and all accessories shall remain the property of Miami-Dade County upon completion of the contract. Said equipment shall be delivered to the Department as instructed by the Engineer.

23) The Field Office shall have an operational burglar alarm system, maintained and monitored by a qualified monitoring service for the duration of the contract or until such time the Engineer approves its termination. In the event the monitoring service receives an alert from the alarm, the Engineer shall be notified immediately;

24) The Field Office shall be equipped and secured with hurricane tie-downs, complying with current Miami-Dade County Ordinances;

25) The Field Office shall have ADA compatible steps, landings, and a handicap ramp with handrails. The steps, landings, decks and ramps shall all be constructed utilizing pressure treated lumber and hot dipped galvanized nails and bolts. A sketch design and layout of the aforementioned items shall be provided along with the proposed location and layout described in subarticle B above and will be subject to the approval of the Engineer;

26) Furnishings for the Field Office shall be supplied by the Contractor and shall include the following:

    a) Two desks, having a surface area of 3x5 feet.

    b) Two desk chair

    c) One lockable wooden or metal locker of a size suitable for storing field testing and surveying equipment.

C. Execution

1. Access and Parking

    a. Field Office shall be located as to provide clear access from public streets including parking spaces for not less than five vehicles immediately adjacent to the field office. Signs shall be posted indicating that

these spaces are reserved for the Engineer and/or Miami-Dade County personnel only. The parking area will be graded for drainage and surfaced with gravel, asphalt paving, or concrete paving.

2. Restroom Sewer Connection

a. Restroom in the Field Office shall be connected to two 700 gallon chemical holding tanks. The holding tanks shall be serviced as often as necessary to prevent accumulation of wastes and unsanitary conditions, but no less than two times per week.

3. Maintenance

a. Contractor must clean and service the Field Office and parking area three times per week during normal working hours. Cleaning and servicing includes complete janitorial services, soap, paper towels, and toilet tissue. Contractor will made all repairs in a timely manner at no additional compensation.

D. Measurement and Payment

1. Measurement

a. The work under this Section will not be measured separately for payment. No separate payment will be made for the Engineer's Field Office, and it is to be included by the Contractor in prices bid for the various items of the work.

110 CLEARING AND GRUBBING (REV. 05-16-11)

A. General.

1. Perform all Clearing and Grubbing required by the Contract Documents or necessary to prepare the Project site for the proposed construction.
2. Remove and dispose of all structures, material, product and debris not required to be salvaged or not required to complete the construction.
3. Trim trees and shrubs within the Project right-of-way that are required by the Contract Documents or necessary for the construction of the Project.
4. Perform the work and meet all the requirements for the miscellaneous operations described in Subarticle B.6 herein.
5. Protect and do not displace structures which are to remain in place.

B. Clearing and Grubbing:

1. Standard Clearing and Grubbing.

a. Perform Standard Clearing and Grubbing within:

1) Right-of-way of the roadway to be constructed.

2) All Project areas, whether or not shown in the Plans, that require Clearing and Grubbing including:

a) Areas where excavation is to be done.

b) Areas where roadway embankments will be constructed.

c) Areas where structures will be constructed or installed.

b. Work includes complete removal and disposal of:

1) All buildings, structures, appurtenances, existing pavement, trees, plants, vegetation, timber, brush, stumps, roots, rubbish, debris, and all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas.

2) All other structures and obstructions necessary to be removed and for which other items of the Contract do not specify the removal thereof.

3) Any boulders encountered in the roadway excavation or found on the surface of the ground unless otherwise permitted by the Contract Documents

c. Depths of Removal of Roots, Stumps, and Other Debris:

1) Completely remove and dispose of all stumps found within the roadway right-of-way.

2) Remove roots and other debris from all excavated material to be used in the construction of roadway embankment.

3) In all areas where excavation is to be performed or roadway embankments are to be constructed, plow the surface to a depth of at least 6 inches, and remove roots and other debris to a depth of 12 inches below the ground surface.

4) Remove all roots and other debris protruding through or appearing on the surface of the completed excavation within the roadway area and for structures, to a depth of at least 12 inches below the finished excavation surface.

5) In borrow pits, material pits, and lateral ditches, remove or cut off all stumps, roots, etc. below the surface of the completed excavation. Do not perform any clearing or grubbing within 3 feet inside the right-of-way line in borrow and material pits.

6) Within all other areas where Standard Clearing and Grubbing is to be performed, remove roots and other debris projecting through or appearing on the surface of the original ground to a depth of 12 inches below the surface, but do not plow or harrow these areas.

d. Trees to Remain:

1) As an exception to the above provisions, where so directed by the Engineer, trim, protect, and leave standing desirable trees within the Project area.

2) Trim branches of trees extending over the area occupied by the roadway as directed, to give a clear height of 16 feet above the roadway.

2. Selective Clearing and Grubbing.

a. Perform Selective Clearing and Grubbing only in areas so designated in the Plans or where directed by the Engineer.

b. Completely remove and dispose of stumps and remove and dispose of all vegetation, obstructions, etc., as required for Standard Clearing and Grubbing except that, where so elected, the Contractor may cut roots flush with the ground surface.

c. Entirely remove undergrowth except in specific areas designated by the Engineer to remain for aesthetic purposes.

d. Trim, protect, and leave standing desirable trees, with the exception of such trees as the Engineer may designate to be removed in order to facilitate right-of-way maintenance. Remove undesirable or damaged trees as so designated by the Engineer.

3. Removal of Existing Structures.

a. Structures to be removed include:

1) Structures, or portions of structures, shown in the Plans to be removed;

2) Structures, or portions of structures, found within the areas requiring Clearing and Grubbing, and directed by the Engineer to be removed;

3) Structures, or portion of structures, which are necessary to be removed in order to construct new structures; and

4) All other appurtenances or obstructions which may be designated in the Contract Documents as to be included for removal under this Article.

b. Removal Requirements:

1) General:

a) Remove and dispose of all materials from existing structures required to be removed.

b) Remove the structures in a neat manner so as to leave no obstructions to any proposed new structures, construction, or to any waterways.

c) Pull, cut off, or break off pilings to the requirements of the permit or other Contract Documents, whichever requires the deepest removal, but not less than 2 feet below the finish ground line.

d) If Plans indicate channel excavation to be done by others, consider the finish ground line as the limits of such excavation.

e) For materials which are to remain the property of the Department or are to be salvaged for use in temporary structures, avoid damage to such materials, and entirely remove all bolts, nails, etc. from timbers to be so salvaged.

f) Mark structural steel members for identification as directed.

4. Removal of Existing Concrete Pavement.

a. Remove and dispose of existing rigid portland cement concrete pavement, sidewalk, slope pavement, ditch pavement, curb, and curb and gutter etc., where shown in the plans or ordered by the Engineer to be removed or where required because of the construction operations.

b. The work under Removal of Existing Concrete Pavement does not include the removal of retaining walls, drainage structures and flexible asphalt pavement.

c. Landscape Areas: When certain areas of the right-of-way, outside of the limits of construction, are shown in the plans or designated by the Engineer to be landscaped, either under the construction Contract or at a later time, remove undesirable trees, stumps, undergrowth, and vegetation, as directed, and preserve and trim natural growth and trees as directed by the Engineer.

d. Leveling Terrain: Within the areas between the limits of construction and the outer limits of clearing and grubbing, fill all holes and other depressions, and cut down all mounds and ridges. Make the area of a sufficient uniform contour so that the Department's subsequent mowing and cutting operations are not hindered by irregularity of terrain. Perform this work regardless of whether the irregularities were the result of construction operations or existed originally.

e. Mailboxes: When the Contract Documents require furnishing and installing mailboxes, permit each owner to remove the existing mailbox. Work with the Local Postmaster to develop a method of temporary mail service for the period between removal and installation of the new mailboxes. Install the mailboxes in accordance with the Design Standards.

C. Ownership of Materials.

1. Except as may be otherwise specified in the Contract Documents, the Contractor shall take ownership of all buildings, structures, appurtenances, and other materials removed by him and shall dispose of them in accordance with subarticle D below.

D. Disposal of Materials.

1. General:

a. Dispose of all debris, timber, stumps, brush, roots, rubbish, and other waste material resulting from clearing and grubbing in areas and by methods meeting the applicable requirements of all Local, State and Federal regulations.

2. Disposal of Treated Wood:

a. Treated wood, including that which comes from bridge channel fender systems, must be handled and disposed of properly during removal.

b. Treated wood should not be cut or otherwise mechanically altered in a manner that would generate

dust or particles without proper respiratory and dermal protection.

c. Treated wood must be disposed of in at least a lined solid waste facility or through recycling/reuse.

d. Treated wood shall not be disposed by burning or placement in a construction and demolition (C&D) debris landfill.

e. All compensation for the cost of removal and disposal of treated wood will be included in the Cost of Removal of Existing Structures when an item for direct payment is provided in the Contract. If an item of direct payment is not provided in the Contract, the aforementioned cost is included in the cost for Clearing and Grubbing or among the other items of work in the Contract.

3. Hazardous Materials/Waste:

a. General:

1) Handle, transport and dispose of hazardous materials in accordance with all Local, State and Federal requirements including the following:

a) SSPC Guide 7

b) Federal Water Pollution Control Act, and

c) Resource Conservation and Recovery Act (RCRA).

2) Accept responsibility for the collection, sampling, classification, packaging, labeling, accumulation time, storage, manifesting, transportation, treatment and disposal of hazardous waste, both solid and liquid. Separate all solid and liquid waste and collect all liquids used at hygiene stations and handle as hazardous materials/waste. Obtain written approval from the Engineer and required agencies for all hazardous materials/waste stabilization methods before implementation.

3) Obtain an EPA/FDEP Hazardous Waste Identification Number (EPA/FDEP ID Number) before transporting and/or disposal of any hazardous materials/waste.

4) List the Department as the generator of all hazardous materials/waste.

5) Submit the following for the Engineers' approval before transporting, treatment or disposal of any hazardous materials/waste:

a) Name, address and qualifications of the transporter,

b) Name, address and qualifications of the treatment facility,

c) Proposed treatment and/or disposal of all Hazardous Materials/Waste.

6) Transport all hazardous materials/waste in accordance with applicable 40 CFR 263 Standards. Provide a copy of all completed Hazardous Materials/Waste manifest/bills of lading to the Engineer within 21 days of each shipment.

b. Certification of Compliance:

1) Furnish two copies of Certification of Compliance from the firm actually removing and disposing of the hazardous materials/waste stipulating, the hazardous materials/waste has been handled, transported and disposed of in accordance with this Specification.

2) The Certification of Compliance shall be attested to by a person having legal authority to bind the company.

c. Maintain all records required by this Specification and ensure they are available to the Department upon request.

E. Method of Measurement.

1. Clearing and Grubbing:

a. No Direct Payment Provided: When no item for direct payment of Clearing and Grubbing is provided by the Contract, the costs for performing all work and meeting the requirements of this Article will be included among the various scheduled items of the Contract.

b. Direct Payment Provided: When direct payment for Clearing and Grubbing is provided in the Contract, the quantity to be paid for will be the lump sum quantity.

2. One or more of the following items may appear in a contract where no direct payment item for Clearing and Grubbing is provided. Only those items with an Awarded Unit Price will be considered for direct payment. All other work of Clearing and Grubbing is included among the various scheduled items of the Contract.

a. Removal of Existing Structures: When a separate item for the Removal of Existing Structures is provided for direct payment in the Contract, the quantity to be paid for will be the lump sum quantity or actual quantities for the specific structures removed, as stipulated in the Contract Documents.

b. Removal of Existing Concrete Pavement: When a separate item for Removal of Existing Concrete Pavement is provided for direct payment in the Contract, the quantity to be paid for will be the number of square yards of existing pavement of the types listed in subarticle B.5 herein, acceptably removed and disposed of, as specified. The quantity will be determined by actual measurement along the surface of the pavement before its removal. Measurements for appurtenances which have irregular surface configurations, such as curb and gutter, steps, and ditch pavement, will be the area as projected to an approximate horizontal plane. Where the removal of pavement areas is necessary only for the construction of box culverts, pipe culverts, storm sewers, french drains, inlets, manholes, etc., these areas will not be included in the measurements.

c. Removal of Trees: When separate items for the Removal of Trees are provided for direct payment in the Contract, trees that are greater than 6 inches in diameter, will be paid on a per each basis by actual count by the Engineer of such trees under the appropriate item provided in the Contract. The diameter of a tree shall be obtained by measuring its circumference at 4.5 feet above the ground using a flexible tape measure and dividing the circumference

by 3.14. If the tree is growing on a slope, the circumference is measured at 4.5 feet from the center of the slope. If the tree begins to branch below 4.5 feet, measure at the smallest circumference below the first branch.

d. Mailboxes: When a separate item is provided in the Contract for furnishing and installing mailboxes, the quantity to be paid for will be the number of mailboxes acceptably furnished and installed.

e. Delivery of Salvageable Material to the Department: When a separate item is provided in the Contract for the delivery of salvageable material to the Department, the quantity to be paid for will be the Lump Sum quantity for delivery of salvageable materials to the Department as indicated in the Plans or as directed by the Engineer.

F. Basis of Payment.

1. Clearing and Grubbing:

a. No Direct Payment Provided: When direct payment for Clearing and Grubbing is not provided in the Contract, the cost of any work of clearing and grubbing necessary for the proper construction of the Project and meeting all requirements of this Article, is included in the Contract price for the structure or other item of work for which such clearing and grubbing is required.

b. Direct Payment Provided:

1) Price and payment will be full compensation for all clearing and grubbing indicated or required for the construction of the entire Project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc., as specified herein, except for any areas designated to be paid for separately or to be specifically included in the costs of other work under the Contract.

2) Unless otherwise provided by the Contract, price and payment will be full compensation for all work required by this Article including Removal of Existing Structures, Removal of Existing Concrete Pavement, Removal of Trees, Plugging of Water Wells, Mailboxes, and Delivery of Salvageable Material to the Department.

3) Where construction easements are specified in the Plans and the limits of clearing and grubbing for such easements are dependent upon the final construction requirements, no adjustment will be made in the lump sum price and payment, either over or under, for variations from the limits of the easement defined on the Plans.

c. The Contractor shall include the cost of all clearing and grubbing which might be necessary in pits or areas from which base material is obtained in the Contract price for the base in which such material is used.

d. The clearing and grubbing of areas for obtaining stabilizing materials, where required only for the purpose of obtaining materials for stabilizing, will not be paid for separately.

2. Removal of Existing Structures:

a. Price and payment will be full compensation for all work of removal and disposal of the designated structures.

b. When direct payment for the removal of existing structures is not provided in the Contract, the cost of removing all structures is included in the Contract price for Clearing and Grubbing or, if no item of Clearing and Grubbing is included, in the compensation for the other items covering the new structure being constructed.

3. Removal of Existing Concrete Pavement:

a. Price and payment will be full compensation for performing and completing all the work of removal and satisfactory disposal including any saw cutting required.

b. When direct payment for the removal of existing concrete pavement is not provided in the Contract and no applicable item of excavation or embankment covering such work is included in the Contract, the Contractor shall include the costs of this work in the Contract price for the item of Clearing and Grubbing or, if no item of Clearing and Grubbing is included in the Contract, in any work, pipe or other structure for which the concrete pavement removal is required.

4. Removal of Trees:

a. Price and payment will be full compensation for complete removal and disposal of each tree counted by the Engineer pursuant to these specifications.

b. When direct payment for the removal of trees is not provided in the Contract, the cost of removing all trees is included in the Contract price for Clearing and Grubbing or, if no item of Clearing and Grubbing is included in the Contract, in the compensation for all other items in the Contract.

5. Mailboxes:

a. Price and payment will be full compensation for all work and materials required, including supports and numbers.

b. When direct payment for mailboxes is not provided in the Contract, the cost for all work and materials required, including supports and numbers, is included in the Contract price for Clearing and Grubbing or, if no item of Clearing and Grubbing is included in the Contract, in the compensation for all other items in the Contract.

6. Delivery of Salvageable Material to the Department:

a. Price and payment will be full compensation for all work required for delivery of the materials to the Department.

b. When the Contract does not provide direct payment for the Delivery of Salvageable Material that is to be delivered to the County, the cost of Delivery of Salvageable Material is included in the Contract price for Clearing and Grubbing or, where no item for

Clearing and Grubbing is included in the Contract, in the compensation for all other items in the Contract.

7. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

120 EARTHWORK AND RELATED OPERATIONS

A. Description.

1. General:

   a. Earthwork and Related Operations consists of excavation for the construction of the roadway, excavation for structures and pipe, constructing backfill around structures and pipe, and constructing embankments as required for the roadway, ditches, and channel changes.

   b. Perform Earthwork and Related Operations based on the type of work specified in the Contract Documents.

   c. Meet the applicable requirements for materials, equipment and construction as specified in the Contract Documents.

B. Classes of Excavation.

1. Excavation of Unsuitable Material: Excavation of unsuitable material consists of the removal of muck, clay, rock or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For stabilized bases and sand bituminous road mixes, the finished grading template is the top of the finished base, shoulders and slopes. For all other bases and rigid pavement, the finished grading template is the finished shoulder and slope lines and bottom of completed base or rigid pavement.

2. Lateral Ditch Excavation: Lateral Ditch Excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way.

3. Excavation for Structures and Pipe: Excavation for Structures consists of the excavation for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

C. Excavation Requirements.

1. Excavation and Replacement of Unsuitable Materials: Where rock, muck, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the Plans or indicated by the Engineer, and backfill with suitable material. Shape backfill materials to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance of ± 0.2 foot in depth and ± 6 inches (each side) in width.

2. Lateral Ditch Excavation: Excavate inlet and outlet ditches to structures and roadway, changes in channels of streams and ditches parallel to the roadway. Dress lateral ditches to the grade and cross-section shown in the Plans.

3. Channel Excavation: Excavate and dispose of all materials from the limits of the channel as shown in the Plans. Excavate for bridge foundations, box culverts, pipe culverts, storm sewers and all other pipe lines, retaining walls, headwalls for pipe culverts and drains, catch basins, drop inlets, manholes, and similar structures.

4. Excavation for Structures and Pipe.

   a. General: Excavate foundation pits to permit the placing of the full widths and lengths of footings shown in the Plans, with full horizontal beds. Do not round or undercut corners or edges of footings. Perform all excavation to foundation materials, satisfactory to the Engineer, regardless of the elevation shown on the Plans. Perform all excavation in stream beds to a depth at least 4 feet below the permanent bed of the stream, unless a firm footing can be established on solid rock before such depth is reached, and excavate to such additional depth as may be necessary to eliminate any danger of undermining. Wherever rock bottom is secured, excavate in such manner as to allow the solid rock to be exposed and prepared in horizontal beds for receiving the masonry. Remove all loose and disintegrated rock or thin strata. Have the Engineer inspect and approve all foundation excavations prior to placing masonry.

   b. Earth Excavation:

      1) Foundation Material other than the Rock: When masonry is to rest on an excavated surface other than rock, take special care to avoid disturbing the bottom of the excavation, and do not remove the final foundation material to grade until just before placing the masonry. In case the foundation material is soft or mucky, the Engineer may require excavation to a greater depth and to backfill to grade with approved material.

      2) Foundation Piles: Where foundation piles are used, complete the excavation of each pit before driving the piles. After the driving is completed, remove all loose and displaced material, leaving a smooth, solid, and level bed to receive the masonry.

      3) Removal of Obstructions: Remove boulders, logs, or any unforeseen obstacles encountered in excavating.

   c. Rock Excavation: Clean all rock and other hard foundation material, remove all loose material, and cut all rock to a firm surface. Either level, step vertically and horizontally, or serrate the rock, as may be directed by the Engineer. Clean out all seams, and fill them with concrete or mortar.

   d. Pipe Trench Excavation:

      1) Excavate trenches for pipe culverts and storm sewers to the elevation of the bottom of the pipe and to a width sufficient to provide adequate

working room. Remove soil not meeting the classification specified herein for suitable backfill material for backfilling around pipe to a depth of 4 inches below the bottom of the pipe elevation. Remove rock, boulders or other hard lumpy or unyielding material to a depth of 12 inches below the bottom of the pipe elevation. Remove muck or other soft material to a depth necessary to establish a firm foundation. Where the soils permit, ensure that the trench sides are vertical up to at least the mid-point of the pipe.

2) For pipe lines placed above the natural ground line, place and compact the embankment, prior to excavation of the trench, to an elevation at least 2 feet above the top of the pipe and to a width equal to four pipe diameters, and then excavate the trench to the required grade.

D. Disposal of Surplus and Unsuitable Material.

1. Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the Plans or, if the Plans do not indicate the method of disposal, take ownership of the materials and dispose of them in an authorized and lawful manner.
2. Disposal of Muck on Side Slopes: As an exception to the provisions herein for Ownership of Excavated Materials, when approved by the Engineer, muck (A-8 material) may be placed on the slopes, or stored alongside the roadway, provided there is a clear distance of at least 6 feet between the roadway grading limits and the muck, and the muck is dressed to present a neat appearance. In addition, this material may also be disposed of by placing it on the slopes where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or of side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.
3. Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Agency, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.
4. Disposal Areas:
   a. Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

E. Materials for Embankment.

1. General Requirements for Embankment Materials:
   a. Construct embankments using suitable materials excavated from the roadway or delivered to the jobsite from authorized borrow pits.
   b. Construct the embankment using maximum particle sizes (in any dimension) as follows:
      1) In top 12 inches: 3 1/2 inches (in any dimension).
      2) 12 to 24 inches: 6 inches (in any dimension).
      3) In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.
   c. Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with the requirements herein for Compaction of Embankments.
   d. When and where approved by the Engineer, larger rocks (not to exceed 18 inches in any dimension) may be placed outside the one to two slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3 1/2 inches in diameter within 3 feet of the location of any end-bent piling.
2. Use of Materials Excavated From the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.
3. Authorization for Use of Borrow: Use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures and pipe. Do not use borrow material until authorized by the Engineer, and then only use material from approved borrow pits.
   a. Haul Routes for Borrow Pits:
      1) Provide and maintain, at no expense to the County, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.
      2) Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

b. Borrow Material for Shoulder Build-up: When so indicated in the Plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile.

4. Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

F. Embankment Construction.

1. General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment.

2. Dry Fill Method:

a. General:

1) Construct embankments to meet the requirements of subarticle G (Compaction Requirements) and in accordance with the Acceptance Program requirements herein. Restrict the compacted thickness of the last embankment lift to 6 inches maximum.

2) As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

3) Construct embankment in the dry whenever normal dewatering equipment and methods can accomplish the needed dewatering.

a) For A-3 and A-2-4 Materials with up to 15% fines: Construct the embankment in successive layers with lifts up to a maximum compacted thickness of 12 inches. Ensure the percentage of fines passing the No. 200 US Standard sieve in the A 2 4 material does not exceed 15%.

b) For A-1 Plastic materials (As designated in FDOT Design Standard Index 505) and A-2-4 Materials with greater than 15% fines: Construct the embankment in successive layers with lifts up to a maximum compacted thickness of 6 inches.

c) Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

4) When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or in low swampy ground in accordance with the requirements herein for Compaction Where Plastic Material Has Been Removed.

b. Placing in Unstable Areas: Where depositing the material in water, or in low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions herein for Compaction Where Plastic Material Has Been Removed and for Compaction of Grassed Shoulder Areas.

c. Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut into steps the surface of the original ground on which the embankment is to be placed.

d. Placing Outside Standard Minimum Slope: Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope (approximately one to two), place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum slope, in 18 inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

3. Hydraulic Method:

a. Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is rehandled, or moved and placed in its final position by any other method, as specified herein for Compaction of Embankments. The Contractor may use baffles or any form of construction he may select, provided the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact the holes thus formed. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

b. Excess Material: Do not use excess material placed outside the prescribed slopes, below the normal high-water level, to raise the fill. Remove only the portion of this material required for dressing the slopes.

c. Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same depth of channel as existed before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

G. Compaction Requirements.

1. Moisture Content: Compact the materials at a moisture content such that the specified density can be attained.

If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

2. Compaction of Embankments:

   a. Density requirements for earthwork and related operations associated with the construction of sidewalks and bike paths along with any drainage structures associated with these facilities; and for earthwork and related operations associated with the construction of turn lanes and other non-mainline traffic lanes, widening, roadway shoulders, concrete box culverts, retaining walls, and other drainage structures on the non-mainline pavement:

      1) Reduce the minimum required density from 100% to 95% of AASHTO T99 Method C for all earthwork items requiring densities.

   b. Density Requirements for earthwork and related operations associated with the construction of new mainline pavement, along with concrete box culverts, retaining walls, and other drainage structures on the mainline pavement:

      1) Except for embankments constructed by the hydraulic method as specified herein, and for the material placed outside the standard minimum slope as specified herein for Placing Outside Standard Minimum Slope, and for other areas specifically excluded herein, compact each layer of the material used in the formation of embankments to a density of at least 100% of the maximum density as required by AASHTO T 99, Method C.

      2) Uniformly compact each layer using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

   c. Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided herein under the requirements for Placing in Unstable Areas), compact the top 6 inches (compacted thickness) of such layer to the density as specified in the Acceptance Criteria herein.

   d. Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A 4, A 5, A 6, or A 7 Soil Groups, as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

   e. Compaction of Material To Be Used In Base, Pavement, or Stabilized Areas: Do not compact embankment material which will be incorporated into a pavement, base course, or stabilized subgrade, to be constructed as a part of the same Contract.

   f. Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

   g. Compaction of Grassed Embankment Areas: For the outer layer of all embankments where plant growth will be established, do not compact. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations.

3. Compaction of Subgrade:

   a. If the Plans do not provide for stabilizing, compact the subgrade in both cuts and fills to the density specified in the Acceptance Criteria herein. For undisturbed soils, do not apply density requirements where constructing narrow widening strips or paved shoulders 5 feet or less in width.

   b. Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

   c. Maintain the required density until the base or pavement is placed on the subgrade.

H. Backfilling Around Structures and Pipe.

1. Backfill Materials:

   a. Backfill to the original ground surface or subgrade surface of openings made for structures, with a sufficient allowance for settlement. The Engineer may require that the material used for this backfill be obtained from a source entirely apart from the structure.

   b. Do not allow heavy construction equipment to cross over culvert or storm sewer pipes until placing and compacting backfill material to the finished earthwork grade or to an elevation at least 4 feet above the crown of the pipe.

   c. Use of A-7 Material: In the backfilling of trenches, A 7 material may be used from a point 12 inches above the top of the pipe up to the elevation shown on the FDOT Design Standards as the elevation for undercutting of A 7 material.

   d. Time of Placing Backfill: Do not place backfill against any masonry or concrete abutment, wingwall, or culvert until the Engineer has given permission to do so, and in no case until the masonry or concrete has been in place seven days or until the specified 28 day compressive strength occurs.

   e. Placement and Compaction:

      1) Place the material in horizontal layers not exceeding 6 inches compacted thickness, in depth above water level, behind abutments, wingwalls and end bents or end rest piers, and around box culverts and all structures including pipe culverts. When the backfill material is deposited in water, compact per the requirements herein for Compaction Under Wet Conditions and Backfill Under Wet Conditions.

2) The Contractor may elect to place material in thicker lifts of no more than 12 inches compacted thickness outside the soil envelope if he can demonstrate with a successful test section that density can be achieved. Notify the Engineer prior to beginning construction of a test section. Construct a test section of 500 feet in length. Perform five tests at random locations within the test section. All five tests must meet the density required by the Compaction of Embankments specified herein. Identify the test section with the compaction effort and soil classification in the Agency Logbook. In case of a change in compaction effort or soil classification, construct a new test section. When a test fails the Compaction Requirements specified herein, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time.

2. Additional Requirements for Structures Other than Pipe:

   a. Density: Where the backfill material is deposited in water, obtain a 12 inch layer of comparatively dry material, thoroughly compacted by tamping, before verifying the layer and density requirements. Meet the requirements of the density Acceptance Criteria.

   b. Box Culverts: For box culverts over which pavement is to be constructed, compact around the structure to an elevation not less than 12 inches above the top of the structure, using rapid-striking mechanical tampers.

   c. Other Limited Areas: Compact in other limited areas using mechanical tampers or approved hand tampers, until the cover over the structure is at least 12 inches thick. When hand tampers are used, deposit the materials in layers not more than 4 inches thick using hand tampers suitable for this purpose with a face area of not more than 100 in^2. Take special precautions to prevent any wedging action against the masonry, and step or terrace the slope bounding the excavation for abutments and wingwalls if required by the Engineer.

   d. Culverts and Piers: Backfill around culverts and piers on both sides simultaneously to approximately the same elevation.

   e. Compaction Under Wet Conditions: Where wet conditions do not permit the use of mechanical tampers, compact using hand tampers. Use only A 3 material for the hand tamped portions of the backfill. When the backfill has reached an elevation and condition such as to make the use of the mechanical tampers practical, perform mechanical tamping in such manner and to such extent as to transfer the compaction force into the sections previously tamped by hand.

3. Additional Requirements for Pipe 15 Inches Inside Diameter or Greater:

   a. General: Trenches for pipe may have up to four zones that must be backfilled.

      1) Lowest Zone: The lowest zone is backfilled for deep undercuts up to within 4 inches of the bottom of the pipe.

      2) Bedding Zone: The zone above the Lowest Zone is the Bedding Zone. Usually it will be the backfill which is the 4 inches of soil below the bottom of the pipe. When rock or other hard material has been removed to place the pipe, the Bedding Zone will be the 12 inches of soil below the bottom of the pipe.

      3) Cover Zone: The next zone is backfill that is placed after the pipe has been laid and will be called the Cover Zone. This zone extends to 12 inches above the top of the pipe. The Cover Zone and the Bedding Zone are considered the Soil Envelope for the pipe.

      4) Top Zone: The Top Zone extends from 12 inches above the top of the pipe to the base or final grade.

   b. Material:

      1) Lowest Zone: Backfill areas undercut below the Bedding Zone of a pipe with coarse sand, or other suitable granular material, obtained from the grading operations on the project, or a commercial material if no suitable material is available.

      2) Soil Envelope: In both the Bedding Zone and the Cover Zone of the pipe, backfill with materials classified as A 1, A 2, or A 3. Material classified as A-4 may be used if the pipe is concrete pipe.

      3) Top Zone: Backfill the area of the trench above the soil envelope of the pipe with materials allowed on Design Standard, Index No. 505.

   c. Compaction:

      1) Lowest Zone: Compact the soil in the Lowest Zone to approximately match the density of the soil in which the trench was cut.

      2) Bedding Zone:

         a) If the trench was not undercut below the bottom of the pipe, loosen the soil in the bottom of the trench immediately below the approximate middle third of the outside diameter of the pipe.

         b) If the trench was undercut, place the bedding material and leave it in a loose condition below the middle third of the outside diameter of the pipe. Compact the outer portions to meet the density requirements of the Acceptance Criteria. Place the material in lifts no greater than 6 inches (compacted thickness).

      3) Cover Zone: Place the material in 6 inches layers (compacted thickness), evenly deposited on both sides of the pipe, and compact with mechanical tampers suitable for this purpose. Hand tamp material below the pipe haunch that cannot be reached by mechanical tampers. Meet the requirements of the density Acceptance Criteria.

      4) Top Zone: Place the material in layers not to exceed 12 inches in compacted thickness. Meet the requirements of the density Acceptance Criteria.

      5) Backfill Under Wet Conditions:

a) Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by the Engineer in writing.

b) Granular material may be used below the elevation at which mechanical tampers would be effective, but only material classified as A 3. Place and compact the material using timbers or hand tampers until the backfill reaches an elevation such that its moisture content will permit the use of mechanical tampers. When the backfill has reached such elevation, use normally acceptable backfill material. Compact the material using mechanical tampers in such manner and to such extent as to transfer the compacting force into the material previously tamped by hand.

I. Acceptance Program.

1. Density over 105%: When a computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, perform a second density test within 5 feet. If the second density results in a value greater than 105%, investigate the compaction methods, examine the applicable Maximum Density and material description. If necessary, test an additional sample for acceptance in accordance with AASHTO T 99, Method C.
2. Maximum Density Determination: Determine the maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed below for Density Testing Requirements.
3. Density Testing Requirements: Ensure compliance, with the requirements of the Acceptance Criteria herein, by Nuclear Density testing in accordance with FDOT Florida Method FM 1 T 238. Determine the in-place moisture content for each density test. Use Florida Method FM 1 T 238, FM 5 507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D 4643 (Laboratory Determination of Moisture Content of Granular Soils By Use of a Microwave Oven) for moisture determination.
4. Soil Classification: Perform soil classification tests in accordance with AASHTO T 88. Classify soils in accordance with AASHTO M–145 in order to determine compliance with embankment utilization requirements.
5. Acceptance Criteria: Obtain a minimum density in accordance with the requirements herein for Compaction of Embankments with the following exceptions:
   a. Embankment constructed by the Hydraulic Method as specified herein;
   b. Material placed outside the standard minimum slope as specified in the requirements herein for Placing Outside Standard Minimum Slope;
   c. Other areas specifically excluded herein.
6. Frequency: Conduct sampling and testing at a minimum frequency listed in the table below.

Test Name	Frequency
Maximum Density	One per soil type
Density	1 per 500’ RDWY (Alt Lift)
Soil Classification	One per Maximum Density

J. Maintenance and Protection of Work.

1. While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.
2. Maintain and protect all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the Plans, until final acceptance of the Project.

K. Construction.

1. Construction Tolerances:
   a. Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the plan cross-section with the following exceptions:
      1) Shape the surface of shoulders to within 0.1 foot of the plan cross-section.
      2) Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
      3) Shape the bottom of ditches so that the ditch impounds no water.
      4) When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the plan cross-section.
   b. Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.
2. Operations Adjacent to Pavement:
   a. Carefully dress areas adjacent to pavement areas to avoid damage to such pavement.
   b. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.
   c. When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

L. Method of Measurement.

1. Excavation: Excavation will be paid for by volume, in cubic yards, calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer. Measurement for payment will include the excavation of unsuitable material, lateral ditch excavation, channel excavation, and excavation for structures and pipe. Payment will not be made for excavation or embankment beyond the limits shown in the Plans or authorized by the Engineer.
2. Embankment: Embankment will be paid for by volume, in cubic yards, calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer. Payment will not be made for embankment beyond the limits shown in the Plans or authorized by the Engineer.

M. Basis of Payment.

1. When No Direct Payment is Provided:
   a. When no item for Excavation or Embankment is included in the list of Contract Unit Prices, the cost of any excavation or embankment necessary for the proper construction of the Project is included in the Contract Prices for the work requiring excavation or embankment.
   b. Where the Work includes structures including pipe culvert and french drain, all earthwork costs for the installation of these items are included in their associated Contract Price.
2. When Direct Payment for Excavation or Embankment is Provided in the Contract:
   a. Prices and payments for the work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; and maintaining and protecting the complete earthwork.
   b. Excavation:
      1) The total quantity of all excavation specified under this Section will be paid for at the Contract unit price for Excavation.
      2) No payment will be made for the excavation of any materials which are used for purposes other than those shown in the Plans or designated by the Engineer.
      3) No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer.
   c. Embankment:
      1) The total quantity of embankment specified in this Section will be paid for at the Contract unit price for embankment.
      2) No payment will be made for materials which are used for purposes other than those shown in the Plans or designated by the Engineer.
      3) No payment will be made for materials placed outside the lines and grades given by the Engineer.
3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

121 FLOWABLE FILL

A. Description.

1. When approved by the Engineer, furnish and place Flowable Fill per FDOT Design Standard Index 307, as an alternative to compacted soil, where compaction cannot be achieved through normal mechanical methods. Applications for this material include beddings, encasements, closures for tanks, pipes, general backfill for trenches, and other uses specified in the Plans.

B. Materials.

1. Meet the following requirements:

Fine Aggregate*	Section 902
Portland Cement (Types I, II, or III)	Section 921
Water	Section 923
Air Entraining Admixtures**	Section 924
Fly Ash, Slag and other Pozzolanic Materials	Section 929
*Any clean fine aggregate with 100% passing a 3/8 inch mesh sieve and not more than 15% passing a No. 200 sieve may be used. **High air generators or foaming agents may be used in lieu of conventional air entraining admixtures and may be added at jobsite and mixed in accordance with manufacturer's recommendation.	

C. Mix Design.

1. Flowable Fill is a mixture of portland cement, fly ash, fine aggregate, air entraining admixture and water. Flowable fill contains a low cementitious content for reduced strength development.
2. Submit mix designs to the Engineer for approval. The following are suggested mix guides for excavatable and non-excavatable flowable fill:

	Excavatable	Non-Excavatable
Cement Type 1	75-100 lb/yd3	75-150 lb/yd3
Fly Ash	None	150-600 lb/yd3

Water	*	*
Air**	5-35%	5-15%
28 Day Compressive Strength**	Maximum 100 psi	Minimum 125 psi**
Unit Weight (Wet)***	90-110 lb/ft3	100-125 lb/ft3
Fine Aggregate shall be proportioned to yield 1 yd3.		
*Mix designs shall produce a consistency that will result in a flowable self-leveling product at time of placement. **Minimum 300 psi where approved by the Engineer for use above pipe culverts having less than two feet of cover measured to top of rock base. ***The requirements for percent air, compressive strength and unit weight are for laboratory designs only and are not intended for jobsite acceptance requirements.		

D. Production and Placing.

1. Use flowable fill manufactured at a production facility that meets the requirements of FDOT 347-3.
2. Deliver flowable fill using concrete construction equipment. Revolution counter are waived. Place flowable fill by chute, pumping or other methods approved by the Engineer. Tremie flowable fill through water.

E. Construction Requirements.

1. Use straps, soil anchors or other approved means of restraint to ensure correct alignment when flowable fill is used as backfill for pipe or where flotation or misalignment may occur.
2. Place flowable fill to the designated fill line without vibration or other means of compaction. Do not place flowable fill during inclement weather, e.g. rain or ambient temperatures below 40ºF. Protect flowable fill from freezing for a period of 36 hours after placement.
3. Take all necessary precautions to prevent any damages caused by the hydraulic pressure of the fill during placement prior to hardening. Provide the means to confine the material within the designated space.

F. Acceptance.

1. Acceptance of flowable fill will be based on the following documentation and a minimum temperature of flowable fill at the point of delivery of 50ºF.
2. Furnish a delivery ticket to the Engineer for each load of flowable fill delivered to the worksite. Ensure that each ticket contains the following information:
   a. Project designation,
   b. Date,
   c. Time,
   d. Class and quantity of flowable fill,
   e. Actual batch proportions,
   f. Free moisture content of aggregates,
   g. Quantity of water withheld.
3. Leave the fill undisturbed until the material obtains sufficient strength. Sufficient strength, unless otherwise required by the Engineer, is 35 psi penetration resistance as measured using a hand held penetrometer in accordance with ASTM C-403. Provide a hand held penetrometer to measure the penetration resistance of the hardened flowable fill.

G. Method of Measurement

1. Flowable fill will be measured for payment in cubic yards in place, as accepted by the Engineer, when shown as a pay item in the Contract. When flowable fill is not shown as a pay item, include the cost of the work in the bid price for the appropriate item.

H. Basis of Payment.

1. When the item of flowable fill is included in the Contract, payment will be made at the Contract unit price per cubic yard. Such price and payment will include all cost of the mixture, in place and accepted, determined as specified above. No measurement and payment will be made for material placed outside the neat line limits or outside the adjusted limits, or for unused or wasted material.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

160 TYPE “B” STABILIZATION (SECTION 160)

A. Page 188, Section 160 - Stabilizing: Delete the words "bearing value" or "Limerock Bearing Ratio Method" where they occur throughout this section and substitute the words "California Bearing Ratio."

1. Delete all contrary references to density requirements and substitute with the following:
   a. Compaction - The density requirements for all embankment and subgrade involved in this Section shall be a minimum ninety five (95) percent for non-roadway areas and ninety eight (98) percent for roadway areas, of maximum density as determined by AASHTO T-180.
2. Delete all mention of Bearing Value requirements entirely and substitute with the following:
   a. California Bearing Ratio Requirements: Suitability of the soil to be compacted shall be determined by the California Bearing Ratio Test as outlined in ASTM D 1883-87. Tests shall be made on each separate course, generally before the materials have been compacted. Any areas where the materials have a C.B.R. value of less than thirty (30) at ninety five (95) percent of the maximum density as determined by

AASHTO T-180 shall be stabilized (or further stabilized) as specified herein.

B. Page 189, Subarticle 160-4.1- Commercial and Local Materials – Add the following:

1. Except that the limerock used for stabilization shall have a minimum of at least fifty (50) percent carbonates of calcium and magnesium.

C. Page 192, Subarticle 160-7.2.1.2- Undertolerances In…; is deleted in its entirety and replaced with the following:

1. There shall be no undertolerances in the C.B.R. permitted.

D. Page 195, Article 160-9- Basis of Payment; Is deleted in its entirety and replaced with the following:

1. Payment for stabilizing including all labor and materials shall be made at the Contract Unit Price Bid as indicated in the Bid Form of the Proposal.
2. Such price and payments shall constitute full compensation for all work specified in this Section for Type "B" Stabilization, including furnishing, spreading and mixing of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value.

E. Basis of Payment.

1. When the item of Type “B” Stabilization is included in the Contract, payment will be made at the Contract unit price per square yard. Such price and payment will include all cost of the mixture, in place and accepted, determined as specified above. No measurement and payment will be made for material placed outside the neat line limits or outside the adjusted limits, or for unused or wasted material.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

200 LIMEROCK BASE (REV. 08-23-12)

A. Description.

1. Construct a base composed of limerock material. Perform work in accordance with an approved Quality Control Plan meeting the requirements of Article 105 of these Specifications.

B. Materials.

1. Limerock base:
   a. Meet the requirements of FDOT Section 911.
   b. Produced and obtained from an FDOT approved source listed on the current FDOT Approved Aggregate Products from Mines or Terminals Listings.
2. More than one source of base rock on a single Contract may be used provided that a single source is used throughout the entire width and depth of a section of base. Obtain approval from Engineer before placing material from more than one source. Place material to ensure total thickness single source integrity at any station location of the base.
3. Intermittent placement or "Blending" of sources is not permitted.
4. Do not use any of the existing base that is removed to construct the new base.
5. Limerock is referred to hereinafter as "rock".

C. Equipment.

1. 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 or less; the main roadway area when forms are used and any other areas where the use of a mechanical spreader is not practicable; Contractor may spread the rock using bulldozers or blade graders.

D. Transporting Rock.

1. Transport the rock 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 Engineer's opinion, these operations will not be detrimental to the subgrade.

E. Spreading Rock.

1. Method of Spreading:
   a. Spread the rock uniformly.
   b. Remove all segregated areas of fine or coarse rock and replace them with properly graded rock.
2. Number of Courses:
   a. 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. Approval requirements for thicker lifts.
   a. If, through field tests, Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by Engineer, the base may be constructed in successive courses of not more than 8 inches compacted thickness. Engineer will base approval on results of a test section constructed using Contractor's specified compaction effort as follows:
      1) Notify Engineer prior to beginning construction of a test section.
      2) Construct a test section of the length of one LOT. Perform five QC density tests at random locations within the test section. At each test site, test the bottom 6 inches in addition to the entire course thickness. All QC tests and a Department Verification test must meet the density required by the Acceptance Criteria in this Article.
      3) Identify the test section with the compaction effort and thickness in the Logbook. Remove the materials above the bottom 6 inches, at no expense to the Department. The minimum density required on the thicker lift will be the average of the five results obtained on the thick lift in the passing test section.
      4) Maintain the exposed surface as close to "undisturbed" as possible; no further compaction will be permitted during the test preparation. If unable to achieve the required density, remove and replace or repair the test section to comply with the specifications at no additional expense to the Department. Contractor may elect to place material in 6 inches compacted thickness at any time.
      5) Once approved, a change in the source of base material will require the construction of a new test section. Do not change the compaction effort once the test section is approved. Engineer will periodically verify the density of the bottom 6 inches during thick lift operations.
      6) Engineer may terminate the use of thick lift construction and instruct Contractor to revert to the 6 inches maximum lift thickness if Contractor fails to achieve satisfactory results or meet applicable specifications.
4. Rock Base for Shoulder Pavement: Unless otherwise permitted, complete all rock base shoulder construction at any particular location before placing the final course of pavement on the traveled roadway. When dumping material for the construction of a rock base on the shoulders, do not allow material capable of scarring or contaminating the pavement surface on the adjacent

pavement. Immediately sweep off any rock material that is deposited on the surface course.

F. Compacting and Finishing Base.

1. General:
   a. Perform work in accordance with an approved Quality Control Plan meeting the requirements of Article 105 of these Specifications and the Acceptance Criteria herein below.
   b. Construct mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems in sections of not less than 300 feet in length or for the full length of the rock base. For these, a LOT is defined as a single lift of finished embankment not to exceed 500 feet.
   c. Construct shoulder-only areas, bike/shared use paths, and sidewalks in sections of not less than 300 feet in length or for the full length of the rock base. For these, a LOT is defined as 1,000 feet or one Day's Production, whichever is greater. Shoulders compacted separately shall be considered separate LOTs.
2. Single Course Base: After spreading, scarify the entire surface. Shape the base to produce the required grade and cross-section, free of scabs and laminations, after compaction.
3. Multiple Course Base: 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, allow Engineer to make density tests for the lower courses to determine that the required compaction has been obtained. After spreading the material for the top course, scarify finish and shape its surface to produce the required grade and cross-section, free of scabs and laminations, after compaction.
4. Moisture Content: 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 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.
5. Thickness Requirements: Within the entire limits of the length and width of the finished base, meet the specified plan thickness in accordance with the Quality Control requirements specified in Depth and Surface Testing Requirements subarticle herein below.
6. Correction of Defects:
   a. Contamination of Base Material: 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. Then replace the materials removed with clean base material, and shape and compact as specified above. Perform this work at no expense to the Department.
   b. Cracks and Checks: If cracks or checks appear in the base, either before or after priming, which, in the opinion of Engineer, would impair the structural efficiency of the base, remove the cracks or checks by rescarifying, reshaping, adding base material where necessary, and recompacting.
7. Compaction of Widening Strips:
   a. 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.
   b. When multiple course base construction is required, compact each course prior to spreading material for the overlaying course.

G. Acceptance Criteria:

1. Density: Within the entire limits of the width and depth of the base, obtain a minimum density in any LOT of 98% of modified Proctor maximum density as determined by FM 1-T 180, Method D. For shoulder only areas and bike/shared use paths, obtain a minimum density of 95% of the modified Proctor maximum density as determined by FM 1-T 180, Method D.
2. Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. Engineer will perform Verification sampling and tests at a minimum frequency listed in the tables below.

Mainline Pavement Lanes, Turn Lanes, Ramps, Parking Lots, Concrete Box Culverts and Retaining Wall Systems		
Test Name	Quality Control	Verification
Modified Proctor Maximum Density	One per eight consecutive LOTs	One per 16 consecutive LOTs
Density	One per LOT	One per four LOTs
Roadway Surface	Ten per LOT	Witness
Roadway Thickness	Three per LOT	Witness

Shoulder-Only, Bike/Shared Use Path and Sidewalk Construction		
Test Name	Quality Control	Verification
Modified Proctor Maximum Density	One per two LOTs	One per four LOTs
Density	One per LOT	One per two LOTs
Surface	Five per 500 feet	Witness
Thickness	Three per 600 consecutive feet	Witness

3. Initial Equipment Comparison:
   a. Before initial production, perform a comparison test using the Quality Control, Verifications and Independent Assurance gauges. Unless Engineer instructs, do not perform the initial equipment comparison more than once per project. When comparing the computed dry density of one nuclear gauge to a second gauge, ensure that the difference

between the two computed dry densities does not exceed 2 lb/ft^3 between gauges from the same manufacturer, and 3 lb/ft^3 between gauges from different manufacturers. Repair or replace any Quality Control gauge that does not compare favorably with the Independent Assurance gauge.

b. Perform a comparison analysis between the Quality Control nuclear gauge and the Verification nuclear gauge any time a nuclear gauge or repaired nuclear gauge is first brought to the project. Repair and replace any Quality Control gauge that does not compare favorably with the Verification gauge at any time during the remainder of the project. Calibrate all Quality Control gauges annually.

4. Initial Production Lot:

a. Before construction of any other LOT, prepare a 500-foot initial control section consisting of one full LOT in accordance with the approved Quality Control Plan for the Project.

b. Notify Engineer at least 24 hours prior to production of the initial control section. Perform all QC tests required herein below. When the initial Quality Control test results pass specifications, Engineer will perform a Verification test to verify compliance with the specifications.

c. Do not begin constructing another LOT until successfully completing the initial production LOT. Engineer will notify Contractor of the initial production lot approval within three working days after receiving Contractor's Quality Control data when test results meet the following conditions:

1) Quality Control tests must meet the specifications.

2) Verification test must meet the specifications.

3) Difference between Quality Control and Verification computed Dry Density results shall meet the requirements provided above for Initial Equipment Comparison.

4) If Verification test result fails the density requirements of the Acceptance Critera, correct the areas of non-compliance. The Quality Control and Verification tests will then be repeated. Engineer will reject Contractor's Quality Control Plan after three unsuccessful Verification attempts. Submit a revised Quality Control Plan to Engineer for approval.

5. Density over 105%:

a. When a QC computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, Engineer will perform an Independent Verification density test within 5 feet.

b. If the Independent Verification density results in a value greater than 105%, Engineer will investigate the compaction methods, examine the applicable Standard Proctor Maximum Density and material description.

c. Engineer may collect and test an Independent Verification Standard Proctor Maximum Density sample for acceptance in accordance with the Acceptance Criteria.

6. Quality Control Tests:

a. Standard Proctor Maximum Density Determination: Determine the Quality Control standard Proctor maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in the Acceptance Criteria.

b. Density Testing Requirements: Ensure compliance to the requirements of the Acceptance Criteria by Nuclear Density testing in accordance with FM 1-T 238. Determine the in-place moisture content for each density test. Use Florida Method FM 1-T 238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D-4643 (Laboratory Determination of Moisture Content of Granular Soils By Use of a Microwave Oven) for moisture determination.

c. Soil Classification: Perform soil classification tests on the sample collected for the Standard Proctor Maximum Density Determination above, in accordance with AASHTO T-88. Classify soils in accordance with AASHTO M–145 in order to determine compliance with embankment utilization requirements. Unless required by Engineer, do not test or classify materials for stabilized subgrade or base.

7. Department Verification:

a. Engineer will conduct a Verification test(s) in order to accept all materials and work associated with the Quality Control Tests. Engineer will verify the Quality Control results if they meet the Verification Comparison Criteria, otherwise Engineer will implement Resolution procedures.

b. Engineer will select test locations, including Station, Offset, and Lift, using a Random Number generator based on the Lots under consideration. Each Verification test evaluates all work represented by the Quality Control testing completed in those LOTs.

c. In addition to the Verification testing, Engineer may perform additional Independent Verification (IV) testing. Engineer will evaluate and act upon the IV test results in the same manner as Verification test results.

d. When the project requires less than four Quality Control tests per material type, Engineer reserves the right to accept the materials and work through visual inspection.

8. Reduced Testing Frequency: When no Resolution testing is required for 12 consecutive verified LOTs, or if required, the QC test data was upheld, reduce the QC density testing to one test every two LOTs by identifying the substantiating tests in the Density Log Book and notifying Engineer in writing prior to starting reduced frequency of testing. Generate random numbers based on the two LOTs under consideration. When Quality Control test frequency is reduced to one every two LOTs, obtain Engineer's approval to place more than one LOT over an untested LOT. Assure similar compaction efforts for the untested LOTs. If the Verification test fails, and Quality Control test data is not upheld by Resolution testing, the Quality Control testing will revert to the original frequency of one Quality Control test per LOT. Do not apply reduced testing

frequency in construction of shoulder-only areas, bike/shared use paths and sidewalks.

9. Quality Control Testing:

   a. Modified Proctor Maximum Density Requirement: Collect enough material to split and create three separate samples and retain two for Engineer's Verification and Resolution testing until Engineer accepts the 16 LOTs represented by the samples.

   b. Depth and Surface Testing Requirements:

      1) Notify Engineer a minimum of 24 hours before checking base depths and surface checking. Determine test locations including Stations and Offsets, using the Random Number generator approved by the Department. Do not perform depth and surface checks until Engineer is present to witness. Perform thickness check on the finished base or granular subbase component of a composite base. Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment. Traffic control is to be provided in accordance with the standard maintenance of traffic requirements of the Contract.

      2) The thickness is considered deficient, if the measured depth is over 1/2 inch less than the specified thickness. Correct all deficient areas of the completed base by scarifying and adding additional base material. As an exception, if authorized by the Department, such areas may be left in place without correction and with no payment.

      3) 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 1/4 inch to the satisfaction of the Engineer by scarifying and removing or adding rock as required, and recompact the entire area as specified hereinbefore.

   c. Surface & Thickness Reduced Testing Frequency: When no Resolution testing is required for 12 consecutive verified LOTs, or if required, the QC test data was upheld, reduce the QC surface and/or thickness checks to one half the minimum requirements as stated in the frequency requirements above (e.g. Reduce frequency from ten per LOT to ten per two LOTs) by identifying the substantiating tests and notifying Engineer in writing prior to starting reduced frequency of testing. If the Verification test fails, and Quality Control test data is not upheld by Resolution testing the Quality Control testing will revert to the original frequency required by the Acceptance Criteria above. The results of the Independent Verification testing will not affect the frequency of the Quality Control testing.

10. Department Verification Tests:

   a. Maximum Density: Engineer will randomly select one of the remaining two split samples and test in accordance with FM 1-T 180, Method D.

   b. Thickness and Surface Testing Requirements: The Department will witness the base depth and surface checks to ensure compliance with the Depth and Surface Testing Requirements above. If the QC test results are not deficient as defined therein, the LOT or 500-foot section will be accepted. If the QC test results are deficient, resolve deficiencies in accordance with the Depth and Surface Testing Requirements. Repeat acceptance testing. Provide traffic control, coring/boring equipment, and an operator for the coring/boring equipment.

   c. Verification Comparison Criteria and Resolution Procedures:

      1) Modified Proctor Maximum Density: Engineer will compare the Verification test results for Maximum Density to the corresponding Quality Control test results. If the test result is within 4.5 lb/ft3 of the QC test result, the LOTs will be verified. Otherwise, Engineer will collect the Resolution split sample corresponding to the Verification sample tested. The State Materials Office or an AASHTO accredited laboratory designated by the State Materials Office will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T 180, Method D.

      2) Engineer will compare the Resolution Test results with the Quality Control test results. If the Resolution Test result is within 4.5 lb/ft^3 of the corresponding Quality Control test result, Engineer will use the Quality Control test results for material acceptance purposes for each corresponding set of LOTs. If the Resolution test result is not within 4.5 lb/ft^3 of the corresponding Quality Control test, Engineer will collect the remaining Verification split sample for testing. Verification Test results will be used for material acceptance purposes for the LOTs in question.

      3) Density: When a Verification or Independent Verification density test does not meet the requirements of the Acceptance Criteria, retest at a site within a 5 feet radius of the Verification test location and observe the following:

         a) If the Quality Control retest meets the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, Engineer will accept the LOTs in question.

         b) If the Quality Control retest does not meet the Acceptance Criteria and compares favorably with the Verification or Independent Verification test, rework and retest the material in that LOT. Engineer will re-verify the LOTs in question.

         c) If the Quality Control retest and the Verification or Independent Verification test do not compare favorably, complete a new Equipment-Comparison Analysis. Once acceptable comparison is achieved, retest the LOTs. Engineer will perform new verification testing. Acceptance testing will not begin on a new LOT until Contractor has a gauge that meets the comparison requirements.

4) Thickness and Surface Testing Requirements: Resolve deficiencies in accordance with the Depth and Surface Testing Requirements above.

H. Priming and Maintaining.

1. Priming: 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 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.
2. Maintaining: Maintain the true crown and template, with no rutting or other distortion, while applying the surface course.

I. Thickness of Base.

1. Engineer will determine, as follows, the average thickness of the compacted limerock base for use in the measurements specified in the Method of Measurement:
   a. Average thickness will be calculated per typical cross-section for the entire job as a unit.
   b. Any measured thickness that is more than 1/2 inch greater than the design thickness shown on the typical cross-section in the Plans or, when no plans exist, the thickness specified in the description of the Contract pay item, will be considered as the design or specified thickness plus 1/2 inch.
   c. Any areas of existing base left in place will not be included in the calculations.

J. Method of Measurement.

1. The quantity to be paid for will be the pay area in square yards of limerock base constructed pursuant to these specifications that is measured, adjusted as specified below, and accepted by Engineer.
   a. Normal Thickness Base: The surface area of specified normal thickness base to be adjusted will be the measured quantity as specified above, omitting any areas not accepted for payment under Subarticle 200-J.2 below, and omitting areas which are to be included for payment under the Method of Measurement for Variable Thickness Base Authorized by Engineer. The pay area is determined by adjusting the aforementioned surface area using the formula below limited to a maximum for the final pay area of 105 percent of the surface area.
      1) Pay Area = Surface Area × ((Calculated Average Thickness per these Specifications)/(Plan or Specified Thickness))
   b. Variable Thickness Base Authorized by Engineer: Where the base is constructed to an authorized compacted thickness other than the normal thickness as shown on the typical section in the Plans, as specified on the Plans, the thickness specified in the description of the Contract pay item, or ordered as by Engineer for providing additional depths at culverts or bridges, or for providing transitions to connecting pavements; the volume of such authorized variable thickness compacted base will be calculated from authorized lines and grades, or by other methods selected by Engineer, and converted to equivalent square yards of normal thickness base for payment.
2. Additional areas that will not be included in the above measurements for payment include:
   a. Areas of existing base left in place;
   b. Areas where under-thickness is in excess of the allowable tolerance as specified in Subarticle 200-G.9; and
   c. Areas where the work under other Contract pay item(s) includes the construction or restoration of a limerock base.

K. Basis of Payment.

1. Price and payment will be full compensation for all the work specified in this Article, including correcting all defective surface and deficient thickness, removing cracks and checks as provided above in Crack and Checks, prime coat application meeting the requirements of FDOT Section 300, and the additional rock required for crack elimination.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

327 MILLING OF EXISTING ASPHALT PAVEMENT (REV. 05-14-12)

A. Description.

1. At the locations and to the average depth of cut specified by the Contract Documents or Work Order, remove existing asphalt concrete pavement by milling to improve the rideability and cross slope of the finished pavement, to lower the finished grade adjacent to existing curb prior to resurfacing, or to completely remove existing pavement.
2. Take ownership of milled material.

B. Equipment.

1. Provide a milling machine capable of maintaining a depth of cut and cross slope that will achieve the results specified in the Contract Documents or Engineer. Use a machine with a minimum overall length (out to out measurement excluding the conveyor) of 18 feet and a minimum cutting width of 6 feet.
2. Equip the milling machine with a built-in automatic grade control system that can control the transverse slope and the longitudinal profile to produce the specified results.
3. To start the project, Engineer will approve any commercially manufactured milling machine that meets the above requirements. If it becomes evident after starting milling that the milling machine cannot consistently produce the specified results, Engineer will reject the milling machine for further use.
4. Contractor may use a smaller milling machine when milling to lower the grade adjacent to existing curb or other areas where it is impractical to use the above described equipment.
5. Equip the milling machine with means to effectively limit the amount of dust escaping during the removal operation.
6. For complete pavement removal, Engineer may approve the use of alternate removal and crushing equipment in lieu of the equipment specified above.

C. Construction.

1. General:
   a. Remove the existing raised reflective pavement markers prior to milling. Include the cost of removing existing pavement markers in the price for milling.
   b. When milling to improve rideability or cross slope, remove the existing pavement to the average depth specified by the Contract Documents or Work Order, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. Engineer may require the use of a stringline to ensure maintaining the proper alignment.
   c. Establish the longitudinal profile of the milled surface in accordance with the milling plans. Ensure that the final cross slope of the milled surface parallels the surface cross slope shown on the Plans or as directed by Engineer. Establish the cross slope of the milled surface by a second sensing device near the outside edge of the cut or by an automatic cross slope control mechanism. The Plans may waive the requirement of automatic grade or cross slope controls where the situation warrants such action.
   d. Operate the milling machine to minimize the amount of dust being emitted. Engineer may require prewetting of the pavement.
   e. Provide positive drainage of the milled surface and the adjacent pavement. Perform this operation on the same day as milling. Repave all milled surfaces no later than the day after the surface was milled unless otherwise stated in the plans.
   f. If traffic is to be maintained on the milled surface prior to the placement of the new asphalt concrete, provide suitable transitions between areas of varying thickness to create a smooth longitudinal riding surface. Produce a pattern of striations that will provide an acceptable riding surface. Engineer will require the control the traveling speed of the milling machine to produce a texture that will provide an acceptable riding surface.
   g. Prior to opening an area which has been milled to traffic, sweep the pavement with a power broom or other approved equipment to remove, to the greatest extent practicable, fine material which will create dust under traffic. Sweep in a manner that will minimize the potential for creation of a traffic hazard and to minimize air pollution.
   h. Sweep the milled surface with a power broom prior to placing asphalt concrete.
   i. In urban and other sensitive areas, use a street sweeper or other equipment capable of removing excess milled materials and controlling dust. Obtain Engineer's approval of such equipment, contingent upon its demonstrated ability to do the work.
   j. Perform the sweeping operation immediately after the milling operations or as directed by Engineer.
2. Quality Control Requirements:
   a. Furnish an electronic level with a length of 4 feet and an accuracy of plus or minus 0.1 degree approved by Engineer for the control of cross slope. Make this electronic level available at the jobsite at all times during milling operations. Calibrate and compare electronic levels at a minimum frequency of once per day before any milling operation, and at any time as directed by Engineer. If the comparison between the QC and Verification levels is within the comparison tolerance of plus or minus 0.2%, the QC level is considered to compare favorably and can be used for measurement and acceptance of cross slopes. If the levels do not compare favorably, perform a second comparison using another calibrated electronic level (DTPW or Contractor) for resolution. If this resolution level compares favorably with the QC level, the QC

level is considered to be verified. If the second level does not compare favorably with the QC level, discontinue the use of the QC electronic level and obtain another approved electronic level that meets the requirements of this specification. Regardless of the comparison analysis outcome, Contractor assumes all risk associated with placing the pavement at the correct cross slope.

b. Multiple cuts may be made to achieve the required pavement configuration or depth of cut. Measure the cross slope of the milled surface by placing the level at the center location of a lane and perpendicular to the roadway centerline. Record all the measurements to the nearest 0.1% on an approved form and submit to Engineer for documentation.

   1) Tangent Sections: Measure the cross slope per lane at a minimum frequency of one measurement every 100 feet. Calculate the absolute deviation of cross slope at each measurement and then average the absolute deviation of ten consecutive cross slope measurements. The absolute deviation is the positive value of a deviation. When the average absolute deviation cross slope is consistently within the acceptance tolerance as shown in Table 327-1 and upon approval by Engineer, the frequency of the cross slope measurements can be reduced to one measurement every 200 feet during milling operations.

   2) Superelevated Sections: Measure the cross slope every 100 feet per lane within the length of full superelevation. Calculate the absolute deviation of each measurement and then average the absolute deviation of ten consecutive cross slope measurements. For every transition section, measure the cross slope at control points identified in the plans or, if not shown in the plans, at a control point at a location of 0.0% cross slope. For curves where the length of the fully superelevated section is less than 250 feet, measure the cross slope at the beginning point, midpoint and ending point of the fully superelevated section, calculate the absolute deviation and average. When the number of measurements is less than ten and the length of full superelevation is greater than 250 feet, average the absolute deviation of all measurements.

c. If the average absolute deviation of the cross slope measurements falls outside the acceptance tolerance shown in Table 327-1, stop the milling operations and make adjustments until the problem is resolved to the satisfaction of Engineer. If an individual cross slope deviation falls outside the acceptance tolerance as shown in Table 327-1, make corrections only in the deficient area to the satisfaction of Engineer at no cost to the Department. For pavement with multiple cuts, the deficient areas not caused by the final cut may be left in place upon approval of Engineer. All milling corrections shall be completed before placement of the asphalt course unless stated otherwise in the plans or as determined by Engineer.

d. The limits of deficient areas requiring correction may be verified and adjusted with more accurate measurement methods, including survey instruments, upon approval by Engineer at no cost to the Department. Should Contractor wish to have any corrections waived, submit a request to Engineer for approval. Engineer may waive the corrections at no reduction in payment if an engineering determination indicates that the deficiencies are sufficiently separated so as not to significantly affect the final cross slope or project grade.

e. For intersections, tapers, crossovers, transitions at the beginning and end of the project, bridge approaches and similar areas, adjust the cross slope to match the actual site conditions, or as directed by Engineer.

TABLE 327-1
Cross Slope Milling Acceptance Tolerance

Roadway Feature	Individual Absolute Deviation	Average Absolute Deviation
Tangent section (including turn lanes)	0.4%	0.2%
Superelevated curve	0.4%	0.2%
Shoulder	0.5%	0.5%

D. Milled Surface.

1. Provide a milled surface with a reasonably uniform texture, within 1/4 inch of a true profile grade, and with no deviation in excess of 1/4 inch from a straightedge applied to the pavement perpendicular to the centerline. Ensure that the variation of the longitudinal joint between multiple cut areas does not exceed 1/4 inch. Engineer may accept areas varying from a true surface in excess of the above stated tolerance without correction if Engineer determines that they were caused by a pre-existing condition which could not have reasonably been corrected by the milling operations. Correct any unsuitable texture or profile, as determined by Engineer, at no additional expense to the Department.
2. Engineer may require remilling of any area where a surface lamination causes a non-uniform texture to occur.

E. Method of Measurement.

1. The quantity to be paid for will be the area, in square yards, over which milling is completed and accepted by Engineer.

F. Basis of Payment.

1. Price and payment will be full compensation for all work specified in this Article, including hauling off and stockpiling or otherwise disposing of the milled material.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

334 HOT MIX ASPHALT (REV. 05-3-11)

A. Description.

1. General.

   a. Construct plant mixed Hot Mix Asphalt (HMA) pavements based on the type of mixture specified in the Contract Documents and for the Asphalt Work Categories defined below.

   b. Meet all applicable requirements for plants, material, equipment, and construction specified herein.

2. Asphalt Work Categories.

   a. Asphalt Work Category 1: Includes the construction of bike paths.

   b. Asphalt Work Category 2: Includes the construction of paved shoulders and other non-mainline pavement locations.

   c. Asphalt Work Category 3: Includes the construction of new mainline and turn lanes HMA pavement, milling and resurfacing.

3. Mix Types.

   a. Use a HMA mix that meets the requirements of this specification.

   b. In the event a mix type is not identified in the Contract Documents use, subject to Engineer's approval, the appropriate HMA mix from Table 1 below.

   c. Mixtures are based on the design traffic level of the project, expressed in 18,000 pounds Equivalent Single Axle Loads (ESAL's).

   d. A Type SP or FC mix one traffic level higher than the traffic level specified in the Contract may be substituted, at no additional cost.

Table 1
HMA Fine Mix Types

Asphalt Work Category	Mix Types	Traffic Level[(2)]
1	Type SP-9.5[(1)]	A
2	Structural Mixes: Types SP-9.5 or SP-12.5[(1)] Friction Mixes: Types FC-9.5 or FC-12.5[(1)]	B or C
3	Structural Mixes: Types SP-9.5 or SP-12.5 Friction Mixes: Types FC-9.5 or FC-12.5	C
[(1)] Equivalent mixes may be approved as determined by the Engineer.		
[(2)] Traffic Level (1x106 ESAL's): A is <0.3; B is 0.3 to <3; and C is 3 to <10		

4. Gradation Classification.

   a. Use only fine HMA mixes meeting the requirements of subarticle C.2.b below. The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

      1) Type SP-9.5, FC-9.5 ……. 9.5 mm (3/8")

      2) Type SP-12.5, FC-12.5 …….. 12.5 mm (1/2")

5. Total Pavement Thickness.

   a. The total pavement thickness of the HMA Pavement will be based on a specified spread rate or plan thickness as shown in the Contract Documents. Before paving, propose a spread rate or thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan spread rate or thickness.

   b. When the total pavement thickness is specified as plan thickness, the plan thickness and individual layer thickness will be converted to spread rate using the following equation:

      1) Spread rate (lbs/yd^2) = t x G_{mm} x 43.3 where:

         a) t = Thickness (in.) (Plan thickness or individual layer thickness)

         b) G_{mm} = Maximum specific gravity from the mix design

         c) For target purposes only, spread rate calculations shall be rounded to the nearest whole number.

   c. Plan quantities are based on a G_{mm} of 2.540, corresponding to a spread rate of 110 lbs. per square yard per inch. Pay quantities will be based on the actual maximum specific gravity of the mix being used.

6. Layer Thicknesses.

   a. Structural Course Layer(s):

      1) Unless otherwise called for in the Contract Documents, the allowable layer thicknesses for fine Type SP HMA mixes are as follows:

         a) Type SP-9.5……...1 - 1 1/2 inches

         b) Type SP-12.5……...1 1/2 - 2 1/2 inches

      2) Fine Type SP-9.5 mixes are limited to the top two structural layers, two layers maximum.

   b. Friction Course Layer (FC-12.5 and FC-9.5):

      1) The thickness of the friction course layer will be the plan thickness as shown in the Contract Document or as directed in writing by the Engineer. For construction purposes, the plan thickness will be converted to spread rate as defined in Subarticle A.5 above.

7. Additional Requirements.

   a. Type SP HMA fine mixtures:

      1) When construction includes the paving of adjacent shoulders (≤5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless otherwise called for in the Contract Documents.

2) For overbuild layers, use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch, and the maximum allowable thickness may be increased by 1/2 inch, unless called for differently in the Contract Documents.

8. Weight of Mixture.

a. The weight of the mixture shall be determined as provided in FDOT 320-2.2 (Electronic Weigh Systems).

B. Materials.

1. General Requirements: Meet the material requirements specified in FDOT Division III (Materials). Specific references as follows:

Superpave PG Asphalt Binder	FDOT 916-1
Recycling Agents	FDOT 916-2
Course Aggregate	FDOT Section 901
Fine Aggregate	FDOT Section 902

2. Asphalt Binder:

a. For Type SP Mixtures:

1) Unless specified elsewhere in the Contract Documents, use a PG 67-22 asphalt binder from the FDOT's Qualified Products List (QPL).

2) Meet the requirements of FDOT Section 916 and Subarticle B.4 below.

b. For Type FC Mixtures:

1) Use an ARB-5 asphalt rubber binder meeting the requirements of FDOT Section 336 and any additional requirements or modifications specified herein for the various mixtures.

2) If called for in the Contract Documents, use a PG 76-22 asphalt binder meeting the requirements of FDOT 916-1.

3) For projects with a total quantity of FC-9.5 or FC-12.5 less than 500 tons, the Contractor may elect to substitute for the ARB-5, a PG 76-22 Asphalt Binder that meets the requirements of FDOT 916-1.

3. Aggregate:

a. Provide certification from the aggregate supplier that the material meets all requirements for construction aggregates stipulated in the Contract Documents.

b. Aggregates and sources used must be identified in the FDOT "Approved Aggregate Products from Mines or Terminals" current listings.

c. For Type FC mixes:

1) Use an aggregate blend that consists of crushed granite, crushed Oolitic limestone, other crushed materials (as approved by FDOT for friction courses per Rule 14-103.005, Florida Administrative Code), or a combination of the above. Crushed limestone from the Oolitic formation may be used if it contains a minimum of 12% silica material as determined by FDOT Test Method FM 5-510 and FDOT grants approval of the source prior to its use. As an exception, mixes that contain a minimum of 60% crushed granite may either contain:

a) Up to 40% fine aggregate from other sources, or

b) A combination of up to 15% Reclaimed Asphalt Pavement (RAP) Material and the remaining fine aggregate from other sources.

c) A list of aggregates approved for use in friction courses may be available on the FDOT's website. The URL for obtaining this information, if available, is: ftp://ftp.dot.state.fl.us/fdot/smo/website/sources/frictioncourse.pdf.

4. Reclaimed Asphalt Pavement (RAP) use in Type SP asphalt mixture:

a. General requirements: RAP may be used as a component of the Type SP asphalt mixture, if approved by the Engineer. Usage of RAP is subject to the following requirements:

1) Limit the amount of RAP material used in the mix to a maximum of 50 percent by weight of total aggregate.

2) When using a PG 76-22 Asphalt Binder, limit the amount of RAP material used in the mix to a maximum of 15 percent by weight of total aggregate.

3) Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

4) Provide RAP material having a minimum average asphalt content of 4.0 percent by weight of total mix. The Engineer may sample the stockpile to verify that this requirement is met.

5) Use a grizzly or grid over the RAP cold bin, in-line roller crusher, screen, or other suitable means to prevent oversized RAP material from showing up in the completed recycle mixture. If oversized RAP material appears in the completed recycle mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

b. Material Characterization: Assume responsibility for establishing the asphalt binder content, gradation, viscosity and bulk specific gravity (Gsb) of the RAP material based on a representative sampling of the material.

c. Asphalt Binder for Mixes with RAP:

1) Select the appropriate asphalt binder grade based on Table 2 below.

2) The Engineer reserves the right to change the asphalt binder type and grade at design based on the characteristics of the RAP asphalt binder, and

reserves the right to make changes during production.

3) Maintain the viscosity of the recycled mixture within the range of 5,000 to 15,000 poises.

Table 2 Asphalt Binder Grade for Mixes Containing RAP	
Percent RAP	Asphalt Binder Grade
<20	PG 67-22
20 – 29	PG 64-22
≥ 30	Recycling Agent

C. Composition of Mixture.

1. General: Compose the asphalt mixture using a combination of aggregates, mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

2. Mix Design:

   a. General: Design the asphalt mixture in accordance with AASHTO R35 04, except as noted herein. Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. Prior to the production of any asphalt mixture, obtain the Engineer's conditional approval of the mix design. If required by the Engineer, send representative samples of all component materials, including asphalt binder to a laboratory designated by the Engineer for verification. The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and at his discretion, the Engineer may no longer allow the use of the mix design.

   b. Mixture Gradation Requirements: Combine the aggregates in proportions that will produce an asphalt mixture meeting all of the requirements defined in this specification and conform to the gradation requirements at design as defined in AASHTO M323 04, Table 3. Aggregates from various sources may be combined.

      1) Mixture Gradation Classification: Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M323 04, Table 3, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M323 04, Table 4. Fine mixes are defined as having a gradation that passes above or through the primary control sieve control point. Use only fine mixes.

   c. Gyratory Compaction: Compact the design mixture in accordance with AASHTO T312 04. Use the number of gyrations as defined in AASHTO R35 04, Table 1.

   d. Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M323 04, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M323 04, Table 6.

   e. Moisture Susceptibility:

      1) Test 4 inch specimens in accordance with FM 1 T 283. Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi. If necessary, add a liquid anti-stripping agent from the FDOT's Qualified Products List, or hydrated lime in order to meet these criteria.

      2) In lieu of moisture susceptibility testing, add a liquid anti-stripping agent from the FDOT's Qualified Products List. Add 0.5% liquid anti-stripping agent by weight of binder.

   f. Additional Information: In addition to the requirements listed above, provide the following information on each mix design:

      1) The design traffic level and the design number of gyrations (N_{design}).

      2) The source and description of the materials to be used.

      3) The FDOT source number and the FDOT product code of the aggregate components furnished from an FDOT approved source.

      4) The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation caused by handling and processing as necessary.

      5) A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly material passing the No. 200 sieve) should be accounted for and identified.

      6) The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component.

      7) A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1 percent.

      8) A target temperature at which the mixture is to be discharged from the plant and a target roadway temperature. Do not exceed a target temperature of 330°F for modified asphalts and 315°F for unmodified asphalts.

      9) Provide the physical properties achieved at four different asphalt binder contents. One shall be at the optimum asphalt content, and must conform to all specified physical requirements.

      10) The name of the Mix Designer.

      11) The ignition oven calibration factor.

D. Contractor Quality Control.

1. Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and Project site for quality control purposes.
2. Acceptance of any automatic delivery ticket printout, electronic weight delivery ticket, or other evidence of weight of the materials or approval of any particular type of materials or production methods will not constitute agreement by the County that such matters are in accordance with the Contract Documents and it shall be the Contractor's responsibility to ensure that the materials delivered to the project are in accordance with the Contract Documents.

E. General Construction Requirements.

1. Weather Limitations: Do not transport asphalt mix from the plant to the roadway unless all weather conditions are suitable for the laying operations.
2. Limitations of Laying Operations:
   a. General: Spread the mixture only when the surface upon which it is to be placed has been previously prepared, is intact, firm, and properly cured, and is dry.
   b. Air Temperature: Spread the mixture only when the air temperature in the shade and away from artificial heat is at least 40ºF for layers greater than 1 inch (100 lb/yd2) in thickness and at least 45ºF for layers 1 inch (100 lb/yd2) or less in thickness (this includes leveling courses). The minimum temperature requirement for leveling courses with a spread rate of 50 lb/yd2 or less is 50ºF.
3. Mix Temperature: Heat and combine the ingredients of the mix in such a manner as to produce a mixture with a temperature at the plant and at the roadway, within a range of ±30ºF from the target temperature as shown on the mix design. Reject all loads outside of this range.
4. Transportation of the Mixture: Transport the mixture in vehicles previously cleaned of all foreign material. After cleaning, thinly coat the inside surface of the truck bodies with soapy water or an asphalt release agent as needed to prevent the mixture from adhering to the beds. Do not allow excess liquid to pond in the truck body. Do not use diesel fuel or any other hazardous or environmentally detrimental material as a coating for the inside surface of the truck body. Cover each load at all times.
5. Preparation of Surfaces Prior to Paving:
   a. Cleaning: Clean the surface of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.
   b. Patching and Leveling Courses: Where the HMA is to be placed on an existing pavement which is irregular, wherever the plans indicate, or if directed by the Engineer, bring the existing surface to proper grade and cross-section by the application of patching or leveling courses.
   c. Application over Surface Treatment: Where an asphalt mix is to be placed over a surface treatment, sweep and dispose of all loose material from the paving area.
   d. Tack Coat: Apply a tack coat on existing pavement structures that are to be overlaid with an asphalt mix and between successive layers of all asphalt mixes, unless directed otherwise by the Engineer. Use a tack coat product meeting FDOT Section 300 (Prime and Tack Coats for Base Courses). Use an emulsified tack coat spread rate of 0.02 to 0.08 gal/sy or as specified by the Engineer.
6. Paving:
   a. Alignment of Edges: With the exception of pavements placed adjacent to curb and gutter or other true edges, place all pavements by the stringline method to obtain an accurate, uniform alignment of the pavement edge. Control the unsupported pavement edge to ensure that it will not deviate more than ± 1.5 inches from the stringline.
   b. Rain and Surface Conditions: Immediately cease transportation of asphalt mixtures from the plant when rain begins at the roadway. Do not place asphalt mixtures while rain is falling, or when there is water on the surface to be covered. Once the rain has stopped and water has been removed from the tacked surface to the satisfaction of the Engineer and the temperature of the mixture caught in transit still meets the requirements as specified in subarticle E.3 above, the Contractor may then place the mixture caught in transit.
   c. Checking Depth of Layer: Check the depth of each layer at frequent intervals, and make adjustments when the thickness exceeds the allowable tolerance of 1/4". Address any material outside of this tolerance per the direction of the Engineer. When making an adjustment, allow the paving machine to travel a minimum distance of 32 feet to stabilize before the second check is made to determine the effects of the adjustment.
   d. Hand Spreading: In limited areas where the use of the spreader is impossible or impracticable, spread and finish the mixture by hand.
   e. Spreading and Finishing: Upon arrival, dump the mixture in the approved paver, and immediately spread and strike-off the mixture to the full width required, and to such loose depth for each course that, when the work is completed, the required weight of mixture per square yard, or the specified thickness, is secured. Carry a uniform amount of mixture ahead of the screed at all times.
   f. Thickness of Layers: Construct each course of Type SP mixtures in layers of thickness pursuant to subarticle A.6.a above.
7. Leveling Courses:
   a. Patching Depressions: Before spreading any leveling course, fill all depressions in the existing surface more than 1 inch deep by spot patching with leveling course mixture, and compact thoroughly.
   b. Spreading Leveling Courses: Place all courses of leveling with an asphalt paver or by the use of two

motor graders, one being equipped with a spreader box. Other types of leveling devices may be used upon approval by the Engineer.

c. Rate of Application: When using Type SP-9.5 (fine graded) for leveling, do not allow the average spread of a layer to be less than 50 lb/yd2 or more than 75 lb/yd2. The quantity of mix for leveling shown in the plans represents the average for the entire project; however, the Contractor may vary the rate of application throughout the project as directed by the Engineer. When leveling in connection with base widening, the Engineer may require placing all the leveling mix prior to the widening operation.

8. Compaction:

a. For each paving or leveling train in operation, furnish a separate set of rollers, with their operators.

b. When density testing for acceptance is required (Asphalt Work Category 3), select equipment, sequence, and coverage of rolling to meet the specified density requirement. Regardless of the rolling procedure used, complete the final rolling before the surface temperature of the pavement drops to the extent that effective compaction may not be achieved or the rollers begin to damage the pavement.

c. When density testing for acceptance is not required (Asphalt Work Categories 1 and 2), use a rolling pattern approved by the Engineer.

d. Use hand tamps or other satisfactory means to compact areas which are inaccessible to a roller, such as areas adjacent to curbs, headers, gutters, bridges, manholes, etc.

9. Joints.

a. Transverse Joints: Construct smooth transverse joints, which are within 3/16 inch of a true longitudinal profile when measured with a 15 foot manual straightedge.

b. Longitudinal Joints: For all layers of pavement except the leveling course, place each layer so that longitudinal construction joints are offset 6 to 12 inches laterally between successive layers. Do not construct longitudinal joints in the wheelpaths. The Engineer may waive these requirement where offsetting is not feasible due to the sequence of construction.

10. Surface Requirements: Construct a smooth pavement with good surface texture and the proper cross-slope.

a. Texture of the Finished Surface of Paving Layers: Produce a finished surface of uniform texture and compaction with no pulled, torn, raveled, crushed or loosened portions and free of segregation, bleeding, flushing, sand streaks, sand spots, or ripples. Correct any area of the surface that does not meet the foregoing requirements in accordance with the requirements below for Correcting Unacceptable Pavement.

b. Cross Slope: Construct a pavement surface with cross slopes in compliance with the requirements of the Contract Documents.

c. Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification. Furnish a 15 foot manual and a 15 foot rolling straightedge meeting the requirements of FM 5-509. Make them available at the job site at all times during paving operations for Asphalt Work Category 3 and make them available upon request of the Engineer for Asphalt Work Categories 1 and 2.

1) Asphalt Work Category 3:

a) Acceptance Testing: Using a rolling straightedge, test the final Type SP structural layer and the Type FC layer, where a friction course is called for in the Contract Documents. Test all pavement lanes where the width is constant using a rolling straightedge and document all deficiencies on a form approved by the Engineer. Notify the Engineer of the location and time of all straightedge testing a minimum of 48 hours before beginning testing.

b) Rolling Straightedge Exceptions: Testing with the rolling straightedge will not be required in the following areas: intersections, tapers, crossovers, parking lots and similar areas. In addition, testing with the rolling straightedge will not be performed on the following areas when they are less than 50 feet in length: turn lanes, acceleration/deceleration lanes and side streets. However, correct any individual surface irregularity in these areas that deviates from the plan grade in excess of 3/8 inch as determined by a 15 foot manual straightedge, and that the Engineer deems to be objectionable, in accordance with the requirement below for Correcting Unacceptable Pavement. The Engineer may waive or modify straightedging requirements if no milling, leveling, overbuild or underlying structural layer was placed on the project and the underlying layer was determined to be exceptionally irregular.

c) Final Type SP Structural Layer: Straightedge the final Type SP structural layer with a rolling straightedge behind the final roller of the paving train or as a separate operation. Address all deficiencies in excess of 3/16 inch in accordance with the requirements below for Correcting Unacceptable Pavement (structural layer). If the Type SP layer is to be the final surface, corrections may be waived by the Engineer. Retest the corrected areas.

d) Friction Course Layer: Where a friction course is called for in the Contract, at the completion of all paving operations, straightedge the friction course either behind the final roller of the paving train or as a separate operation. Address all deficiencies in excess of 3/16 inch in accordance with the requirements below for Correcting Unacceptable Pavement (friction course), unless waived by the Engineer. Retest all corrected areas.

2) Asphalt Work Categories 1 and 2: If required by the Engineer, straightedge the final structural layer with a rolling straightedge, either behind the final roller of the paving train or as a separate operation. Correct all deficiencies in excess of 5/16 inch in accordance with the requirements

below for Correcting Unacceptable Pavement (structural layer). Retest all corrected areas. If the Engineer determines that the deficiencies on a bicycle path are due to field geometrical conditions, the Engineer will waive corrections with no deduction to the pay item quantity.

d. Correcting Unacceptable Pavement:

1) General: Correct all areas of unacceptable pavement at no additional cost.

2) Structural Layers: Correct deficiencies in the Type SP structural layer by one of the following methods:

a) Remove and replace the full depth of the layer, extending a minimum of 50 feet on both sides of the defective area for the full width of the paving lane.

b) Mill the pavement surface to a depth and width that is adequate to remove the deficiency. (This option only applies if the structural layer is not the final surface layer.)

3) Friction Course: Correct deficiencies in the friction course layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on both sides of the defective area for the full width of the paving lane.

F. Acceptance of the Mixture.

1. General: The asphalt mixture will be accepted based on the Asphalt Work Category as defined below:

a. Asphalt Work Category 1 – Certification by the Contractor as defined below.

b. Asphalt Work Category 2 – Certification and quality control testing by the Contractor as defined below.

c. Asphalt Work Category 3 – Quality control testing by the Contractor and acceptance testing by the Engineer as defined below.

2. Certification by the Contractor: On Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications. The Engineer may run independent tests to determine the acceptability of the material.

3. Certification and Quality Control Testing by the Contractor: On Asphalt Work Category 2 construction, submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications, along with supporting test data documenting all quality control testing as described in the Quality Control Sampling and Testing Requirements (subarticle F.3.a. below). If so required by the Contract, utilize an Independent Laboratory as approved by the Engineer for the quality control testing. The mix will also require visual acceptance by the Engineer. In addition, the Engineer may run independent tests to determine the acceptability of the material.

a. Quality Control Sampling and Testing Requirements:

1) Perform quality control testing at a frequency of once per day. Obtain the samples in accordance with FDOT Method FM 1 T 168.

2) Test the mixture at the plant for gradation (P-8 and P-200) and asphalt binder content (Pb).

3) Test the mixture on the roadway for density using six-inch diameter roadway cores obtained at a frequency of three cores per day.

4) Determine the asphalt content of the mixture in accordance with FM 5 563.

5) Determine the gradation of the recovered aggregate in accordance with FM 1 T 030.

6) Determine the roadway density in accordance with FM 1 T 166. The minimum roadway density will be based on the percent of the maximum specific gravity (Gmm) from the approved mix design. If the Contractor or Engineer suspects that the mix design Gmm is no longer representative of the asphalt mixture being produced, then a new Gmm value will be determined from plant-produced mix with the approval of the Engineer. Roadway density testing will not be required in certain situations as described in the Acceptance Testing Exceptions (subarticle F.4.a below).

7) Assure that the asphalt content, gradation and density test results meet the criteria in Table 3 below.

Table 3
Quality Control and Acceptance Values

Characteristic	Tolerance
Asphalt Binder Content (percent)	Target ± 0.55
Passing No. 8 Sieve (percent)	Target ± 6.00
Passing No. 200 Sieve (percent)	Target ± 2.00
Roadway Density (average of three cores)	91.5% G_{mm}
Roadway Density (any single core)	90.0 % G_{mm}

4. Quality Control Testing by the Contractor and Acceptance Testing by the Engineer: On Asphalt Work Category 3, perform quality control testing as described in the Quality Control Sampling and Testing Requirements (subarticle F.3.a above). In addition, the Engineer will accept the mixture at the plant with respect to gradation (P-8 and P-200) and asphalt binder content (Pb). The mixture will be accepted on the roadway with respect to density. The Engineer will sample and test the material as described in subarticle F.3.a above. The Engineer will randomly obtain at least one set of samples per day. Assure that the asphalt content, gradation and density test results meet the criteria in Table 3 above. Material failing to meet these acceptance criteria will be addressed as directed by the Engineer.

a. Acceptance Testing Exceptions:

1) When the total quantity of any mix type in the Project is less than 500 tons, or on Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run independent tests to determine the acceptability of the material.

2) Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, variable thickness overbuild courses, leveling courses, first lift of asphalt base course placed on subgrade, miscellaneous asphalt pavement, or any course with a specified thickness less than 1 inch or a specified spread rate less than 100 lbs/sy. In addition, density testing for acceptance will not be performed on the following areas when they are less than 1,000 feet in length: crossovers, intersections, turning lanes, acceleration lanes, deceleration lanes, or ramps. Compact these courses in accordance with a standard rolling procedure approved by the Engineer. In the event that the rolling procedure deviates from the approved procedure, placement of the mix will be stopped.

G. Method of Measurement.

1. For the work specified under this Article, the quantity to be paid for will be the weight of the mixture, in tons.
2. The bid price for the asphalt mix will include the cost of the liquid asphalt or the asphalt recycling agent and the tack coat application as specified herein. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix.

H. Basis of Payment.

1. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

335 DRIVEWAY TRANSITIONS (REV. 06-23-11)

A. Description

1. General: Where required by the Contract Documents or directed by the Engineer, transition the driveway to meet the elevation of a newly constructed and abutting sidewalk or roadway.

B. Materials

1. Meet the following requirements:
   a. Limerock (FDOT Section 911)
   b. Concrete (FDOT Section 347; minimum compressive strength of 3,000 p.s.i. at 28 days)
   c. Hot Mix Asphalt; refer to HMA Specifications in these Contract Documents.
   d. Expansion Joints (FDOT 932-1.1)

C. Preparation and Construction

1. Full-depth saw cut a neat line along the entire width of the driveway where it abuts the new sidewalk or roadway and remove existing concrete or asphalt to provide for a maximum transition slope of 2” per foot.
2. Concrete Driveways:
   a. Remove or add any additional subgrade material necessary to meet final elevation requirements.
   b. Add the necessary amount of limerock to rework the rock base and compact to a minimum of 95% of AASHTO T 99 density.
   c. Construct a 6” thick concrete pavement.
   d. Form a ½ inch expansion joint between the sidewalk and the driveway or at fixed objects and driveway intersections.
   e. Finish surface of concrete to match existing driveway.
3. Asphalt Driveways:
   a. Remove or add any additional subgrade necessary to meet final elevation for a new 6” thick limerock base and a 1” thick Hot Mix Asphalt (HMA) pavement layer.
   b. Provide and compact new limerock base to obtain a minimum density of 98% of modified Proctor maximum density as determined by FM 1-T 180, Method D.
   c. Construct a minimum 1” thick HMA pavement layer (Type SP-9.5).
4. Dispose of all excess materials and debris properly.

D. Method of Measurement

1. The quantity to be paid for will be the area, in square yards, of approved HMA or concrete pavement transition, measured and accepted by the Engineer.

E. Basis of Payment

1. Price and payment will be full compensation for all work and materials specified in this Article.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

339 MISCELLANEOUS ASPHALT PAVEMENT (REV. 08-25-11)

A. Description.

1. Construct asphalt pavement in areas where vehicular traffic does not travel, such as pavement under guardrail, bicycle paths, median pavement, sidewalks, etc.
2. Chemically treat the underlying soil to prevent plant growth.

B. Materials.

1. Use a plant-mixed hot bituminous mixture, other than an open-graded friction course (FC-5), meeting the requirements of a mix design approved by Engineer. For bicycle paths, use a mixture that produces a finished pavement which will not distort or mar under bicycle or commercial riding mower wheel loads.

C. Foundation.

1. Shape the soil in areas where pavement is to be constructed to a surface true to the lines, grades and typical cross-sections shown in the Plans.
2. Compact the soil to a firm unyielding state.

D. Soil Treatment.

1. Immediately before placing the pavement, uniformly apply a pre-emergent herbicide to the foundation soil meeting the following requirements:
   a. Use only products approved by the Florida Department of Agriculture for the State of Florida found on www.flpesticide.us/ website.
   b. Ensure that the herbicide carries an approved label for use under paved surfaces, and that herbicide is applied in accordance with directions on the label.
   c. Do not use any products in the sulfonylurea family of chemicals.
2. Herbicide application by broadcast spraying is not allowed.
3. Prevent damage to any adjacent vegetation during herbicide application. Replace, at no expense to the Department, any plants damaged as the result of soil treatment outside designated areas.
4. Ensure that all employees applying insecticides and herbicides possess a current Florida Department of Agriculture Commercial Applicator license with the categories of licensure in Right-of-Way Pest Control and Aquatic Pest Control. Ensure that employees who work with herbicides comply with all applicable Federal, State, and local regulations. If application of synthetic organo-auxin herbicides is necessary, meet the requirements of Chapter 5E-2, Florida Administrative Code.

E. Placing Mixture.

1. Uniformly place the hot bituminous mixture by machine or hand methods at the rate of spread or dimensions indicated in the plans or as otherwise directed by Engineer.
2. If posts are to be constructed within the pavement area, the Contractor may cut holes for installation through the completed pavement.
3. After completing installation of posts and compaction of the backfill material, patch the area around each post with fresh hot bituminous mixture.
4. If directed by the Engineer, place miscellaneous asphalt pavement prior to placement of the final surface course.

F. Compacting Mixture.

1. Uniformly compact the hot bituminous mixture with lightweight rollers or vibratory compactors as directed by Engineer. The Contractor may use hand tamps for compaction in areas which are inaccessible to other compaction equipment.

G. Surface Requirements.

1. Provide a finished surface that is reasonably smooth, of uniform texture, and shaped so as to drain without ponding of water.
2. Upon completion of the pavement, shape the surface of the adjacent earth to match the pavement edges.

H. Method of Measurement.

1. The quantity to be paid for will be the weight, in tons, determined by an electronic weighing system as described in FDOT 320-2.2. The pay quantity will be based on the average spread rate of the area shown on the Plans or authorized by the Engineer.
2. For calculation, a weight of 100 lbs/yd2 per inch thickness of asphalt will be used.
3. Prepare a Certification of Quantities for the miscellaneous asphalt pavement pay item, based on the quantity of asphalt accepted by the Engineer. The certification must be provided monthly with each payment request and include the Contract Number, Certification Number, Certification Date, period represented by Certification, and the tons of miscellaneous asphalt pavement for the period.

I. Basis of Payment.

1. Price and payment will be full compensation for all work specified in this Article, including shaping and compacting the foundation, soil sterilization treatment, furnishing of the bituminous material used in the mixture, and shaping of adjacent earth surfaces.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

344 PORTLAND CEMENT CONCRETE (REV. 10-26-11)

A. Description.

1. Use concrete composed of a mixture of Portland cement, aggregates, and water, with or without chemical or mineral admixtures. Construct Concrete based on the type of work as described in the Contract Documents and the Concrete Work Categories below.
   a. Concrete Work Category 1: Includes the construction of sidewalks, curb and gutter, ditch and slope pavement, or other non-reinforced cast-in- place or precast elements.

b. Concrete Work Category 2: Includes the construction of precast concrete including concrete barriers, traffic railing barriers, parapets, sound barriers, inlets, manholes, junction boxes, pipe culverts, storm sewers, box culverts, prestressed concrete poles, concrete bases for light poles, highway sign foundations, retaining wall systems, traffic separators or other structural precast elements.

c. Concrete Work Category 3: Includes the work associated with the placement and/or construction of structural cast-in-place concrete requiring a class of concrete specified in FDOT Section 346.

B. Materials.

1. General: Certify that all materials used in concrete meet the following requirements:

Portland Cement:	FDOT Section 921 except Portland cements meeting the requirements of AASHTO M-85 or ASTM C-150 are allowed for nonstructural concrete.
Coarse Aggregate:	FDOT Section 901
Fine Aggregate:	FDOT Section 902
Water:	FDOT Section 923
Chemical Admixtures:	FDOT Section 924
Pozzolans and Slag:	FDOT Section 929

2. Admixture Requirements: Chemical admixtures may be added at the dosage rates recommended by the manufacturer.

3. Material Storage: Use a concrete production facility that meets the following requirements.

a. Cementitious Materials Storage: Provide a separate and clearly labeled weatherproof facility to store each brand or type of cementitious material without mixing or contamination. Different brands of cement, cement of the same brand from different facilities, or different types of cement must be stored separately and must not be mixed. Provide a suitable, safe and convenient means of collecting cementitious material samples at each storage facility.

b. Aggregate Storage: Provide suitable bins, stockpiles or silos to store and identify aggregates without mixing, segregating or contaminating different grades or types of materials. Identify aggregate type/gradation. Handle the aggregates in a manner to minimize segregation and meet the specification requirements when recovered from storage. Continuously and uniformly sprinkle coarse aggregate with water, for 24 hours preceding introduction into the concrete mix. Timers may be used to facilitate the sprinkling of aggregate stockpiles using an alternating on/off method. However, in no event shall the top surface of the stockpile be permitted to become dry prior to batching of concrete. Moisture probes may be used to determine the moisture content of the aggregate. Ensure that the accuracy of the probe is certified annually and verified weekly. Maintain stored aggregates in a well-drained condition to minimize free water content. Provide access for the Engineer to sample the aggregates from the recovery side of the storage facility.

C. Production, Mixing and Delivery of Concrete.

1. Concrete Production Requirements:

a. Use concrete production facilities certified by the National Ready-Mixed Concrete Association (NRMCA) and approved by the FDOT.

b. Produce concrete utilizing equipment that is in good operating condition and operated in a manner to ensure a consistent product. When moisture probes are not used, ensure that the concrete production facility determines the free moisture for the coarse and fine aggregates within two hours prior to each day's batching. On concrete placements expected to exceed three hours, perform an additional moisture test approximately half way through the batching operations and adjust batch proportions accordingly.

c. Ensure that the calibration of the measuring devices of the concrete production facilities meets the requirements of Chapter 531 of the Florida Statutes, and are in accordance with Chapter 9.2 of the FDOT Materials Manual. At least quarterly, ensure that all scales, meters and other weighing or measuring devices are checked for accuracy by a qualified representative of a scale company registered with the Bureau of Weights and Measures of the Florida Department of Agriculture. As an alternative, the producer may have this frequency identified in an FDOT approved QC plan. The accuracy of admixture measuring dispensers will be certified annually by the admixture supplier.

d. When Volumetric Mixers are used for Category I applications, deliver concrete in accordance with the requirements of Volumetric Mixer Manufacturers Bureau (VMMB) and ensure that the vehicle has a VMMB registered rating plate.

2. Classes of Concrete: Classes of concrete to be used on the Project will be as specified in the Contract Documents or FDOT Section 346 when applicable.

3. Contractors Quality Control: Provide Engineer for approval a Quality Control (QC) plan to identity to the Department how quality will be ensured at the project site. During random inspections Engineer will use this document to verify that the construction of the Project is in agreement with the QC plan and the Contract Documents.

4. Concrete Mix Design:

a. Before producing any concrete, submit the proposed mix design to Engineer on a form provided by the Department. Otherwise, the Department may accept applicable mix designs previously described in an FDOT approved QC plan. In any event, use only concrete mix designs having prior approval of the Engineer.

b. Materials may be adjusted provided that the theoretical yield requirement of the approved mix design is met. Show all required original approved

design mix data and batch adjustments and substituted material on a Department approved concrete delivery ticket. Engineer may disqualify any concrete production facility for non-compliance with specification requirements.

5. Delivery:
   a. For cast-in-place applications, the maximum allowable mixing and agitation time of concrete is 90 minutes.
   b. Furnish a delivery ticket on a form approved by the Department with each batch of concrete before unloading at the placement site. The delivery ticket shall be printed. Record material quantities incorporated into the mix on the delivery ticket. Ensure that the Batcher responsible for producing the concrete certifies that the batch was produced in accordance with these Specifications and signs the delivery ticket. Contractor must sign the delivery ticket certifying that the concrete was batched, delivered and placed in accordance with these Specifications.
   c. The Contractor is responsible for rejecting loads of concrete that do not meet the plastic properties of the approved mix design or the minimum compressive strength requirements.
   d. At the sole option of the Department, the Engineer may accept concrete at a reduced pay when it is determined that the concrete will serve its intended function.
6. Placing Concrete:
   a. Concreting in Cold Weather:
      1) Do not place concrete when the temperature of the concrete at placement is below 45°F.
      2) Meet the air temperature requirements for mixing and placing concrete in cold weather as specified in FDOT Section 346. During the curing period, if NOAA predicts the ambient temperature to fall below 35°F for 12 hours or more or to fall below 30°F for more than 4 hours, enclose the structure in such a way that the concrete and air within the enclosure can be kept above 60°F for a period of 3 days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.
      3) Assume all risks connected with the placing and curing of concrete. Although Engineer may give permission to place concrete, Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the County.
   b. Concreting in Hot Weather:
      1) Meet the temperature requirements and special measures for mixing and placing concrete in hot weather as specified in FDOT Section 346.
      2) When the temperature of the concrete as placed exceeds 75°F, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by FDOT Section 346.
      3) Spray reinforcing steel and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.
      4) Assume all risks connected with the placing and curing of concrete. Although Engineer may give permission to place concrete, Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the County.
7. Mixers: Ensure that mixers are capable of combining the components of concrete into thoroughly mixed and uniform mass, free from balls or lumps of cementitious materials, and capable of discharging the concrete uniformly. Operate concrete mixers at speeds per the manufacturer's design. Do not exceed the manufacturer's rated capacity for the volume of mixed concrete in the mixer, mixing drum, or container.
8. Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 yd3 placed in one day and less than 0.5 yd3 placed in a single placement may be accepted using a pre-bagged mixture. The Department may verify that the pre-bagged mixture is prepared in accordance with the manufacturer's recommendations and will meet the requirements of this Specification.
9. Sampling and Testing:
   a. Category 1: Engineer may sample and test the concrete at his discretion to verify its quality. The minimum 28 day compressive strength requirement for this concrete is 3,000 psi.
   b. Category 2: Provide a statement of certification from the manufacturer of the precast element that the element meets the quality control and inspection testing requirements of the Contract Documents.
   c. Category 3: The Department will randomly select a sample from each 200 yd3 or one day's production to determine plastic properties and to make three 4 x 8 inch cylinders for testing by the Department at 28 days to ensure that the design compressive strength has been met. The Department may, at its discretion, test additional concrete samples to ensure compliance with the Specifications.
10. Records: Maintain the following records for review for at least 3 years after final acceptance of the Project:
    a. Approved concrete mix designs.
    b. Materials source (delivery tickets, certifications, certified mill test reports).
    c. A copy of the scale company or testing agency report showing the observed deviations from quantities checked during calibration of the scales and meters.
    d. A copy of the documentation certifying the admixture weighing/measuring devices.
    e. For non structural concrete, the Department will accept recent NRMCA, VMMB or FDOT inspection records certifying the plant or truck can produce concrete. In addition, documentation will be available at the plant or in the truck showing that action has been taken to correct deficiencies noted during the inspections.

D. Acceptance of the Work.

1. Category 1 Work: Category 1 work will be accepted based upon compliance with Production, Mixing and Delivery Requirements specified in herein.
2. Category 2 Work: Precast elements will be accepted based upon certification from the Contractor that the elements were produced by a production facility on the FDOT's current approved plant list. In addition, the producers QC stamp will be displayed on the element.
3. Category 3 Work: Category 3 work shall be in full compliance with this Specification, and with current FDOT Specifications, FDOT Section 346 and associated Contractor Quality Control (QC) specifications governing cast-in-place concrete. In addition, a Delivery Ticket as described in Subarticle 344-B.5 will be required for acceptance of the material at the Project site.

E. Method of Measurement.

1. The quantities to be paid for will be the concrete items having awarded Contract Prices that are completed and accepted by Engineer.

F. Basis of Payment.

1. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

G. Basis of Payment.

1. When the item of Concrete is included in the Contract, payment will be made at the Contract unit price per cubic yard. Such price and payment will include all cost of the mixture, in place and accepted, determined as specified above. No measurement and payment will be made for material placed outside the neat line limits or outside the adjusted limits, or for unused or wasted material.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

425 INLETS, MANHOLES AND JUNCTION BOXES (SECTION 425)

A. Page 417, Subarticle 425-6.6 - Placing Pipe; The third sentence of this sub-article is modified to read:

1. When catch basins are called for, the inlet and outlet pipe may extend into the structure not to exceed 4 inches beyond the interior face of the wall.

B. Page 417, Subarticle 425-6.7 Backfilling; is modified to include the following:

1. Select material shall be used for backfill adjacent to catch basins and riser inlets, as detailed in the Plans. It shall consist of well-graded limerock or limerock and sand fill. Sand or fill having a high proportion of sand will not be accepted as select fill. All select fill shall be approved by the Engineer prior to placing. No separate payment will be made for select fill, but shall be included in the unit bid price for each particular item as indicated in the Bid Form of the Proposal.

C. Page 417, Subarticle 425-8.2 - Adjusted Structures; is expanded to include the following:

1. Upon completion of the work, and prior to acceptance and final payment, all such structures will be inspected by the Engineer to ensure that they are free of all debris and thoroughly cleaned. All drainage structures within the project limits shall be cleaned thoroughly and made free of all debris prior to final acceptance by the County. The Contractor shall include within the scheduled items listed on the Contract's Bid Form, the cost of all work necessary for cleaning and debris removal.

D. Page 418, Subarticle 425-8.3 – Payment Items; is expanded to include the following:

1. When a separate item is listed on the Bid Form for cleaning of structures, said item shall only be used when indicated on the Engineering Plans or as directed by the Engineer, and only for the cleaning of drainage structures that were not impacted by construction activities.

425A ADJUSTMENT OR RELOCATION OF VALVE, METER AND JUNCTION BOXES

1. The work under these pay items includes any adjustments (raising or lowering) of existing boxes or fire hydrants. When relocation of the box is required, the Contractor shall make all necessary arrangements with the utility companies, as the utility companies are responsible to relocate the valves and meters and valve and meter boxes.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

430 PIPE CULVERTS (REV. 03-14-13)

A. Description.

1. Furnish and install drainage pipe and end sections at the locations called for in the Plans or as directed by Engineer. Furnish and construct joints and connections to existing pipes, catch basins, inlets, manholes, walls, etc., as may be required to complete the work.
2. Construct structural plate pipe culverts or underdrains in accordance with FDOT Sections 435 and 440.
3. Obtain pipe culverts from a Producer currently on the FDOT's list of Producers with Accepted Quality Control Programs. Producers seeking inclusion on the list shall meet the requirements of FDOT 105-3.
4. When the producer's FDOT Quality Control Program is suspended, accept responsibility of either obtaining drainage products from another producer with an accepted FDOT Quality Control Program or await re-approval of the producer's FDOT Quality Control Program. Engineer will not allow changes in Contract Time or completion dates as a result of the producer's FDOT Quality Control Program suspension. Accept responsibility for all delay costs or other costs associated with the producer's FDOT Quality Control Program suspension.

B. Materials.

1. Pipe: Meet the following requirements:

Concrete Pipe	FDOT Section 449
Round Rubber Gaskets	FDOT Section 942
Corrugated Steel Pipe and Pipe Arch	FDOT Section 943
Corrugated Aluminum Pipe and Pipe Arch	FDOT Section 945
Corrugated Polyethylene Pipe	FDOT Section 948
Polyvinyl Chloride (PVC) Pipe	FDOT Section 948

2. Joint Materials: Use joint materials specified in this Article according to type of pipe and conditions of usage.
3. Mortar: Use mortar composed of one part portland cement and two parts of clean, sharp sand, to which mixture Contractor may add hydrated lime in an amount not to exceed 15% of the cement content. Use mortar within 30 minutes after its preparation.

C. Type of Pipe to Be Used.

1. When the Plans designate a type (or types) of pipe, use only the type (or choose from the types) designated.
2. If the Plans do not designate a type (or types) of pipe, Contractor, subject to Engineer's approval, may use either a minimum Class I concrete pipe, corrugated steel pipe, corrugated aluminum pipe, corrugated

polyethylene pipe or PVC pipe. If one of the metal types is chosen, use the minimum gage specified in FDOT Section 943 for steel pipe or FDOT Section 945 for aluminum pipe.

3. Class I corrugated Polyethylene Pipe may be used on local (non-arterial or non-collector) roads only.

D. Laying Pipe.

1. General:

   a. Lay all pipe, true to the lines and grades given, with hubs upgrade and tongue end fully entered into the hub. When pipe with quadrant reinforcement or circular pipe with elliptical reinforcement is used, install the pipe in a position such that the manufacturer's marks designating "top" and "bottom" of the pipe are not more than five degrees from the vertical plane through the longitudinal axis of the pipe. Do not allow departure from and return to plan alignment and grade to exceed 1/16 inch per foot of nominal pipe length, with a total of not more than 1 inch departure from theoretical line and grade. Take up and relay any pipe that is not in true alignment or which shows any settlement after laying at no additional expense to the Department.

   b. Do not use concrete pipe with lift holes except round pipe which has an inside diameter in excess of 54 inches or any elliptical pipe.

   c. Repair lift holes, if present, by use of a hand-placed, stiff, non-shrink, 1-to-1 mortar of cement and fine sand, after first washing out the hole with water. Completely fill the void created by the lift hole with mortar. Cover the repaired area with a 24 by 24 inches piece of filter fabric secured to the pipe. Use a Type D-3 filter fabric meeting the requirements shown on FDOT Design Standards, Index 199 and the Contract Documents.

   d. Secure the filter fabric to the pipe using a method that holds the fabric in place until the backfill is placed and compacted. Use a grout mixtures, mastics, or strapping devices to secure the fabric to the pipe.

   e. When installing pipes in structures, construct inlet and outlet pipes of the same size and kind as the connecting pipe shown in the Plans. Extend the pipes through the walls for a distance beyond the outside surface sufficient for the intended connections, and construct the concrete around them neatly to prevent leakage along their outer surface as shown on the FDOT Design Standards, Index 201. Keep the inlet and outlet pipes flush with the inside of the wall. Resilient connectors as specified in FDOT 942-3 may be used in lieu of a masonry seal.

   f. Furnish and install a filter fabric jacket around all pipe joints and the joint between the pipe and the structure in accordance with FDOT Design Standards, Index Nos. 201 and 280. Use fabric meeting the physical requirements of Type D-3 specified on the FDOT Design Standards, Index 199 and the Contract Documents. The fabric shall extend a minimum of 12 inches beyond each side of the joint or both edges of the coupling band, if a coupling band is used. The fabric shall have a minimum width of 24 inches, and a length sufficient to provide a minimum overlap of 24 inches. Secure the filter fabric jacket against the outside of the pipe by metal or plastic strapping or by other methods approved by Engineer.

   g. Meet the following minimum joint standards:

Pipe Application	Minimum Standard
Storm and Cross Drains	Water-tight
Gutter Drain	Water-tight
Side Drains	Soil-tight

   h. When rubber gaskets are to be installed in the pipe joint, the gasket shall be the sole element relied on to maintain a tight joint. Soil tight joints must be watertight to 2 psi. Water-tight joints must be water-tight to 5 psi unless a higher pressure rating is required in the Plans.

2. Trench Excavation: Excavate the trench for storm and cross drains, and side drains as specified in the Contract Documents.

3. Foundation: Provide a suitable foundation, where the foundation material is of inadequate supporting value, as determined by Engineer. Remove the unsuitable material and replace it with suitable material, as specified in Article 120 (Earthwork and Related Operations) of these Specifications. Where in Engineer's opinion, the removal and replacement of unsuitable material is not practicable, he may direct alternates in the design of the pipe line, as required to provide adequate support. Minor changes in the grade or alignment will not be considered as an adequate basis for extra compensation. Do not lay pipe on blocks or timbers, or on other unyielding material, except where the use of such devices is called for in the Plans.

4. Backfilling: Backfill around the pipe as specified in Article 120 (Earthwork and Related Operations) of these Specifications unless specific backfilling procedures are described in the Contract Documents.

5. Plugging Pipe:

   a. When existing pipe culverts are to be permanently placed out of service, fill them with flowable fill that is non-excavatable, contains a minimum 350 lbs/cy of cementious material and meets the requirements Article 121 (Flowable Fill) and/or plug them with masonry plugs as required by the Contract Documents. Install masonry plugs that are a minimum of 8 inches in thickness, in accordance with FDOT Design Standards Index 280.

   b. When proposed or existing pipe culverts are to be temporarily placed out of service, plug them with prefabricated plugs as shown in the Plans. Install prefabricated plugs in accordance with the manufacturer's recommendations. Do not fill, or construct masonry plugs in, any pipe culverts intended for current or future service.

6. End Treatment:

   a. Place an end treatment at each storm and cross drain, and side drain as shown in the Plans. Refer to the FDOT Design Standards for types of end treatment details.

   b. As an exception to the above, when concrete mitered end sections are permitted, Contractor may use

reinforced concrete U-endwalls, if shop drawings are submitted to Engineer for approval prior to use.

c. Provide end treatments for corrugated polyethylene pipe and PVC pipe as specified in FDOT Section 948, or as detailed in the Plans.

7. Metal Pipe Protection:

a. Apply a bituminous coating to the surface area of the pipe within and 12 inches beyond the concrete or mortar seal prior to sealing, to protect corrugated steel or aluminum pipe embedded in a concrete structure, such as an inlet, manhole, junction box, endwall, or concrete jacket.

b. Ensure that the surface preparation, application methods (dry film thickness and conditions during application), and equipment used are in accordance with the coating manufacturers' published specifications.

c. Obtain Engineer's approval of the coating products used.

8. Final Pipe Inspection:

a. Based on contract pavement type, upon completion of placement of concrete pavement or the placement of structural asphalt, but prior to placement of asphalt friction course, dewater installed pipe and provide Engineer with a video recording schedule allowing for pipe videoing and reports to be completed and submitted to the Department and reviewed prior to continuation of pavement.

b. For pipe 48 inches or less in diameter, provide Engineer a video DVD and report using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software that provides:

1) Actual recorded length and width measurements of all cracks within the pipe.

2) Actual recorded separation measurement of all pipe joints.

3) Pipe ovality report.

4) Deflection measurements and graphical diameter analysis report in terms of x and y axis.

5) Flat analysis report.

6) Representative diameter of pipe.

7) Pipe deformation measurements, leaks, debris, or other damage or defects.

8) Deviation in pipe line and grade, joint gaps, and joint misalignment.

c. Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at: http://www.dot.state.fl.us/construction/contractorissues/laser.shtm. Reports may be submitted in electronic media if approved by Engineer.

d. For video recorded, laser profiled pipe that indicates deflection that appears to be in excess of that allowed by Specification, Engineer may require further testing of the pipe. If directed by Engineer, test pipe using a mandrel. The mandrel shall be pulled by hand and be approved by Engineer prior to use. If use of a mandrel is selected as the means of further testing, the mandrel's diameter, length, and other requirements shall conform to Subarticle 430-D.8.g below. Remove, replace, and retest pipe failing to meet the specific deflection requirements for the type of pipe installed, at no cost to the Department. Should the deflection test prove that the pipe met specifications, the Department will bear the cost of the deflection testing.

e. Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

f. Video Report:

1) Provide a high quality DVD in a MPEG2 format video with a standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

2) The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number on the set of plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process. Provide Engineer with copies of these notes along with the video.

3) Move the camera through the pipe at a speed not greater than 30 feet per minute. Mark the video with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet. Film the entire circumference at each joint. Stop the camera and pan when necessary to document defects.

g. Mandrels: Use mandrels which are rigid, nonadjustable, odd-numbered legged (minimum 9 legs) having a length not less than its nominal diameter. The diameter at any point shall not be less than the allowed percent deflection of the certified actual mean diameter of the pipe being tested. The mandrel shall be fabricated of metal, fitted with pulling rings at each end, stamped or engraved on some segment other than a runner with the nominal pipe size and mandrel outside diameter.

E. Removing Existing Pipe.

1. If the Plans indicate that existing pipe is to remain the property of the Department, collect and stack along the right-of-way all existing pipe or pipe arch so indicated in the Plans to be removed, or that does not conform to

the lines and grades of the proposed work and that is not to be re-laid, as directed by Engineer. Take care to prevent damage to salvageable pipe during removal and stacking operations.

F. Specific Requirements for Concrete Pipe.

1. Sealing Joints: Seal the pipe joints with round rubber or profile gaskets meeting the requirements of FDOT Section 449. Ensure that the gasket and the surface of the pipe joint, including the gasket recess, are clean and free from grit, dirt and other foreign matter, at the time the joints are made. In order to facilitate closure of the joint, application of a vegetable soap lubricant immediately before closing of the joint will be permitted. Prelubricated gaskets may be used in lieu of a vegetable soap lubricant when the lubricating material is certified to be inert with respect to the rubber material.

2. Laying Requirements for Concrete Pipe with Rubber Gasket Joints: Do not allow the gap between sections of pipe to exceed 5/8 inch for pipe diameters of 12 inches through 18 inches, 7/8 inch for pipe diameters of 24 through 66 inches, and 1 inch for pipe diameters 72 inches and larger. Where minor imperfections in the manufacture of the pipe create an apparent gap in excess of the tabulated gap, Engineer will accept the joint provided that the imperfection does not exceed 1/3 the circumference of the pipe, and the rubber gasket is 1/4 inch or more past the pipe joint entrance taper. Where concrete pipes are outside of these tolerances, replace them at no expense to the Department. Do not apply mortar, joint compound, or other filler to the gap which would restrict the flexibility of the joint.

3. Field Joints for Elliptical Concrete Pipe: Use either a preformed plastic gasket material or an approved rubber gasket to make a field joint.

   a. Plastic Gasket. For field joints that are made from preformed plastic gasket material; install field joints in accordance with the manufacturer's instructions and the following:

      1) Material: Meet the requirements of FDOT 942-2.

      2) Joint Design: Ensure that the pipe manufacturer furnishes Engineer with details regarding configuration of the joint and the amount of gasket material required to affect a satisfactory seal. Do not brush or wipe joint surfaces which are to be in contact with the gasket material with a cement slurry. Fill minor voids with cement slurry.

      3) Primer: Apply a primer of the type recommended by the manufacturer of the gasket material to all joint surfaces which are to be in contact with the gasket material, prior to application of the gasket material. Thoroughly clean and dry the surface to be primed.

      4) Application of Gasket: Apply gasket material to form a continuous gasket around the entire circumference of the leading edge of the tongue and the groove joint, in accordance with the detail shown on the Design Standards, Index No. 280. Do not remove the paper wrapper on the exterior surface of the gasket material until immediately prior to joining of sections. Apply plastic gasket material only to surfaces which are dry. When the atmospheric temperature is below 60ºF, either store plastic joint seal gaskets in an area above 70ºF, or artificially warm the gaskets to 70ºF in a manner satisfactory to Engineer.

      5) Installation of Pipe: Remove and reposition or replace any displaced or contaminated gasket as directed by Engineer. Install the pipe in a dry trench. Carefully shape the bottom of the trench to minimize the need for realignment of sections of pipe after they are placed in the trench. Hold to a minimum any realignment of a joint after the gaskets come into contact. Prior to joining the pipes, fill the entire joint with gasket material and ensure that when the pipes are joined there is evidence of squeeze-out of gasket material for the entire internal and external circumference of the joint. Trim excess material on the interior of the pipe to provide a smooth interior surface. If a joint is defective, remove the leading section of pipe and reseal the joint.

   b. Rubber Gasket. For field joints that are made with profile rubber gaskets; install field joints in accordance with the manufacturer's instructions and the following:

      1) Material: Meet the requirements of FDOT 942-4.

      2) Joint Design: Ensure that the pipe manufacturer furnishes Engineer with details regarding configuration of the joint and gasket required to effect a satisfactory seal. Do not apply mortar, joint compound, or other filler which would restrict the flexibility of the gasket joint.

4. Requirements for Concrete Radius Pipe:

   a. Design: Construct concrete radius pipe in segments not longer than 4 feet (along the pipe centerline), except where another length is called for in the Contract Documents. Join each segment using round rubber gaskets. Ensure that the pipe manufacturer submits details of the proposed joint, segment length and shape for approval by Engineer, prior to manufacture.

   b. Pre-Assembly: Ensure that the manufacturer pre-assembles the entire radius section in his yard, in the presence of Engineer, to ensure a proper fit for all parts. At the option of the manufacturer, Contractor may assemble the pipe without gaskets. Consecutively number the joints on both the interior and exterior surfaces of each joint, and make match marks showing proper position of joints. Install the pipe at the project site in the same order as pre-assembly.

G. Specific Requirements for Corrugated Metal Pipe.

1. Field Joints:

   a. General:

      1) Make a field joint with locking bands, as specified in Article 9 of AASHTO M 36 and AASHTO M 196M for aluminum pipe. For aluminum pipe,

fabricate bands from the same alloy as the culvert sheeting.

2) When existing pipe to be extended is helically fabricated, make a field joint between the existing pipe and the new pipe using one of the following methods:

a) Cut the new pipe to remove one of the re-rolled annular end sections required in FDOT Sections 943 or 945, or fabricate the pipe so that the re-rolled annular section is fabricated only on one end. Use either a spiral (helical) band with a gasket or a flat band with gaskets as required by Subarticle 430-H.1.b.1) b) to join the pipe sections.

b) Contractor may construct a concrete jacket as shown on the FDOT Design Standards, Index No. 280, provided that the minimum cover required by the FDOT Design Standards, Index No. 205 can be obtained.

b. Side Drain, Storm and Cross Drain, and Gutter Drains: Where corrugated metal pipe is used as side drain, storm and cross drain, or gutter drain, use a rubber or neoprene gasket of a design shown to provide a joint as specified in Subarticle 430-D.

1) Use a gasket of one of the following dimensions:

a) For annular joints with 1/2 inch depth corrugation: either a single gasket a minimum of 7 inches by 3/8 inch or two gaskets a minimum of 3 1/2 inches by 3/8 inch; and for annular joints with 1 inch depth corrugations: either a single gasket a minimum of 7 inches by 7/8 inch or two gaskets a minimum of 3 1/2 inches by 7/8 inch.

b) For helical joints with 1/2 inch depth corrugation: either a single gasket a minimum of 5 inches by 1 inch or two gaskets a minimum of 3 1/2 inches by 1 inch; and for helical joints with 1 inch depth corrugations: either a single gasket a minimum of 5 inches by 1 1/2 inches or two gaskets a minimum of 3 1/2 inches by 1 1/2 inches.

c) Such other gasket designs as may be approved by Engineer.

2) If, in lieu of a single gasket spanning the joint, two gaskets are used, place these individual gaskets approximately 2 inches from each pipe end at the joint. When two gaskets are used, seal the overlapping area on the coupling band between the gaskets consistent with the joint performance specified. Contractor may tuck a strip of preformed gasket material over the bottom lip of the band for this purpose. Use coupling bands that provide a minimum circumferential overlap of 3 inches. As the end connections on the coupling band are tightened, ensure that there is no local bending of the band or the connection. Use precurved coupling bands on pipe diameters of 24 inches or less.

3) Use flat gaskets meeting the requirements of ASTM D-1056, designation 2C2 or 2B3. In placing flat gaskets on pipe prior to placing the coupling band, do not stretch the gasket more than 15% of its original circumference. Use circular gaskets meeting the requirements of ASTM C-361. Do not stretch the circular gasket more than 20% of its original circumference in placing the gasket on pipe. Use preformed plastic gasket material meeting the composition requirements of FDOT 942-2.2.

4) Apply an approved vegetable soap lubricant, as specified for concrete pipe in Subarticle 430-G.1.

c. Alternate Joint: In lieu of the above-specified combination of locking bands and flat gaskets, Contractor may make field joints for these pipe installations by the following combinations:

1) Use the metal bands as specified in Article 9 of AASHTO M 36M that are at least 10 1/2 inches wide and consist of a flat central section with a corrugated section near each end, designed to match the annular corrugation in the pipe with which they are to be used. Connect the bands in a manner approved by Engineer, with a suitable fastening device such as the use of two galvanized 1/2 inch diameter bolts through a galvanized bar and galvanized strap, suitably welded to the band. Use a strap that is the same gage as the band.

2) Where helically corrugated pipe is to be jointed by this alternate combination, ensure that at least the last two corrugations of each pipe section are annular, and designed such that the band will engage each pipe end with the next-to-outside annular corrugation.

3) For these bands, use a rubber gasket with a circular cross-section of the "O-ring" type conforming to ASTM C-361. Use gaskets having the following cross-sectional diameter for the given size of pipe:

Pipe Size	Gasket Diameter
12 inches through 36 inches (with 1/2 inch depth corrugations)	13/16 inch
42 inches through 96 inches (with 1/2 inch depth corrugations)	7/8 inch
36 inches through 120 inches (with 1 inch depth corrugations)	1 3/8 inches

4) Use preformed gasket material to seal the overlapping area on the coupling band between gaskets.

5) Use channel band couplers in helical pipe with ends which have been reformed and flanged specifically to receive these bands. Use channel band couplers that are of a two piece design, are fabricated from galvanized steel stock conforming to AASHTO M 36, have 2 by 2 by 3/16 inch angles fastened to the band ends to allow for proper tightening, and meet the following:

Band Thickness	Pipe Wall Thickness
0.079 inch	0.109 inch or lighter
0.109 inch	0.138 inch or heavier

3/4 inch wide	0.109 inch or lighter
1 inch wide	0.138 inch or heavier

6) Furnish two 1/2-inch diameter connection bolts with each band, that conform to ASTM A-307, Grade A and are electroplated in accordance with ASTM B-633.

7) Use a gasket with the joint that is a hydrocarbon blend of butyl rubber meeting the chemical composition and physical properties of FDOT 942-2.2. Use a 3/8 by 3/4-inch gasket for pipe fabricated from 0.109 inch or lighter material and a 3/8 by 1 inch gasket for pipe fabricated from 0.138 inch and heavier material.

8) Contractor may use a flange band coupler without the gasket for all applications other than side drain, storm and cross drain, and gutter drain.

9) Do not use the flange band coupler to join dissimilar types of pipe.

10) Contractor may join reformed flanged helical pipe to existing annular or reformed pipe having annular ends. On non-gasketed installations, use either an annular band or an alternate joint described in Subarticle 430-H.1.c. On gasketed installations, use an annular band, minimum of five corrugations in width, in conjunction with two O-ring gaskets as specified in Subarticle 430-H.1.c. Use mastic material to seal the area of band overlap.

11) The minimum joint performance standards specified in Subarticle 430-D.1 apply.

2. Laying and Shape Requirements for Corrugated Metal Pipe: Install pipe using either a trench or open ditch procedure.

a. Check pipe shape regularly during backfilling to verify acceptability of the construction method used. Pipe deflected 5% or more of the certified actual mean diameter of the pipe at final inspection shall be replaced at no cost to the Department. Deflection measurements are taken at the point of smallest diameter on the corrugations.

H. Specific Requirements for Corrugated Polyethylene Pipe and Polyvinyl Chloride (PVC) Pipe.

1. Field Joints: Use gasketed joints to seal side drain, and storm and cross drain. Use gaskets meeting the requirements of FDOT Section 449. Ensure that the pipe manufacturer provides a joint design approved by Engineer before use.

2. Installation Requirements Including Trenching, Foundation and Backfilling Operations: Check structure shape regularly during backfilling to verify acceptability of the construction method used.

3. Pipe deflected 5% or more of the certified actual mean diameter of the pipe at final inspection shall be replaced at no cost to the Department.

I. Desilting Pipe Culverts, Box Culverts, and Inlet Structures.

1. Description. Completely remove and dispose of silt, debris, vegetation, soil, rock, and any type of blockage inside existing pipe culvert(s), box culvert(s) or inlet structure(s) specified in the Contract Documents or directed by Engineer.

2. General.

a. Access to the pipe or box culvert may require temporary removal of fence, signs, guardrail, grates or manhole covers.

b. Clean the existing pipe or box culvert by completely removing all of the silt, debris, vegetation, soil, rock, and any type of blockage to restore the hydraulic conveyance design capacity of the pipe or box culvert.

c. Clean the existing inlet structure by completely removing all of the silt, debris, vegetation, soil, rock, and any type of blockage.

d. Perform desilting operations in a manner not to damage the pipe culverts, box culverts, and inlet structures or surrounding area.

e. Meet the requirements of Federal, State and local environmental standards and laws when performing all activities.

f. Meet the requirements of Article 104 of these Specifications (Prevention, Control, and Abatement of Erosion and Water Pollution).

g. Identify and report to Engineer necessary repairs to the pipes or box culverts and structures exposed during the desilting operation.

h. Pipe or Box Culverts:

1) Replace according to Department standards at the completion of the desilting operation or each day, as appropriate for safety.

2) Align infall and outfall ditches 50 feet from the pipe or box culvert to meet the existing line and grade. If the Right-of-Way line is less than 50 feet from the pipe or box culvert, align infall and outfall ditches to the Right-of-Way line. Grade and sod any disturbed areas caused by the desilting operation.

3) Dispose of all silt and debris removed in the desilting operations in areas meeting Federal, State and local rules and regulations.

4) Repair or replace damage to turf, pavement, signs or structures, etc. due to negligence to the satisfaction of Engineer at no additional cost to the Department. Complete repairs prior to submission of the invoice for work accomplished.

3. Inspection.

a. When directed by Engineer, de-water the pipe or box culvert to facilitate inspection.

b. Re-clean culverts and structures determined to be unacceptable by Engineer within the time directed at no additional cost to the Department.

J. Method of Measurement.

1. General:

a. The quantity to be paid for will be the number completed pursuant to these specifications that is measured and accepted by Engineer.

b. Only items of work required by this Article that have a Contract Unit Price will be measured by Engineer for payment. All other work described in this Article that is required by the Contract Documents but does not have a Contract Unit Price is considered incidental to the Work and its costs are included among the various scheduled items of the Contract.

2. New Pipe: The quantities of storm and cross drain pipe, storm drain trench, side drain pipe and gutter drain pipe to be paid for will be quantity, measured in place and accepted by Engineer. The quantity of pipe will be measured from the inside wall of the structure, along the centerline of the pipe.

3. Mitered End Section: The quantity to be paid for will be the number completed and accepted.

4. Desilting Pipe Culverts, Box Culverts, and Inlet Structures:

a. General:

1) The cost of temporary removal and subsequent replacement of fence, signs, guardrail, grates or manhole covers will be included in the contract unit price for the related item.

2) Infall and outfall ditch alignment, grading and sodding will be included in the contract unit price of the related item.

3) Pipes or structures that are impacted by the Work must be cleaned at no cost to the County and will not be measured for payment.

b. Desilting Pipe Culverts: The quantities for payment will be the length in feet of existing pipe desilted and accepted by Engineer.

c. Desilting Box Culverts: The quantities for payment will be the volume in cubic yard of material removed from the existing box culvert as measured and accepted by Engineer.

d. Desilting Inlet Structures: The quantities for payment will be the number of existing Inlet Structures desilted and cleaned as counted and accepted by Engineer.

K. Basis of Payment.

1. General:

a. Prices and payments will be full compensation for all work specified in this Article including:

1) All excavation except the volume included in the items for the grading work on the Project, and except for other items specified for separate payment in Article 120 (Earthwork And Related Operations) of these Specifications;

2) All backfilling material and compaction; disposal of surplus material; and

3) All clearing and grubbing outside of the required limits of clearing and grubbing as shown in the Plans.

2. Removing Existing Pipe: When existing pipe is removed and replaced with new pipe approximately at the same location, the cost of excavating and removing the old pipe and of its disposal will be included in the Contract unit price for clearing and grubbing.

3. Site Restoration: The cost of completely restoring the areas of the Project Site that is disturbed for the purpose of constructing pipe culvert is included in the Contract unit price for the pipe culvert, unless designated specifically to be paid for under other items.

4. Plugging Pipes:

a. The cost of temporarily plugging a pipe culvert, either proposed or existing, will be incidental to the contract unit price for new pipe culvert.

b. The cost of filling and/or plugging an existing pipe culvert that is to be permanently placed out of service will be paid for at the contract unit price for filling and plugging pipe, per cubic yard. Price and payment will be full compensation for flowable fill, masonry, concrete, mortar, and all labor and materials necessary to complete the work.

5. Payment Items:

a. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

443 FRENCH DRAINS

A. Description.

1. Construct french drains, utilizing one of the authorized types of pipes listed below, with coarse aggregate, and plastic filter fabric (geotextile). Construct in accordance with FDOT Design Standards, Index No. 285 as modified by or otherwise specified in the Contract Documents.

B. Materials.

1. Pipe: Unless a particular type is specified in the Contract Documents, pipe furnished may be any of the following types:

a. Concrete Pipe (Bell & Spigot): Slotted or perforated concrete pipe may be used.

1) Meet the requirements of FDOT 449 for concrete pipe. Use the class of pipe specified on the FDOT Design Standards, Index No. 205. Do not use gaskets. Fully insert the spigot in the bell, and bring home. Conform to FDOT Design Standards, Index No. 285 for slotted pipe. Use perforated pipe having perforations equally located 360 degrees around the pipe.

2) Furnish pipe having not less than 30 round perforations, 3/8 inch each, per square foot of inside pipe surface. Extend perforations to within 6 inches of the bell or spigot area. The Engineer will permit other perforations not less than 5/16 inch

nor more than 3/8 inch in the least dimension if they provide an opening area not less than 3.31 in2/ft2 of pipe surface.

b. Corrugated Aluminum Alloy Culvert Perforated Pipe:

1) Meet the requirements of FDOT 945. Use perforated pipe having perforations equally located 360 degrees around the pipe. Locate perforations either on the inside crests or on the neutral axis of all corrugations except that perforations are not required within 4 inches of each end of each length of pipe or in a corrugation where seams are located.

2) Furnish pipe having not less than 30 round perforations, 3/8 inch each, per square foot of pipe surface. The Engineer will permit other perforations not less than 5/16 inch nor more than 3/8 inch in the least dimension if they provide an opening area not less than 3.31 in2/ft2 of pipe surface.

c. Corrugated Steel Perforated Pipe: Meet the requirements of FDOT 943. Space the perforations and meet the requirements as specified in b. 2) above.

d. Bituminous Coated Corrugated Steel Perforated Pipe: Meet the requirements of FDOT 943. Space the perforations and meet the requirements as specified in b. 2) above. Place the perforations prior to the bituminous coating. The Engineer will accept the minimum opening of not less than 3.31 in2/ft2 of pipe if 50% of the opening area is maintained after coating.

e. Corrugated Polyethylene Pipe:

1) Meet the requirements of FDOT 948-2.3 except that Class I corrugated Polyethylene Pipe may only be used on local roads (non-arterial or non-collector).

2) Space the perforations and meet the requirements as specified in b. 2) above.

f. Polyvinyl Chloride (PVC) Pipe: Meet the requirements of FDOT 948-1.7. Space the perforations and meet the requirements as specified in b. 2) above.

2. Coarse Aggregate: No. 4 limestone aggregate meeting the requirements of FDOT 901. Aggregates must be an approved product from an approved source listed on the current FDOT Approved Aggregate Products from Mines or Terminals Listings.

3. Select Fill: Use select fill meeting the requirements of either FDOT 911, 913, 913A or 915.

C. Excavating Trench.

1. Excavate the trench in accordance with the Contract specifications for Earthwork and Related Operations (hereinafter referred to as Earthwork specifications) unless specific trench excavation procedures are described in the Plans.

2. Carefully excavate the trench to such depths as required to permit the filter fabric, coarse aggregate and the pipe to be placed in accordance with the details shown on the Plans.

D. Laying Pipe.

1. Lay all pipe conforming with the lines and grades specified in the plans and in accordance with these Specifications. Unless otherwise specified in the Plans or directed by the Engineer, set the pipe with a minimum cover of 30 inches in paved areas (24 inches for non-paved areas) and a maximum cover of 66 inches.

E. Placing Coarse Aggregate and Backfilling.

1. After placing the pipe and without disturbing the pipe, carefully place the coarse aggregate around the pipe to a depth shown in the plans. Fold the filter fabric over the coarse aggregate. Backfill and compact as described below.

a. French Drains Under Pavement: Fill the area above the coarse aggregate with select fill material meeting the requirements of this Section. Place and compact the select fill according to the requirements for pipe as specified in the Earthwork specifications. The Department will allow use of additional coarse aggregate over the top of the pipe instead of select fill material. In this case, the filter fabric shall be extended to wrap the additional course aggregate. The top of the coarse aggregate shall not be higher than the bottom of the base, unless shown in the plans. The Department will not pay additional costs associated with substituting coarse aggregate for select fill.

b. French Drains not Under Pavement: Fill and compact the area above the coarse aggregate according to the requirements for pipe in the Earthwork specifications, unless specific procedures are described in the Plans as specified in the Earthwork specifications.

F. Method of Measurement.

1. Quantity of french drains to be paid for under this Article shall be the length in linear feet completed in accordance with Plans and specifications; measured in place and accepted by the Engineer subject to the following conditions:

a. French drain lengths having a depth of trench less than 10 feet below land surface (BLS) will not be accepted for payment by the Engineer.

b. For french drains with specified depth of trench of 15 feet BLS or greater, any length not meeting the specified depth for reasons approved by the Engineer will have the payment quantity calculated as:

1) Quantity for Payment (LF) = Quantity Measured by the Engineer (LF) x Engineer Approved Depth Rounded to the Lowest Whole Foot (ft) / Specified Depth (ft)

G. Basis of Payment.

1. The quantities determined as provided above will be paid for at the Contract unit price for french drains. Such prices and payments will be full compensation for all work, labor, equipment and material necessary for construction of the french drains as specified in these Contract Documents including excavation, sheeting or

shoring if required, the disposal of surplus material, providing plastic filter fabric, pipe, course aggregate, select backfill, tamping, and final dressing.

2. Price and payment shall also include all clearing and grubbing; and pavement, sidewalk, curb, and gutter restoration unless these items are specifically provided for under separate payment items in this Contract.

3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

514 GEOTEXTILE (REV. 11-04-11)

A. Description.

1. Install a geotextile (plastic filter) fabric.

B. Material.

1. Meet the plastic filter fabric requirements as specified in FDOT 985.
2. Geotextile used in the Drainage class (type D-3) applications listed in FDOT Design Standards Index 199 shall be woven monofilament geotextiles only. No Slit Film geotextiles are allowed.

C. Construction Methods.

1. General:
   a. Place the fabric in the manner and locations as shown on the construction drawings, in accordance with the manufacturer's directions, and as specified in these Specifications.
   b. Place the fabric on areas with a uniform slope that are reasonably smooth, free from mounds and windrows, and free of any debris or projections which might damage the fabric.
   c. Loosely lay the material. Do not stretch the material.
   d. Replace or repair any fabric damaged or displaced before or during placement of overlying layers to the satisfaction of the Engineer and at no expense to the Department.
   e. When overlapping is necessary, the Contractor may sew the seams to reduce overlaps as specified in FDOT 985-3.
   f. Schedule work so that covering the fabric with the specified material does not exceed the manufacturer's recommendations for exposure to ultraviolet light or five days, whichever is less. If the Engineer determines the exposure time was exceeded, the Contractor shall replace the fabric at no expense to the Department.
2. Subsurface Drainage: When indicated in the plans, place the fabric with the long dimension parallel to the trench. Place the fabric to provide a minimum 12 inch overlap for each joint. Do not drop the filter material from heights greater than 3 feet.
3. Stabilization and Reinforcement: Overlap adjacent strips of fabric a minimum of 2 feet.

D. Method of Measurement.

1. No separate payment for furnishing and placing the geotextile fabric is contained in the Contract Documents.

E. Basis of Payment.

1. All costs for the work specified herein, including furnishing, placing, and sewing or overlapping the fabric is included in the Contract price for the item or items to which the geotextile fabric is incidental.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

519 DRIVEWAY PAVEMENT (REV. 08-23-12)

A. Description

1. Pursuant to the Contract Documents or as otherwise directed by the Engineer:
   a. Construct new asphalt concrete driveway approaches on public right-of-way.
   b. Restore existing asphalt or cement concrete driveways and approaches that have been authorized to be disturbed by the performance of the Work; and provide all other required labor, material and equipment necessary for complete restoration of the disturbed area.

B. Materials

1. Meet the following requirements:

Limerock	FDOT Section 911
Concrete	FDOT Section 350; Class I (Pavement)
Hot Mix Asphalt (HMA)	Per Article 334 of these Specifications
Joint Seal	FDOT Section 932

C. Preparation and Construction

1. General:
   a. Conform to applicable surface slope requirements of FDOT Index No. 304.
   b. Meet all applicable requirements of the Miami-Dade County Public Works Manual.
   c. Perform any required clearing and grubbing under Article 110 of these Specifications.
   d. Remove or add any additional subgrade material necessary to meet final surface elevation requirements after construction of a new limerock base and pavement of the thicknesses specified below.
   e. Provide a new six inch limerock base; or greater if needed to match existing. Build up in layers not to exceed three inches and compact each layer to obtain a minimum density of 98% of modified Proctor maximum density as determined by FM 1-T 180, Method D.

f. Maintain the area of excavation in a safe condition and level with the surrounding pavement until work is complete.

g. Furnish and place all materials; construct all forms, joints, bracing, expansion joint materials, and accessories; apply required surface finishes; and all required clearing and grubbing, excavation and backfilling.

h. Remove all remaining excess material, dirt, and other debris from the roadways immediately after all construction or restoration of pavement under this Article has been completed.

2. Cement Concrete Pavement:

a. Concrete pavement for driveways, driveway aprons and sidewalk across driveways must be a minimum thickness of six inches. Materials and construction must conform to the requirements of FDOT Section 350.

b. Form a ½ inch expansion joint between the sidewalk and the driveway or at fixed objects and driveway intersections.

c. Finish surface of concrete to match existing pavement.

3. Asphalt Concrete Pavement:

a. Construct a minimum one inch thick HMA pavement layer (Type SP-9.5) meeting the material and construction requirements of Article 334 of these Specifications.

4. Additional Requirements for Restoration of Pavement:

a. Full-depth saw cut a smooth, straight, neat and square line along the entire width of damaged pavement that is to be restored. Immediately dispose of all excess debris properly.

b. Restore sidewalks across driveways, cut or damaged by construction, in full sections concrete curb or gutter to the existing height and cross section in full sections or lengths between joints.

D. Method of Measurement

1. The quantity to be paid for will be the area, in square yards, of approved driveway pavement constructed or restored in accordance with this Article, as measured and accepted by the Engineer.

E. Basis of Payment

1. Price and payment will be full compensation for all work and materials specified in this Article.

2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

520 CONCRETE GUTTER, CURB ELEMENTS, AND TRAFFIC SEPARATOR (SECTION 520)

A. Page 583, Article 520-1, Description: Is expanded to include the following:

1. The work specified under this section includes any type of curb and /or gutter in accordance with FDOT Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System 2008 and the Public Works Manual of Metropolitan Dade County (Standard Road Details R.14.1 and R.14.2) curb with or without gutter, driveway curbs, Type “C” median curb and Type “A” median curb, including the necessary preparation and compaction of the subgrade in both cut and fill areas, as well as backfilling, grading, excavation and final dressing required as directed by the Engineer.

B. Page 583, Article 520-2, Materials: Is amended as follows:

1. Class I Concrete shall have a minimum compressive strength of 3,000 p.s.i. at 28 days.

C. Page 591 Article 520-12, Basis of Payment: Is deleted in its entirety and replaced with the following:

1. The quantity of curb or curb and gutter, shall be paid for at the Contract unit price for the quantities completed and accepted by the Engineer and does not include ramp and sidewalk curb. Such price and payment shall be full compensation for all work specified under this Section, including the necessary preparation and compaction of the subgrade in both, cut and fill areas, as well as backfilling, grading, excavation and final dressing required as directed by the Engineer.

2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

522 CONCRETE SIDEWALK (SECTION 522)

A. Page 589, Article 522-1, Description: Is expanded to include the following:

1. The work specified under this Section consists of the forming, furnishing, placement, and finishing of concrete for the construction of concrete sidewalks, pedestrian ramps and sidewalk curbs (back of sidewalk) utilizing Class I Concrete. The width, thickness and type shall be as shown and noted in the Plans. All work will be in accordance with this Section except as modified herein.

B. Page 589, Article 522-2, Materials; is amended as follows:

1. Class I Concrete shall have a minimum compressive strength of 3,000 p.s.i. at 28 days.

C. Page 591 Article 522-9, Method of Measurement; is expanded to include the following:

1. The quantity to be paid for under this Article shall be the area in square yards of concrete sidewalk and pedestrian ramps, measured in place, complete and accepted. Measurement shall be the final dimensions measured along the surface of the completed work

within the neat lines shown on the Plans or designated by the Engineer. No deduction will be made for the area occupied by trees left within the area of sidewalks or for any area occupied by manholes, inlets or other drainage or public utility appurtenances within the sidewalk area.

D. Page 591 Article 522-10, Basis of Payment; is deleted in its entirety and replaced with the following:

1. The quantity, determined as provided above, shall be paid for at the Contract unit price for the quantities completed and accepted by the Engineer. Such price and payment shall be full compensation for all work specified under this Section.
2. When curb and gutter is required for the construction of pedestrian ramps and no specific pay item has been included for the construction of the curb and gutter, such payment shall be included in the pay item for Sidewalk (including pedestrian ramps and sidewalk curbs).
3. No separate payment shall be made for the removal of forms or the filling of excavated area left by removal of forms. Contractor shall be responsible for any vandalized sidewalk until it is finally accepted by the Engineer.
4. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

523 PATTERNED PAVEMENT (REV. 01-06-2015)

A. Description

1. Install patterned pavement on asphalt or concrete pavement areas at locations and with the color and pattern as specified in the Plans. Use products listed on the FDOT Approved Product List (APL), as approved for use in areas subject to vehicular traffic or non-vehicular traffic, respectively, as specified herein. Install products in accordance with manufacturer's recommendations.
2. For the purpose of this Specification, patterned pavements are defined as a post applied surface marking overlay to either the pavement surface or to an imprinted pavement surface. Vehicular traffic areas are defined as those subject to vehicles within the traveled way, shoulders and auxiliary lanes. Non-vehicular travel areas include medians, islands, curb extensions, sidewalks, borders, plazas and other areas typically subject to foot traffic only.
3. Install overlay products in areas subject to vehicular traffic to a thickness not exceeding 180 mils. Do not use products requiring removal of pavement or requiring blockouts or trenches below the top of pavement.
4. Variations within a pattern shall comply with ADA requirements.

B. Materials

1. General:
   a. Use only patterned pavement products approved for use in vehicular and non-vehicular areas, as appropriate, and listed on the APL. Meet manufacturer's specifications for all patterns, textures, templates, sealers, coatings and coloring materials.
   b. Material coatings used to achieve the pattern and color shall produce an adherent, weather resistant, skid resistant, wear resistant surface under service conditions. Color shall be integral and consistent throughout the installation. The composition of materials is intended to be left to the discretion of the manufacturer.
   c. Materials shall be characterized as non-hazardous as defined by Resource Conservation and Recovery Act (RCRA), Subpart C, Table 1 of 40 CFR 261.24 "Toxicity Characteristic". Materials shall not exude fumes which are hazardous, toxic or detrimental to persons or property.
2. Approved Product List (APL):
   a. Manufacturers seeking evaluation of their product shall submit an application to FDOT in accordance with FDOT Section 6 along with the following documentation:
      1) Manufacturer's recommendations for applicability of use on concrete or asphalt surfaces.
      2) Manufacturer's recommendation for applicability of use in vehicular or non-vehicular travel areas.
      3) Manufacturer's specifications and procedures for materials and installation for each use above.
      4) For products proposed for use in vehicular traffic areas, independent test data verifying the material meets the requirements of this Section including verification that the product, installed in accordance with the manufacturer's specifications and procedures, has been tested in accordance with either:
         a) ASTM E-274, Skid Resistance of Paved Surfaces using a standard ribbed full scale tire at a speed of 40 mph (FN40R), and has a minimum FN40R value of 35, or
         b) ASTM E-1911, Measuring Paved Surface Frictional Properties Using the Dynamic Friction Tester (DFT), at a speed of 40 mph (DFT40), and has a minimum DFT40 value of 40.
      5) For products proposed for use in non-vehicular traffic areas, independent test data verifying the material meets the requirements of this Section including verification that the product, installed in accordance with the manufacturer's specifications and procedures, has been tested in accordance with ASTM E-303 using the British Pendulum Tester and has a British Pendulum Number (BPN) of at least 40.
      6) For products proposed for use as a bike lane application, independent testing verifying that the material can meet the color as identified in the April 15, 2011, Interim Approval for Optional use of Green Colored Pavement for Bike Lanes, Interim Approval (IA-14) Memorandum Valid Under the 2009 MUTCD

(http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/ia14grnpmbiketlanes.pdf).

3. Performance Requirements for Products in Vehicular Travel Areas:

   a. In addition to the submittal requirements of B.2 above, APL approval will be contingent on a field service test demonstrating that the patterned pavement product meets the following performance measures at the end of three years from opening to traffic:

      1) The average thickness shall be a minimum of 50% of the original thickness.

      2) Wearing of the material coating shall not expose more than 15% of the underlying surface area as measured within the traveled way.

      3) Friction performance of patterned/textured pavement materials shall meet or exceed one of the following test method values:

         a) FN40R value of 35 in accordance with ASTM E-274; or,

         b) DFT40 value of 40 in accordance with ASTM E-1911.

         c) Manufacturers shall provide a field service test installation of each product within a marked crosswalk on a roadway with an ADT of 6,000 to 12,000 vehicles per day per lane, on a site approved by the Department. The test installation shall be a minimum six feet wide and extend from pavement edge to pavement edge across all traffic lanes and shoulder pavement at the crosswalk location. The test installation shall be tested by the manufacturer in accordance with FM 5-592.

C. Construction

1. Product Submittals: Prior to installation, submit pattern and color samples to the Engineer for confirmation that the product meets the pattern and color specified in the Plans. Do not begin installation until acceptance by the Engineer.

2. Pavement Cuts: Complete all utility, traffic loop detector, and other items requiring a cut and installation under the finished surface, prior to product installation.

3. Surface Protection: Protect treated surfaces from traffic and environmental effects until the product is completely installed, including drying and curing according to the manufacturer's instructions.

4. Installation Acceptance:

   a. For installation on new asphalt roadways, apply patterned pavement a minimum of 14 days after placement of the adjacent pavement.

   b. Upon completion of the installation, the Engineer will check the area at random locations for geometric accuracy. If any of the chosen areas are found to be deficient, correct the entire patterned area at no additional cost to the Department.

   c. Provide certification that the patterned pavement was installed in accordance with the manufacturer's requirements.

D. Method of Measurement.

1. The quantity to be paid will be the installed quantities in square yards of patterned pavement, completed and accepted. No deduction will be made for areas occupied by landscaping, manholes, inlets, drainage structures, or by any public utility appurtenances within the area.

E. Basis of Payment.

1. Price and payment will be full compensation for all work specified in this Article.

2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

527 DETECTABLE WARNINGS ON WALKING SURFACES (REV. 11-14-11)

A. Description.

1. Furnish and install Safety Yellow colored Detectable Warning devices on newly constructed and/or existing concrete or asphalt walking surfaces (curb ramps, sidewalks, shared-use paths, etc.) constructed in accordance with the FDOT Design Standards Index No. 304 and these specifications, where indicated on the Plans or directed by the Engineer.

B. Materials.

1. General:

   a. Provide Detectable Warnings in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705.

   b. Provide only embedded Detectable Warning devices, set in wet concrete, for all construction except where retrofit applications of surface applied detectable warnings have been approved in writing by the Engineer.

   c. Use Detectable Warnings consisting of materials intended for exterior use subject to routine pedestrian traffic and occasional vehicular traffic.

   d. Use Detectable Warnings with size and pattern shown in the plans comprised of truncated domes aligned in parallel rows in accordance with the FDOT Design Standards, Index No. 304. Do not use detectable warnings with a diagonal pattern.

   e. Concrete stamping, field-formed materials, or methods or products used to form Detectable Warnings in wet concrete are not permitted.

2. Material Properties:

   a. Provide Detectable Warnings that meet the following minimum material property requirements when tested

in accordance with the indicated Standard appropriate to the material.

PROPERTY	STANDARD	TEST VALUE
Slip Resistance	FM 3-C 1028	Dry Coefficient of Friction – 0.8 min. Wet Coefficient of Friction – 0.65 min. (include recessed areas between truncated domes)
Wear Resistance	FM 5-594	Average Volume Loss: no more than 0.06 cm3
Water Absorption*	ASTM D-570	Not to exceed 5%.
Adhesion/ Bond Strength**	FM 5-589	150 psi min. tensile adhesion strength
Non-Hazardous Classification	Submit Material Safety Data Sheet (MSDS)	Non-Hazardous, per RCRA Subtitle C
* Applies only to plastic materials. ** Applies only to surface-applied materials.		

3. Color/Contrast: Use Safety Yellow colored Detectable Warnings on concrete or asphalt walking surfaces. Acceptable Detectable Warnings must maintain a Light Reflectance Value (LRV) CAP Y of 25 – 45, as measured with a spectrophotometer, for a minimum duration of three years.

4. Qualified Products List:

   a. Use Detectable Warnings listed on the FDOT Qualified Products List (QPL) and that have been further evaluated and found acceptable by the Department. At the option of the Contractor, an "or equal" product evaluation request, for an equivalent FDOT QPL approved product that meets or exceeds the specification stipulated herein, may be submitted in writing to the Engineer for review and acceptance.

   b. The following products, subject to continued listing on the FDOT QPL, have been evaluated by the Department for use on Department projects:

SURFACE APPLIED DETECTABLE WARNING DEVICES		
Manufacturer	Product	QPL Number
Engineered Plastics, Inc.	Armor-Tile Surface Applied Inline Dome	S527-0006
EMBEDDED DETECTABLE WARNING DEVICES		
Manufacturer	Product	QPL Number
ADA Solutions, Inc.	Cast-In-Place Composite Tactile	S527-0003
Detectable Warning Systems, Inc.	EZ-Set Tile	S527-0008
ADA Solutions, Inc.	Replaceable Wet Set Composite	S527-0018
Engineered Plastics, Inc	Armor-Tile Replaceable Cast in Place	S527-0026
Engineered Plastics, Inc.	Armor-Tile Cast-In-Place Inline Dome Tile	S527-0027
Cape Fear Systems, LLC	AlertCast (Replaceable) Cast-In-Place	S527-0029
Access Products, Inc.	Access Tile Replaceable Cast in Place	S527-0033
StrongGo Industries	TekWay Dome Tile	S527-0035

C. Installation Procedures.

1. Surface Preparation and Installation: Prepare the surface in accordance with the manufacturer's recommendations. Use only products and materials appropriate for the surface on which they will be applied. Install in accordance with the manufacturer's instructions, using materials and equipment recommended and approved by the manufacturer. For surface-applied tiles or mats, use adhesives applied over the entire surface and mechanical fasteners.

D. Method of Measurement.

1. The quantity to be paid for will be the area, in square feet, of Detectable Warnings furnished and installed pursuant to these specifications, measured in place and accepted by the Engineer.

E. Basis of Payment.

1. Price and payment will be full compensation for all work specified in this Article, including all labor, surface preparation, materials and incidentals necessary to complete the work for installation of Detectable Warnings on walking surfaces.

2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

528 RIPRAP FOR DRAINAGE STRUCTURES

A. This Article is for sand-cement riprap used to fill the void space adjacent to proposed inlet structures placed in existing slab-covered trenches, FDOT Section 530 is modified as follows:

1. Page 600, Section 530-2.1 – Materials/Sand-Cement; expand this Subarticle to include:

a. Sand-Cement riprap to be placed in existing slab-covered trenches may consist of commercially available pre-bagged sand-cement mixes subject to the following:

1) Prior to use, submit the manufacturer's product specifications and information for the proposed sand-cement product to the Engineer for approval.

2) The sand-cement mix shall consist only of Portland Cement and sand meeting the requirements of FDOT Section 921 and 902-3.3 respectively.

3) Sacks (bags) shall be permeable and absorptive enough to permit passage of water to provide for hydration of the cement.

4) Ensure that sacks are free from holes and strong enough to withstand handling without ripping or splitting.

5) Use only one type and size of pre-bagged sand-cement mix at any one structure.

2. Page 603, Section 530-3.1 – Construction Methods/Sand-Cement; delete this Subarticle and substitute the following:

a. Place sand-cement sacks as shown in the engineering plans or as directed by the Engineer. Sacks are placed without ripping or splitting with its shorter dimension (width) abutting the structure. Lay the sacks in a regular pattern and pack against each other so as to form a close and molded contact after the sand and cement mixture has set up. Remove and replace sacks ripped or torn in placing with sound, unbroken sacks. Then, thoroughly saturate all sacks with water. Grouting, if required by the Engineer, shall be in accordance with FDOT 530-3.1.4.

b. If mixing and filling sacks at the job site, the mixing and filling requirements of FDOT 530-3.1.1 (Mixing Materials) and FDOT 530-3.1.2 (Filling Sacks) shall also apply.

3. Page 603, Section 530-4.1 – Method of Measurements/Sand-Cement; Delete this Subarticle and substitute the following when using commercially available pre-bagged sand-cement mixes:

a. The pay quantity for the work specified under this Section shall be the number of cubic yards of sand-cement mixture, placed in sacks or used in the grout, actually placed and accepted. For payment purposes, 1 cubic yard of sand-cement riprap shall constitute either 36 (60 lb) bags of sand-cement mixture or 27 (80 lb) bags of sand-cement mixture.

536 GUARDRAIL

A. Description.

1. Perform work, pursuant to the Contract Documents and the FDOT Design Standards, to include:

a. Construction of metal guardrail on posts of timber or steel

b. Removal of existing guardrail

c. Construction of guardrail anchorages

d. Replacement of guardrail posts

B. Materials.

1. Guardrail:

a. Construct guardrail of the standard W-beam or thrie beam type. Use materials for the rail and rail elements meeting the steel requirements of FDOT 967-1.

2. Posts:

a. General:

1) Unless the Contract Documents or Engineer designate a particular type of post, the Contractor may choose the type of material of post to use.

2) Use posts of either timber, or steel, and of the sizes and dimensions specified in the Contract Documents. Use the particular type selected throughout a run of rail, except where special steel posts are required.

b. Timber Posts:

1) Meet the requirements of the latest edition of the Southern Pine Inspection Bureau's Standard Grading Rules for Southern Pine Lumber, for No.1 grade timber, and treat the posts in accordance with the requirements for posts in FDOT 955-5.3. Ensure that penetration of preservative is in accordance with requirements for round piles and fence posts in FDOT 955-6.2. Shape and drill the posts prior to treatment, and ensure that they do not vary more than 1 inch from the specified length. Dress all timber posts on all four sides (S4S).

c. Steel Posts:

1) Use steel posts meeting the requirements of ASTM A36 steel. Galvanize the posts in accordance with the requirements of ASTM A 123, with 2 oz/ft2 of zinc coating. Drill the posts prior to galvanizing. Ensure that the manufacturer furnishes certification showing physical and chemical properties of each heat, the amount of spelter coating, and conformance to ASTM A 123.

2) The Contractor may use steel guardrail posts of either a rolled section or a welded structural shape with nominal dimensions as shown in the FDOT Design Standards.

3) For welded structural shapes, meet the following requirements:

a) Ensure that the design properties of the shape meet or exceed the design properties for a W 6 x 9 shape as contained in the AISC Manual of Steel Construction.

b) Weld in accordance with the requirements of ASTM A 769.

c) After cutting posts to length, place a weld to seal the spaces between the web plate and flange plates.

d) Galvanize as specified above after completing all drilling and welding.

3. Anchor Blocks:

a. Use anchor blocks of Class I concrete, and construct and place them in accordance with the requirements shown in the Plans or as directed by the Engineer.

4. Offset Blocks:

a. Use guardrail offset blocks of either timber, steel, recycled plastic, or rubber, and of the sizes specified in the FDOT Design Standards.

b. Treat timber blocks in accordance with the requirements for posts in FDOT 955-5.3. Ensure that penetration of preservative is in accordance with requirements for round piles and fence posts in FDOT 955-6.2. For timber offset blocks, meet the requirements of the latest edition of the Southern Pine Inspection Bureau's Standard Grading Rules for Southern Pine Lumber, for No.1 grade timber. Dress all timber offset blocks on all four sides (S4S). Ensure that timber offset blocks do not vary more than 0.25 inch from the specified length

c. Use rubber blocks that have a minimum Durometer hardness of 50 (ASTM D 2240), show no cracking at the end of an ozone exposure of 100 ±10 pphm for 15 hours at 100ºF (ASTM D 1149 mounting type A), do not exceed 15 points change in Durometer hardness in oven ageing for 70 hours at 158ºF (ASTM D 573), and show no cutting or tearing under a 6,500 lb load applied through a guardrail section. Ensure that the blocks present a neat appearance and have plane surfaces. Provide rubber blocks that are 6 inches wide, 8 inches deep and 14 inches high. Allow dimensional tolerances of ±5/8 inch in height, ±3/8 inch in width, and ±3/8 inch in depth.

d. For Recycled Plastic offset blocks, meet the requirements of FDOT Section 972.

5. Reflector Elements:

a. Provide reflectors that meet the requirements of FDOT 993-5.

b. Mount reflectors onto the guardrail in accordance with the details shown in the Plans and the FDOT Design Standards.

6. Certification:

a. Provide the Engineer, at least ten days prior to guardrail construction, a certification from the manufacturer confirming that all materials (timber or steel posts, anchor and offset blocks, reflector elements, and all other accessories) meet the requirements of the Contract Documents and the FDOT Design Standards.

b. Furnish the Engineer a Certificate of Compliance certifying that the guardrail system, materials and construction practices, comply with applicable FDOT Design Standards and Contract Specifications.

c. Acceptance of furnished material will be based on the Certificate of Compliance, material certification and visual inspection by the Engineer.

C. Setting Posts.

1. Set standard length posts vertically to the depth shown in the FDOT Design Standards. Set special length posts vertically to the depth shown in the plans. Align and realign posts as necessary, until final acceptance. Where the posts are not set in concrete or mounted on structures, backfill the post holes with suitable thoroughly tamped material. As an alternate method, the Contractor may use a post-driving machine, meeting the approval of the Engineer and capable of driving the posts without damaging them.

2. For guardrail post replacement, backfill and compact the existing hole prior to setting the new post.

3. If driving timber posts, the Contractor may either block out holes in the asphalt for the posts during the asphalt paving operation or cut holes through the asphalt mat prior to the post installation. Blocked out holes or cut holes in the asphalt pavement shall be at least 50% larger than the sectional area of the timber post. After completing driving of the posts patch the area of asphalt around each post with fresh hot bituminous mixture.

4. If driving steel posts, drive the post directly through the asphalt mat. Fill depressions or cracks with fresh, hot bituminous mixture in a manner meeting the approval of the Engineer.

5. For either timber or steel post locations, in which rock, concrete or asphalt thicker than 2 inches exist, remove such material and backfill with suitable material, thoroughly tamped as detailed in the FDOT Design Standards.

D. Erection of Rail

1. Erect the guardrail panels, supports, anchors, etc., as shown in the FDOT Design Standards.

E. Existing Guardrail.

1. Stockpile guardrail, so specified, within the right-of-way at a location approved by the Engineer. Dispose of all remaining guardrail not specified for stockpiling.

F. Method of Measurement.

1. Guardrail:

a. The quantity to be paid for will be the length, in feet, constructed, in place and accepted.

2. Miscellaneous items as provided by the Contract Documents:

a. End Anchorage Assemblies:

1) The quantity to be paid for will be the number of each type constructed, in place and accepted.

b. Special Guardrail Posts:

1) The quantity to be paid for will be the number of each, constructed, in place and accepted.

2) The designation "Special Guardrail Posts" will include only such posts as require special fabrication, for installation at locations where the normal setting would conflict with concrete

structures, such as approach slabs, culvert slabs, footings, inlets, etc. Special posts, however, will not include posts for double-face median guardrail, regardless of whether they are embedded in or attached to concrete.

c. Bridge Anchorage Assemblies:

1) The quantity to be paid for will be the number of each, constructed, in place and accepted.

d. Guardrail Anchorage (Concrete Barrier Wall):

1) The quantity to be paid for will be the number of each, constructed, in place and accepted.

e. Guardrail Post Replacement:

1) The quantity to be paid for will be the number of each, replaced.

f. Removal of Existing Guardrail:

1) The quantity to be paid for will be the length, in feet, measured prior to removal.

g. Special Steel Guardrail Posts:

1) The quantity to be paid for will be the number of each, constructed, in place and accepted.

G. Basis of Payment.

1. Guardrail:

a. Price and payment will be full compensation for all work specified under this Article, including the furnishing and installing of the acrylic plastic reflectors and all other materials as specified. Payment will be made under the items as follows:

1) Where the Contractor furnishes all materials for the guardrail, and the Engineer does not require shop-bent rails, payment will be made under the basic item of Guardrail.

2) Where the radius of the guardrail installation is such as to require shop bending of the guardrail panels, payment will be made under the item of Guardrail (Shop-bent Panels).

b. All component parts of the complete guardrail installation will be included in the price per foot for the above items except, when the Contract Documents provides for the separate payments to be made under the special items listed below.

1) End Anchorage Assemblies:

a) Price and payment will include all components specified in the Contract Documents and FDOT Design Standards.

2) Special Guardrail Posts:

a) Price and payment will include all costs for furnishing and installing the special posts that are over and above the costs for the normal posts, which are replaced by such special posts.

3) Bridge Anchorage Assemblies:

a) When the Contract Documents provide for direct payment for Bridge Anchorage Assemblies, price and payment will include furnishing and installing the special End Shoes, Wood Blocks or Retrofit Wing Posts, Concrete Anchor Posts and necessary hardware.

b) When the Contract Documents do not provide for direct payment for Bridge Anchorage Assemblies, the Contractor shall include the cost for the assemblies in the Contract price per foot for the guardrail.

4) Guardrail Anchorage (Concrete Barrier Wall):

a) Price and payment will include installing connections to concrete barrier walls, as shown on the FDOT Design Standards, Index Nos. 400 and 410.

5) Guardrail Post Replacement:

a) Price and payment will include all labor, materials, and equipment required for removal and disposal of existing posts in areas provided by the Contractor, backfilling and compacting existing holes, and replacement with new posts.

6) Removal of Existing Guardrail:

a) Price and payment will include all labor and equipment required for removal and disposition of the existing guardrail, as specified in the Contract Documents. No additional payment will be made for the removal of the back rail on double face guardrail, thrie beam guardrail, nested rail, safety pipe rail, rub rail or end anchorages.

7) Special Steel Guardrail Posts with Accessories:

a) Price and payment will include all components specified in the Contract Documents and the FDOT Design Standards.

2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

538 RESETTING GUARDRAIL

A. Description.

1. Remove the existing guardrail, and reset the salvaged guardrail with new materials. Reset the guardrail, at locations shown in the Plans or designated by the Engineer, in accordance with the FDOT design standards for guardrail construction, as modified by the Contract Documents.

B. Materials.

1. Prevent damage to reusable materials when removing existing guardrail.

2. Furnish all new materials necessary to complete the reset guardrail installation.

3. Provide only new offset blocks.

4. Meet the requirements specified in the Contract Documents for Guardrail.

C. Construction Methods.

1. Set posts in accordance with the requirements of the Contract Documents.
2. Erect guardrail panels, anchors, and hardware in accordance with the FDOT design standards for guardrail construction, as modified by the Contract Documents.
3. Replace any salvageable materials damaged by operations at no expense to the Department.
4. Use a consistent type of post throughout a run of guardrail.

D. Method of Measurement.

1. The quantities to be paid for will be as measured and accepted by the Engineer in feet of reset guardrail.
2. Additionally and where provided by the Contract Documents, the quantities of the following items to be paid for will be as measured and accepted by the Engineer:
   a. number of end anchorage assemblies of each type as designated,
   b. number of special posts, and
   c. number of bridge anchorage assemblies.

E. Basis of Payment.

1. Prices and payments for resetting guardrail will be full compensation for all work specified in this Article, including furnishing all required new hardware and posts, all new offset blocks, and replacement of any material damaged by the Contractor except as specified below.
2. Price and payment for end anchorage assemblies, special guardrail posts, and bridge anchorage assemblies will be as specified in the Contract Documents for Guardrail.
3. Payment for new guardrail panels furnished to replace such items determined to be non-salvageable, excluding any items damaged by the Contractor, will be paid for at the actual invoiced cost for the panels including transportation charges, to which cost will be added an amount equal to 25% of the total invoice amount.
4. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

550 FENCING TYPE "B" (SECTION 550)

Page 626, Section 550-6 - Basis of Payment:

1. Subarticle 6.1 is expanded to include:

The Contract price per linear foot for the Item of Fencing, measured as specified in 550-5.2, shall be full compensation for all work and materials specified in this Section and necessary for the complete installation, including line posts, corner, end, and pull posts and the assemblies therefore, as provided below, and not including the payment stipulated for extra length posts. Such price and payment shall include, but not be limited to, the following specific incidental work:

a. Any work required to level and prepare the terrain along the line of the fence.

b. Any additional clearing incidental to construction of the fence.

c. All preparation for post holes, in whatever type of material, as specified herein, including the Class I Concrete for the placement and setting of all posts.

d. Any furnishing and installing of electrical grounds.

e. Any additional work or materials required for special construction over irregular terrain, or terrain of inadequate support for the posts, including the additional barbed wire, but not including the extra lengths of posts ordered by the Engineer.

f. Any costs of erection and removal of any temporary fencing, which might be necessary for maintaining security of livestock, etc., on adjacent property during construction of the new fence.

2. Subarticle 6.2: Delete in its entirety.

3. Basis of Payment:

1. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

575 SODDING

A. Description.

1. Establish a stand of grass within the specified areas, by furnishing and placing sod, and rolling, watering, and maintaining the sodded areas to ensure a healthy stand of grass.

B. Materials. Meet the following requirements:

1. Sod FDOT 981-2
2. Water FDOT Section 983

C. Construction Methods.

1. Preparation of Ground: Scarify or loosen the areas requiring sod to a depth of 6 inches. On areas where the soil is sufficiently loose, particularly on shoulders and fill slopes, the Engineer may authorize the elimination of the ground preparation. Limit preparation to those areas that can be sodded within 72 hours after preparation. Prior to sodding, thoroughly water areas and allow water to percolate into the soil. Allow surface moisture to dry before sodding to prevent a muddy soil condition.
2. Placing Sod: Place sod immediately after ground preparation. Do not use sod which has been cut for

more than 72 hours. Stack all sod that is not planted within 24 hours after cutting and maintain proper moist condition.

a. Do not sod when weather and soil conditions are unsuitable for proper results. Pre-wet the area prior to placing sod. Do not place sod on eroded or washed out sites.

b. Place the sod on the prepared surface, with edges in close contact, and embed it firmly and smoothly by light tamping with appropriate tools.

c. Place the sod to the edge of all the paving and shrub areas and 1 inch below adjoining pavement with an even surface and edge. Place rolled sod parallel with the roadway and cut any exposed netting even with the sod edge.

d. Roll using a lightweight turf roller. Provide a true and even surface without any displacement of the sod or deformation.

e. Where sodding in drainage ditches, stagger the setting of the sod pieces to avoid a continuous seam along the line of flow. Ensure that the offsets of individual strips do not exceed 6 inches. Tamp the outer pieces of sod to produce a featheredge effect.

f. Peg sod at locations where the sod may slide. Drive pegs through sod blocks into firm earth, at intervals approved by the Engineer.

g. Remove any sod as directed by the Engineer.

3. Watering: Thoroughly water the sod immediately after placing. Do not water in excess of 1 inch per week for establishment. The contractor shall water and maintain newly sodded areas as needed and adhere to the following minimum frequencies until final acceptance of the Project by the County unless otherwise approved by the Engineer:

a. Minimum Watering Schedule (3/4" to 1" per watering)

1) Every day for the first 14 days after placement, followed by

2) Three times per week for next 14 days, followed by

3) Two times per week until final acceptance of the project.

b. Mowing Schedule

1) Minimum bi-weekly after established, and

2) Immediately prior to final acceptance.

D. Maintenance.

1. Maintain the sodded areas in a satisfactory condition until final acceptance of the project. Include in such maintenance the filling, leveling, and repairing of any washed or eroded areas, as may be necessary. The Department will pay for resodding necessary due to factors determined by the Engineer to be beyond the control of the Contractor.

2. Monitor placed sod for growth of pest plants and noxious weeds. If pest plants and/or noxious weeds manifest themselves within 30 days of placement of the sod, treat affected areas by means acceptable to the Department at no expense to the Department. If pest plants and/or noxious weeds manifest themselves after 30 days from date of placement of sod, the Engineer, at his sole option, will determine if treatment is required and whether or not the Contractor will be compensated for such treatment. If compensation is provided, payment approved by the Engineer will be made as unforeseeable work.

3. Maintenance of sodded areas is required for no less than thirty (30) days after placement or until the sodded area is determined to be established and satisfactory by the Engineer, whichever is greater.

E. Method of Measurement.

1. The quantities to be paid for will be the area of sodding measured and accepted by the Engineer.

2. Measurement for payment shall include only areas of sodding that have established a satisfactory root system (i.e. leaf blades break before sod can be pulled from the soil by hand).

F. Basis of Payment.

1. Prices and payments for Sodding will be full compensation for all work, water, and materials required to perform the work as specified in this Article, the satisfactory disposal of excavated material, and the furnishing and application of the water.

2. The costs for watering, mowing, and maintaining the sod in a moist condition for a period of at least two weeks, shall be included in the Contract unit price for Sodding.

3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

575 RELOCATION OF TREES OR PALMS; AND PROTECTION OF EXISTING LANDSCAPE

A. Relocation of trees or palms

1. General

a. Work consists of relocating trees and/or palms within the existing right of way, within a one (5) mile radius, in locations indicated in the drawings or as directed by the Engineer. Where drainage work is required, minor adjustments to the system may be necessary to minimize relocations.

b. The Contractor shall be cognizant of and comply with the Miami-Dade County Ordinance regulating the removal and/or relocation of all trees. Permits required for tree removal and/or relocation shall be the responsibility of the Contractor.

2. Material

a. Water: provide water by a method approved by the Engineer meeting the requirements of FDOT Section 983.

b. Backfill Material: the existing material excavated from the planting pit is to be used as backfill.

3. Pruning

a. Trees

1) Prior to root pruning, prune tree canopy to ISA Standards and conform to ANSI A300. The extent of pruning shall be the minimum needed to reduce shock resulting from severing of roots.

2) No more than 30 percent of total canopy branches greater than one inch in diameter may be removed. Interior sucker growth and dead wood shall be removed first, followed by selective pruning of branches and limbs. Limbs that run through the tree crown shall be removed before other limbs are removed. Pruning shall not destroy the form of the tree. All cuts shall be made outside of the branch collar.

3) Trees shall be root pruned six (6) weeks prior to relocation. Roots will be pruned using appropriate tools and equipment in such a manner so that tcuts are clean, smooth and thorough with no ripping or tearing of roots. No backhoes or trenchers shall be used in the process. Backfill trench within 24 hours after root pruning with coarse sand and provide watering to field capacity.

4) Where required by the Engineer or the designated County arborist, brace and guy the root pruned tree to support and maintain the tree in a stable vertical position until relocation.

4. Replanting

a. Trees

1) The planting pit shall be a minimum of 24" wider than the diameter of the rootball unless otherwise directed by the Engineer. The depth of the pit shall be adjusted so that the top of the rootball will be at the same elevation or slightly above the existing ground level. All plants shall be centered in the hole. Burlap is to be untied and pulled away from the top of the ball, unless specified in writing by the Engineer.or designated Countu ArboristTrees shall be watered in during the planting process to eliminate air pockets in the backfill.

2) Size of the trees will be the trunk diameter measured at breast height (54 inches above grade).

3) All trees are to be fertilized at the time of planting with Atlantic Florida East Coast Fertilizer Mixture (No. 5231) 12-06-08 slow-release fertilizer or approved equal. This fertilizer is to be spread evenly over the top of the planting pit after backfilling. The application rate is 2 lbs/tree.

b. Palms

1) The planting pit shall be a minimum of 24" wider than the diameter of the rootball unless otherwise directed by the Engineer. The depth of the pit shall be adjusted so that the top of the rootball will be at the same elevation or slightly above the existing ground level. All plants shall be centered in the hole. Burlap is to be untied and pulled away from the top of the ball, unless specified in writing by the Engineer. Plants are to be watered-in during the planting process to eliminate all air pockets in the backfill material.

2) Size of the palm will be determined by measuring ground level to the topmost portion of the palm.

3) All palms are to be fertilized at time of planting with Atlantic Florida East Coast Fertilizer Mixture 08-04-12 slow-release improved palm special fertilizer or equal. This fertilizer is to be spread evenly over the top of the planting pit after backfilling. The application rate of 3 lbs/palm.

5. Mulching:

a. A planting saucer will be established, the same size as the diameter of the planting pit and the rim shall be no higher than 4 inches. The mulch is to be Forestry Research Products Florimulch (Melaleuca mulch) free of viable seed and burrowing nematodes and certified by the Florida Department of Agriculture, or equal, and is to be spread evenly inside the saucer to a depth of 3 inches.

b. Remove saucer prior to Project completion or as directed by the designated County Arborist.

6. Staking and Guying:

a. This work shall be performed in accordance with the standard planting detail for trees and/or palms.

b. Palms shall be staked using the Arborlock Staking System or equal (with the approval of County representative).

c. Trees shall be guyed using Arbor Tie (a flat woven polypropylene material with 900 lbs. Break strength) manufactured by Deep Root Partners, L.P., or equal.

d. Six (6) month after planting, the Contractor shall return to the site and remove all materials used for staking and guying. At the discretion of the designated County Arborist, the period for staking and guying may be extended beyond six (6) months but for no longer than one (1) year.

7. Watering Schedule:

a. After replanting trees and palms, they are to be watered as follows:

1) for the first 4 weeks 3 times/week

2) for the second 4 weeks 2 times/week

3) for the third 4 weeks 1 time/week

b. Application Rate:

1) Trees and slender trunk palms 6 gal/watering

2) Moderate and heavy trunk palms10 gal/watering

8. Guarantee of Relocated Trees and Palms

a. All trees and palms that are relocated shall be guaranteed for a period of one year after relocation.

B. Protection of Existing Landscaping

1. Description:

   a. Install tree protection barricades when called for in the Contract Documents or by the Engineer to protect existing trees and landscape from damage during project construction. Place barricades, as directed by the designated County Arborist, at the drip line of the landscape foliage or as far from the base of the tree trunk as possible. Barricades shall consist of Heavy-Duty Construction (Orange) Barrier Fence (Minimum 4-feet high) attached to 2-inch by 4-inch by 6-foot long vertical wooden posts per FDOT Index No. 544 except that 2-inch by 4-inch horizontal wooden top bars with a maximum 8-foot spacing between posts shall be used. Barricades shall be able to withstand bumps by heavy equipment and trucks. Maintain barricades in good condition.

   b. All trees, shrubbery, and landscaping (on the R/W or adjacent property) irreparably damaged or destroyed by the Contractor during construction, as determined by the Engineer, shall be replaced by and at the Contractor's expense. Trees and shrubbery shall be replaced with like-sized plants; except for trees or shrubs removed pursuant to the requirements of the Contract Documents or at the specific direction of the Engineer. Replacement plant size shall be determined by calculating the total diameter at breast height (DBH) of affected trees, palms, and/or shrubbery, or the total averaged height of affected trees, palms, and/or shrubs. All replacement material must be Florida #1 Grade or better.

C. Method of Measurement:

1. The quantity to be paid for relocation of trees or palms will be the quantities measured, completed and accepted by the Engineer, under the items shown in the Contract Document.
2. The quantity to be paid for protection of existing landscape will be the quantity in linear feet of barricade, completed and accepted, measured by the Engineer.

D. Basis of Payment:

1. Price and payment shall be full compensation for all work specified in this Section inclusive of all labor, material, and equipment necessary for the proper relocation of trees or palms and protection of existing landscape as required by the Contract Documents.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

580 LANDSCAPE INSTALLATION

A. Description.

1. Plant trees and shrubs of the species, size, and quality indicated in the plans.
2. The Engineer reserves the right to adjust the number and location of any of the designated types and species to be used at any of the locations shown, in order to provide for any unanticipated effects which might become apparent after the substantial completion of other phases of the Project, or for other causes.

B. Materials.

1. Plants:

   a. Authority for Nomenclature; Species, etc.: For the designated authority in the identification of all plant material, refer to two publications of L.H. Bailey: "Hortus III" and "Manual of Cultivated Plants," and ensure that all specimens are true to type, name, etc., as described therein. For the standard nomenclature, refer to the publication of the American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names."

   b. Grade Standards and Conformity with Type and Species: Only use nursery grown plant material except where specified as Collected Material. Use nursery grown plant material that complies with all required inspection, grading standards, and plant regulations in accordance with the latest edition of the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".

      1) Except where a lesser grade might be specifically specified in the plans, ensure that the minimum grade for all trees and shrubs is Florida No. 1. Ensure that all plants are the proper size and grade at the time of delivery to the site, throughout the project construction period and during any designated plant establishment period.

      2) Ensure that plant materials are true to type and species and that any plant materials not specifically covered in Florida Department of Agriculture's "Grades and Standards for Nursery Plants" conform in type and species with the standards and designations in general acceptance by Florida nurseries.

      3) Ensure that plant materials are shipped with tags stating the botanical and common name of the plant.

   c. Inspection and Transporting: Move nursery stock in accordance with all Federal and State regulations and accompany each shipment with the required inspection certificates for filing with the Engineer.

2. Water: Water used in landscaping operations may be obtained from any approved source. Ensure that water is free of any substance which might be detrimental to plant growth. The use of effluent water is subject to approval and must meet all Federal, State and Local requirements.

C. Specific Requirements for the Various Plant Designations.

1. Balled-and-Burlapped Plants (B&B), and Wired Balled-and-Burlapped (WB & B):

   a. General: Properly protect the root ball of these plants until planting them. The Engineer may reject any plant which shows evidence of having been mishandled.

1) Set the B&B and WB&B plants then remove the top 2/3 of all wire, rope, and binding surrounding the plant. Remove the burlap from the top 4 inches [100 mm] of the root ball. Do not disturb the root ball in any way. Bare root material is not allowed for substitution.

2) At least 90 days before digging out B & B and WB & B plants, root-prune those 1 1/2 inches [38 mm] or greater in diameter and certify such fact on accompanying invoices.

b. Provisions for Wiring: For plants grown in soil of a loose texture, which does not readily adhere to the root system (and especially in the case of large plants or trees), the Engineer may require WB & B plants. For WB & B plants, before removing the plant from the excavated hole, place sound hog wire around the burlapped ball, and loop and tension it until the tightened wire netting substantially packages the burlapped ball such as to prevent disturbing of the loose soil around the roots during handling.

2. Container-Grown Plants (CG): The Engineer will not accept any CG plants with roots which have become pot-bound or for which the top system is too large for the size of the container. Fully cut and open all containers in a manner that will not damage the root system. Do not remove CG plants from the container until immediately before planting to prevent damage to the root system.

3. Collected Plants (Trees and Shrubs) (C): Use C plants which have a root ball according to "Florida Grades and Standards for Nursery Plants". Do not plant any C plant before the Engineer's inspection and acceptance at the planting site.

4. Collected Plants (Herbaceous) (HC): The root mass and vegetative portions of collected herbaceous plants shall be as large as the specified container-grown equivalent. Do not plant any collected plant before inspection and acceptance by the Engineer.

5. Specimen Plants (Special Grade): When Specimen (or Special Grade) plants are required, label them as such on the plant list, and tag the plant to be furnished.

6. Palms: Wrap the roots of all plants of the palm species before transporting, except if they are CG plants and ensure that they have an adequate root ball structure and mass for healthy transplantation as defined in "Florida Grades and Standards for Nursery Plants".

a. The Engineer will not require burlapping if the palm is carefully dug from marl or heavy soil that adheres to the roots and retains its shape without crumbling. During transporting and after arrival, carefully protect root balls of palms from wind and exposure to the sun. Muck grown palms are not allowed. After delivery to the job site, if not planting the palm within 24 hours, cover the root ball with a moist material. Plant all palms within 48 hours of delivery to the site.

b. Move sabal and coconut palms in accordance with the "Florida Grades and Standards for Nursery Plants."

7. Substitution of Container-Grown (CG) Plants: With the Engineer's approval, the Contractor may substitute CG plants for any other root classification types, if he has met all other requirements of the Contract Documents.

D. Planting Requirements.

1. Layout: Prior to any excavation or planting, mark all planting beds and individual locations of palms, trees, large shrubs and proposed art and architectural structures, as shown in the plans, on the ground with a common bright orange colored spray paint, or with other approved methods, within the project limits. Obtain the Engineer's approval and make necessary utility clearance requests.

2. Excavation of Plant Holes: Excavate plant holes after an area around the plant three times the size of the root ball has been tilled to a depth of the root ball. Ensure that the plant hole is made in the center of the tilled area only to the depth of the plant root ball.

a. Where excess material has been excavated from the plant hole, use the excavated material to backfill to proper level.

3. Setting of Plants: Center plants in the hole. Lower the plant into the hole so that it rests on a prepared hole bottom such that the roots are level with, or slightly above, the level of their previous growth and so oriented such as to present the best appearance.

a. Backfill with native soil, unless otherwise specified on the plans. Firmly rod and water-in the backfill so that no air pockets remain. Apply a sufficient quantity of water immediately upon planting to thoroughly moisten all of the backfilled earth. Keep plants in a moistened condition for the duration of the planting period.

b. When so directed, form a water ring 6 inches [150 mm] in width to make a water collecting basin with an inside diameter equal to the diameter of the excavated hole. Maintain the water ring in an acceptable condition.

4. Special Bed Preparation: Where multiple or mass plantings are to be made in extended bedding areas, and the plans specify Special Bed Preparation, prepare the planting beds as follows:

a. Remove all vegetation from within the area of the planting bed and excavate the surface soil to a depth of 6 inches [150 mm]. Backfill the excavated area with peat, sand, finish soil layer material or other material to the elevation of the original surface. Till the entire area to provide a loose, friable mixture to a depth of at least 8 inches [200 mm]. Level the bed only slightly above the adjacent ground level. Then mulch the entire bedding area, in accordance with 580 8.

E. Staking and Guying.

1. General: When specified in the plans, or as directed by the Engineer, stake plants in accordance with the following.

a. Use wide plastic, rubber or other flexible strapping materials to support the tree to stakes or ground anchors that will give as the tree moves in any direction up to 30 degrees. Do not use rope or wire through a hose. Use guy chords, hose or any other

thin bracing or anchorage material which has a minimum 12 inches [300 mm] length of high visibility flagging tape secured to guys, midway between the tree and stakes for safety.

b. Stake trees larger than 1 inch [25 mm] diameter and smaller than 2 inches [50 mm] diameter with a 2 by 2 inch [50 by 50 mm] stake, set at least 2 feet [0.6 m] in the ground and extending to the crown of the plant. Firmly fasten the plant to the stake with flexible strapping materials as noted above.

2. Trees of 2 to 3 1/2 inches [50 to 90 mm] Caliper: Stake all trees, other than palm trees, larger than 2 inches [50 mm] caliper and smaller than 3 1/2 inches [90 mm] caliper with two 2 by 4 inch [50 by 100 mm] stakes, 8 feet [2.4 m] long, set 2 feet [0.6 m] in the ground. Place the tree midway between the stakes and hold it firmly in place by flexible strapping materials as noted above.

3. Large Trees: Guy all trees, other than palm trees, larger than 3 1/2 inches [90 mm] caliper, from at least three points, with flexible strapping materials as noted above.

a. Anchor flexible strapping to 2 by 4 by 24 inch [50 by 100 by 600 mm] stakes, driven into the ground such that the top of the stake is at least 3 inches [75 mm] below the finished ground.

4. Special Requirements for Palm Trees: Brace palms which are to be staked with three 2 by 4 inch [50 by 100 mm] wood braces, toe-nailed to cleats which are securely banded at two points to the palm, at a point one third the height of the trunk. Pad the trunk with five layers of burlap under the cleats. Place braces approximately 120 degrees apart and secure them underground by 2 by 4 by 12 inch [50 by 100 by 300 mm] stake pads.

F. Tree Protection and Root Barriers.

1. Install tree barricades when called for in the Contract Documents or by the Engineer to protect existing trees from damage during project construction. Place barricades at the drip line of the tree foliage or as far from the base of the tree trunk as possible. Barricades shall be able to withstand bumps by heavy equipment and trucks. Maintain barricades in good condition.

2. When called for in the Contract Documents, install root barriers or fabrics in accordance with the details shown.

G. Pruning.

1. Prune all broken or damaged roots and limbs in accordance with established arboriculture practices. When pruning is completed ensure that all remaining wood is alive. Do not reduce the size or quality of the plant below the minimum specified.

H. Mulching.

1. Uniformly apply mulch material, consisting of wood chips (no Cypress Mulch is allowed), pine straw, compost, or other suitable material approved by the Engineer, to a minimum loose thickness of 3 inches [75 mm] over the entire area of the backfilled hole or bed within two days after the planting. Maintain the mulch continuously in place until the time of final inspection.

I. Disposal of Surplus Materials and Debris.

1. Dispose of surplus excavated material from plant holes by scattering or otherwise as might be directed so that it is not readily visible or conspicuous to the passing motorist or pedestrian. Remove all debris and other objectionable material from the site and clean up the entire area and leave it in neat condition.

J. Contractor's Responsibility for Condition of the Plantings.

1. Ensure that the plants are kept watered, that the staking and guying is kept adjusted as necessary, that all planting areas and beds are kept free of weeds and undesirable plant growth and that the plants are maintained so that they are healthy, vigorous, and undamaged at the time of acceptance. Contractor will replace at no additional charge, any and all plant material, with plant material as specified for original planting, that is not deemed by the County representative or designated County arborist as healthy, vigorous and undamaged at the time of acceptance

K. Plant Establishment Period.

1. If the Contract Documents designate a Plant Establishment Period, assume responsibility for the proper maintenance, survival and condition of all landscape items during such period at no additional cost.

L. Method of Measurement.

1. The quantities to be paid for will be the items shown in the plans, completed and accepted.

M. Basis of Payment.

1. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

600 GENERAL PROVISIONS FOR TRAFFIC CONTROL DEVICES (REV. 04-14-15)

A. Refer to Appendix A of these Construction Specifications.

635 PULL, SPLICE AND JUNCTION BOXES (REV. 12-17-15)

A. Description.

1. Furnish and install pull, splice, and junction boxes as shown on the plans.
2. Remove and reset existing pull boxes when directed by the Engineer in areas of sidewalk repairs.

B. Materials.

1. Use Pull and Junction Boxes listed on the Department's Qualified Products List available at http://www.miamidade.gov/pubworks/library/MDC_TSS_Qualified_Products_List.pdf.
2. Ensure that all Pull and Junction Boxes Lids are marked in accordance with the latest edition of the Department's Qualified Products List.

C. Pull and Splice Boxes Installation.

1. Install pull boxes in accordance with the FDOT Design Standards, Index No. 17700. Ensure that the pull box cover is flush with the finished grade or sidewalk. Do not install pull boxes in roadways, driveways, parking areas, ditches or public sidewalk curb ramps.

D. Junction Boxes Installation.

1. Aerial Junction Boxes:
   a. Install aerial junction boxes in accordance with the FDOT Design Standards, Index No. 17733.
2. Mounted Junction Boxes:
   a. Install mounted junction boxes in accordance with the FDOT Design Standards, Index No. 17841. Ensure that the bottom surface of pole mounted junction boxes is a minimum of 4 feet above the finished grade.
3. Cable Terminations:
   a. Terminate signal cable in the terminal by inserting the bared conductors into a compression type terminal block and tightening the appropriate screws.
   b. When barrier terminal blocks are specified in the Contract Documents, crimp insulated forks or ring terminals to the bared conductors using a calibrated ratchet-crimping tool and connect the forks or ring terminals to the barrier terminal block by tightening the appropriate screws.
   c. Neatly form and tie wrap all cable terminations.
   d. Ground spare signal cable conductors in the controller cabinet. If disconnect hangers are specified in the Contract Documents, terminate spare wires at the terminal strip located inside the disconnect hangers. Individually cap or tape any additional spares in the disconnect hanger.
   e. Ensure all cable terminations for a mast arm assembly are terminated in the terminal compartment at the base of the mast arm pole.
   f. Rout and form the cable to allow access to the terminal screws. Do not cover the terminal identification numbers with the cable.

E. General Requirements.

1. Do not pull signal or interconnect cable through a pull box used for loop termination. Use separate pull boxes for signal and interconnect cables.
2. Use embedded junction boxes that include conduit, conduit expansion couplings, and miscellaneous hardware to make a complete and accepted installation.
3. Ground all metal covers in accordance with FDOT Section 620.
4. When specified in the Contract Documents, disregard the grounding requirements for metal covers for pull and junction boxes used exclusively for battery, a combination of battery and solar energy, or vehicle loop wires where signal or 120V interconnect power is not present.

F. Resetting of Pull Boxes

1. Where directed by the Engineer, remove and reset existing pull boxes meeting current specifications following the installation and general requirements stipulated herein.
2. Preserve box when demolishing sidewalk. Removal includes, but is not limited to; saw cutting full depth of sidewalk around box before demolition at no additional compensation. If box is damaged due to Contractor's negligence, Contractor must furnish a new replacement box at no additional cost.
3. Resetting may apply to any size pull box (including approximately 2' x 4' FPL & traffic signal fiber optic pull boxes).
4. Any serviceable salvaged box that is not reset must be delivered by Contractor to the County Traffic Signals &Signs yard, 7100 N.W. 36 Street, Miami, Florida at no additional cost.

G. Method of Measurement.

1. Pull Splice, and Junction Boxes (F&I): The Contract unit price each for Pull, Splice and Junction Boxes, furnished and installed, will consist of the pull, Splice and junction boxes including all required hardware for the type of box and location as specified in these Contract Documents

or at locations directed by the Engineer, and all labor and materials necessary for a complete and accepted installation.

2. Pull And Junction Boxes (Reset): The Contract unit price each for Reseting Pull and Junction Boxes, will include all required hardware for the type of box and location as specified in these Contract Documents or at locations directed by the Engineer, and all labor and materials necessary for a complete and accepted installation.

H. Basis of Payment.

1. Pull, Splice, and Junction Boxes (F&I): Price and payment will be full compensation for all work specified in this Article.
2. Pull, Splice and Junction Boxes (Reset): Price and payment will be full compensation for all work and materials necessary to reset pull boxes as specified in this Article. In no case shall County pay more for resetting rather than replacing a box.
3. Payment for embedded junction boxes will not be made separately. When boxes are embedded on structures, the Contractor shall include the cost of embedded junction boxes in the Contract unit price for the concrete substructure or superstructure items.
4. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

639 ELECTRICAL POWER SERVICE ASSEMBLY

A. Refer to Appendix B of these Construction Specifications.

654 RECTANGULAR RAPID FLASHING BEACONS (REV. 04-17-15)

A. Refer to Appendix C of these Construction Specifications.

701 AUDIBLE AND VIBRATORY PAVEMENT MARKINGS (REV. 01-07-2014)

A. Description

1. Apply audible and vibratory pavement markings in accordance with the Contract Documents.

B. Materials

1. Thermoplastic:
   a. Use thermoplastic material meeting the requirements of FDOT 971-1 and 971-9 and listed on the FDOT's Approved Product List (APL) as an approved system. The Engineer will take random samples of the materials in accordance with the FDOT's Sampling, Testing and Reporting Guide schedule.
2. Retroreflective Elements:
   a. Use reflective elements recommended by the manufacturer that meet the requirements of FDOT 971-1.7 and are part of the system listed on the APL.

C. Equipment.

1. Use equipment capable of providing continuous, uniform heating of the striping material to temperatures exceeding 390ºF, mixing and agitating the material in the reservoir to provide a homogenous mixture without segregation. Use equipment that will maintain the striping material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which is capable of producing a consistent pattern of transverse bumps positioned at regular and predetermined intervals. Use equipment which meets the following requirements:
   a. Capable of traveling at a uniform rate of speed, both uphill and downhill, to produce a uniform application of striping material and capable of following straight lines and making normal curves in a true arc.
   b. Capable of applying reflective elements to the surface of the completed stripe by automatic dispensers attached to the striping machine such that the reflective elements are dispensed closely behind the installed line. Use reflective element dispensers equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the reflective elements uniformly on the entire traffic stripe surface with 50 to 60% embedment.
   c. Equipped with a special kettle for uniformly heating and melting the striping material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.
   d. Meets the requirements of the National Fire Protection Association (NFPA), State and Local authorities.

D. Application

1. General:
   a. Before applying traffic stripes and markings, remove any material that would adversely affect the bond of the traffic stripes by a method approved by the Engineer.
   b. Before applying traffic stripes to any portland cement surface, apply a primer, sealer or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from construction joints of portland cement concrete pavement.
   c. Apply traffic stripes or markings only to dry surfaces, and when the ambient air and surface temperature is at least 50ºF and rising for asphalt surfaces and 60°F and rising for concrete surface.
   d. Apply striping to the same tolerances in dimensions and in alignment specified in Article 710, Painted Pavement Markings, Subarticle D. When applying traffic stripes and marking over existing markings, ensure that no more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.
   e. Conduct field tests in accordance with FM 5-541. Take test readings representative of the striping performance. Remove and replace markings not meeting the requirements of this Section.

E. Thickness:

1. Apply flat base lines having a thickness of 0.100 to 0.150 inches, exclusive of the audible bumps, when measured above the pavement surface.
2. Measure, record and certify and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.
3. The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

F. Dimensions of Audible Bumps:

1. Apply the raised bumps with a profile such that the leading and trailing edges are sloped at a sufficient angle to create an audible and vibratory warning.
2. Bumps on shoulder and centerline markings shall be at least 0.45 inches at the highest point of the bump, above the pavement surface, including the base line. The height shall be measured after application of drop-on reflective elements. Bumps shall have a minimum baseline coverage dimension of 2.5 inches in both transverse and longitudinal directions. The bumps may have a drainage channel, the width of each drainage channel will not exceed 1/4 inch at the bottom of the channel. The longitudinal distance between bumps shall be approximately 30 inches.

G. Retroreflectivity:

1. Apply white and yellow audible and vibratory markings that will attain an initial retroreflectance of not less than 300 mcd/lx·m2 and not less than 250 mcd/lx·m2, respectively. Measure, record, and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

H. Color:

1. Use pavement marking materials that meet the requirements of FDOT 971-1.

I. Reflective Elements:

1. Apply reflective elements to all markings at the rates determined by the manufacturer's recommendations as identified for the APL System.

J. Loss:

1. If more than 1% of the bumps or more than three consecutive bumps are missing or broken (less than half a bump remaining) within the first 45 days under traffic, replace all failed bumps at no expense to the Department. If more than 2% of the bumps fail within the first 45 days under traffic, the replacement period will extend an additional 45 days from the date all replacement bumps were installed. If, at the end of the additional 45 days, more the 2% of all bumps (initial and replacement) fail, replace all failed bumps at no expense to the Department. Measure, record, certify and submit to the Engineer, the loss of bumps.

K. Contractor's Responsibility for Notification.

1. Notify the Engineer prior to the placement of audible and vibratory markings. Furnish the Engineer with the manufacturer's name and batch numbers of the thermoplastic materials and reflective elements to be used. Ensure that the batch numbers appear on the thermoplastic materials and reflective elements packages.

L. Protection of Newly Applied Audible and Vibratory Markings.

1. Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause.

M. Observation Period.

1. Longitudinal pavement markings are subject to a 180 day observation period under normal traffic. The observation period will begin with the satisfactory completion and acceptance of the pavement marking work.
2. The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of reflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of Subarticle G. The Department reserves the right to check the retroreflectivity any time prior to the end of the observation period.
3. Replace, at no expense to the Department, any longitudinal pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

N. Corrections for Deficiencies.

1. Correct all deficiencies by removal and reapplication of a one mile section centered around the deficiency at no cost to the Department.

O. Submittals.

1. Submittal Instructions:
   a. Prepare and submit a certification of quantities to the Engineer. The Department will not pay for any disputed items until the Engineer approves the certification of quantities.

P. Method of Measurement.

1. The quantities to be paid for under this Section will be as follows:
   a. The length, in net miles, of 6 inches solid traffic stripe, authorized and acceptably applied.
   b. The total traversed distance in gross miles of 10-30 skip line. The actual applied line is 25% of the traverse distance for a 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.

Q. Basis of Payment.

1. Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

705 OBJECT MARKERS AND DELINEATORS (REV. 08-23-12)

A. Description.

1. Furnish and install object markers to mark obstructions within or adjacent to the roadway of the types and at the locations called for in the Contract Documents.

2. Furnish and install delineators along the side of the roadway to indicate the alignment of the roadway as indicated in the Contract Documents.
3. Meet all requirements of the FDOT Design Standards and the Contract Documents.

B. Materials.

1. General:
   a. Meet the following requirements:

Object Markers and Delineators	FDOT Section 993
Retroreflective and Nonreflective Sign Sheeting	FDOT Section 994

2. Product Acceptance on the Project:
   a. Ensure that delineators, delineator posts, and markers used to delineate guardrail and barrier wall are listed on the FDOT Qualified Products List.
   b. Provide to the Engineer a manufacturer's certification conforming to the requirements of Article 1.04 (Controlling Materials) of Division 1, which confirms that each product meets the requirements of this Article.

C. Installation Requirements.

1. Install delineators, object markers, and reflector units for guardrail and barrier wall and in accordance with the MUTCD, FDOT Design Standards and Contract Documents.

D. Method of Measurement.

1. The quantity to be paid for will be the number of delineators or object markers furnished, installed and accepted.

E. Basis of Payment.

1. Prices and payments will be full compensation for work specified in this Article, including the cost of labor, materials, and incidental items required to complete the work.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

706 RAISED RETRO-REFLECTIVE PAVEMENT MARKERS AND BITUMINOUS ADHESIVE (REV. 05-02-12)

A. Description.

1. Place raised Retro-Reflective Pavement Markers (RPMs) and adhesive, which upon installation produces a positive guidance system to supplement other reflective pavement markings.

B. Materials.

1. Use only Class B markers unless otherwise shown on the Plans.
2. Meet the requirements of FDOT Section 970.
3. Product Acceptance on the Project.
   a. Use only reflective pavement markers and bituminous adhesive that are listed on the FDOT Qualified Products List.
   b. Provide Engineer a producer's certification, conforming to the requirements of Article 1.04 (Controlling Materials) of the General Requirements to these Specifications, which confirms that each product meets the requirements of this Article.

C. Equipment.

1. Use equipment having either thermostatically controlled double boiler type units utilizing heat transfer oil or thermostatically controlled electric heating pots to install hot applied bituminous adhesive. Do not use direct flame melting units with flexible adhesives; however, this type of unit may be used with standard adhesive in accordance with manufacturer's recommendations. Use a melter/applicator unit suited for both melting and pumping the adhesive through heated applicator hoses.
2. Heat the adhesive to between 375 and 425ºF and apply directly to the bonding surface from the melter/applicator by either pumping or pouring. Maintain the application temperature between 375 and 425ºF. The adhesive may be reheated. Do not exceed the manufacturer's recommendations for pot life at application temperatures.

D. Application.

1. Apply RPMs to the bonding surface using bituminous adhesives only. Engineer will conduct field testing in accordance with Florida Method (FM) 5-566. Correct RPMs not applied in accordance with these requirements at no cost to the Department.
2. Prior to application of adhesive, clean the bonding surface to remove any material that would adversely affect the adhesive.
3. Apply the adhesive to the bonding surface, not the RPMs, so that 100% of the bonding area of the RPMs will be covered, in accordance with adhesive manufacturer's recommendations. Apply sufficient adhesive to ensure, that when the RPMs are pressed downward into the adhesive, adhesive will be forced out around the entire perimeter of each RPM.
4. Immediately remove excess adhesive from the bonding surface and exposed surfaces of the RPMs. Soft rags moistened with mineral spirits meeting Federal Specifications TT-T-291 or kerosene may be used to remove adhesive from exposed faces of the RPMs. Do not use any other solvent. If any adhesive, pavement marking materials or other foreign matter adheres to the reflective face of the RPM, replace the RPM at no cost to the Department.

5. Install RPMs with the reflective face of the RPM perpendicular to a line parallel to the roadway centerline. Do not install RPMs over longitudinal or transverse joints of the bonding surface.
6. Ensure that all final RPMs are in place prior to opening the road to traffic.
7. If more than 2 percent of the RPMs fail in adhesion or alignment within the first 45 days under traffic, replace all failed RPMs at no expense to the Department. If more than 5 percent of the RPMs fail in adhesion and or alignment during the initial 45 day period, Engineer will extend the replacement period an additional 45 days from the date that all replacement RPMs have been installed. If, at the end of the additional 45 day period, more than 2 percent of all RPMs (initial installation and 45 day replacements combined) fail in adhesion or alignment, replace all failed RPMs at no expense to the Department.

E. Contractor's Responsibility for Notification.

1. Notify Engineer prior to the placement of RPMs. At the time of notification, indicate the manufacturer and the LOT numbers of RPMs and bituminous adhesive that are intended for use. Verify that the approved LOT numbers appear on the material packages. Furnish a test report to Engineer certifying that the materials meet all requirements specified.

F. Method of Measurement.

1. Unless otherwise specified herein, the quantities to be paid for will be the number of RPMs, furnished and installed, completed and accepted.

G. Basis of Payment.

1. Lump Sum Payment: When the pay item for Painted Pavement Markings (Final Surface) is included in the Contract, price and payment for RPMs is as stipulated in Article 710 of these Specifications. RPMs will not be measured or paid for separately.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

710 PAINTED PAVEMENT MARKINGS (REV. 05-02-12)

A. Description.

1. Apply Painted Traffic Stripes and Raised Retro-Reflective Pavement Markers (RPMs), in accordance with the Contract Documents.

B. Materials.

1. Use only materials listed on the FDOT Qualified Products List (QPL) meeting the following requirements:

Raised Retro-reflective Pavement Markers and Bituminous Adhesive	FDOT Section 970
Standard Waterborne Fast Dry Traffic Paint	FDOT 971-1 and 971-3
Fast Dry Solvent Paint	FDOT 971-1 and 971-4
Glass Spheres	FDOT 971-1 and 971-2

C. Equipment.

1. Use equipment that will produce continuous uniform dimensions of pavement markings of varying widths and meet the following requirements:
   a. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of paint and capable of following straight lines and making normal curves in a true arc.
   b. Capable of applying glass spheres to the surface of the completed stripe by an automatic sphere dispenser attached to the striping machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the traffic paint and applies the glass spheres in a manner such that the spheres appear uniform on the entire pavement markings surface with 50 to 60 percent embedment.
   c. Capable of spraying the paint to the required thickness and width without thinning of the paint.
2. Paint tank must be equipped with nozzles having cut-off valves, which will apply broken or skip lines automatically.

D. Application:

1. General:
   a. Remove, by a method approved by Engineer, existing pavement markings such that scars or traces of removed markings will not conflict with new stripes and markings. Clean and dispose at an approved site all resulting debris. Use of paint to cover conflicting pavement markings is prohibited. Cost for removal of pavement markings is incidental to the work specified in this Article and will not be measured separately for payment. Cost for removing conflicting pavement markings during maintenance of traffic operations is included in general costs for Maintenance of Traffic.
   b. Before applying traffic stripes and markings, remove any material that would adversely affect the bond of the traffic stripes by a method approved by Engineer and consistent with manufacturer's specifications.
   c. Remove any vegetation, soil, and other materials covering the pavement where the marking is to be applied.
   d. Apply traffic stripes and markings only to dry surfaces, and when the ambient air and surface temperature is at least 40ºF and rising. Do not apply traffic stripes and markings when winds are sufficient to cause spray dust.
   e. Apply traffic stripes and markings, having well defined edges, over existing pavement markings such that not

more than 2 inches on either end and not more than 1 inch on either side is visible.

f. Mix the paint thoroughly prior to pouring into the painting machine. Apply paint to the pavement by spray or other means approved by Engineer.

g. Conduct field testing in accordance with Florida Method (FM) 5-541. Remove and replace traffic stripes and markings not meeting the requirements of this Article at no additional cost to the Department.

h. Apply all pavement markings prior to opening the road to traffic.

i. Apply all retro-reflective pavement markers per the requirements of Article 706 (Raised Retro-Reflective Pavement Markers and Bituminous Adhesive).

2. Painted Pavement Markings (Final Surface), when included as a single lumps sum item in the Contract having and awarded Contract price, will include two applications of standard painted pavement markings and one application of retro-reflective pavement markers applied to the final surface. Wait at least 14 days after the first application to apply the second application of Painted Pavement Markings (Final Surface). Second application must be applied prior to final acceptance of the project.

3. Thickness: Apply paint to attain a minimum wet film thickness in accordance with the manufacturer's recommendations.

4. Retroreflectivity:

a. Apply white and yellow standard pavement markings that will attain an initial retroreflectance of not less than 300 mcd/lx•m^2 and not less than 250 mcd/lx•m^2, respectively. Measure, record and certify on a Department approved form and submit to Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

b. The Department reserves the right to test the markings within 3 days of receipt of the Contractor's certification. Failure to afford the Department opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's striping performance. If the retroreflectivity values measure below values shown above, reapply the pavement markings at no additional cost to the Department.

c. For standard pavement markings, ensure that the minimum retroreflectance of white and yellow pavement markings are not less than 150 mcd/lx m^2. If the retroreflectivity values fall below the 150 mcd/lx m^2 value within six months of initial application, the striping will be reapplied at the Contractor's expense.

5. Color: Use paint material that meets the requirements of FDOT 971-1.

6. Glass Spheres: Apply glass spheres on all pavement markings immediately and uniformly following the paint application. The rate of application shall be based on the manufacturer's recommendation.

E. Tolerances in Dimensions and in Alignment.

1. Establish tack points at appropriate intervals for use in aligning stripes, and set a stringline from such points to achieve accuracy.

2. Dimensions:

a. Longitudinal Lines: Apply painted skip line segments with no more than ±12 inches variance, so that over-tolerance and under-tolerance lengths between skip line and the gap will approximately balance. Apply longitudinal lines at least 2 inches from construction joints of Portland cement concrete pavement.

b. Transverse Markings, Gore Markings, Arrows, and Messages: Apply paint in multiple passes when the marking cannot be completed in one pass, with an overall line width allowable tolerance of ±1 inch

c. Contrast Lines: Use black paint to provide contrast on concrete or light asphalt pavement, when specified by Engineer. Apply black paint in 10 foot segments following each longitudinal skip line.

3. Alignment:

a. Apply painted stripes that will not deviate more than 1 inch from the stringline on tangents and curves one degree or less.

b. Apply painted stripes that will not deviate more than 2 inches from the stringline on curves greater than one degree.

c. Apply painted edge stripes uniformly, not less than 2 inches or more than 4 inches from the edge of pavement, without noticeable breaks or deviations in alignment or width.

d. Remove and replace at no additional cost to the Department, traffic stripes that deviate more than the above stated requirements.

4. Correction Rates: Make corrections of variations in width at a maximum rate of 10 feet for each 0.5 inches of correction. Make corrections of variations in alignment at a maximum rate of 25 feet for each 1 inch of correction, to return to the stringline.

F. Contractor's Responsibility for Notification.

1. Notify Engineer prior to the placement of the materials. Furnish Engineer with the manufacturer's name and batch numbers of the materials and glass spheres to be used. Ensure that the approved batch numbers appear on the materials and glass spheres packages.

G. Protection of Newly Painted Pavement Markings.

1. Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry.

2. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

H. Corrections for Deficiencies to Applied Painted Pavement Markings.

1. Reapply a 1.0 mile section centered around any deficiency, at no additional cost to the Department.

I. Submittals.

1. Submittal Instructions: Prepare a certification of quantities, using the Department's current approved form, for each project in the Contract. Submit the certification of quantities and daily worksheets to Engineer. The Department will not pay for any disputed items until Engineer approves the certification of quantities.
2. Contractor's Certification of Quantities: Request payment by providing to Engineer a monthly certification of quantities with each payment requisition or as directed by Engineer, based on the amount of work done or completed. Ensure the certification of quantities include the following:
   a. Contract Number, Certification Number, Certification Date and the period that the certification represents.
   b. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

J. Method of Measurement.

1. The quantities to be paid for under this Article will be as follows:
   a. Length, in net miles, of 6 inch Solid Traffic Stripe, authorized and acceptably applied.
   b. Total traversed distance in gross miles of 10-30 or 3-9 skip line. The actual applied line is 25 percent of the traverse distance for a 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.
   c. Net length, in feet, of each of all other types of lines and stripes, authorized and acceptably applied.
   d. Number of pavement messages, symbols and directional arrows, authorized and acceptably applied. For bicycle marking, the bicycle symbol and the arrow will be paid as one unit.
   e. Lump Sum, as specified under Final Surface above, when the item for Painted Pavement Markings (Final Surface) is provided in the Contract with an awarded Contract Unit Price.
2. The net length, in feet of dotted and skip stripes other than 10-30 and 3-9 will be measured as the distance from the beginning of the first painted stripe to the end of the last painted stripe with proper deductions made for unpainted intervals as determined by plan dimensions or stations, subject to the requirements of Subarticle 1.07 F.3 (Determination of Pay Areas) of the General Requirements to these Specifications. Unpainted intervals will not be included in pay quantity.
3. The gross-mile measurement of 10-30 and 3-9 Skip Traffic Stripes will be taken as the distance from the beginning of the first painted stripe to the end of the last painted stripe, and will include the unpainted intervals. It will not include any lengths of unpainted intervals which, by design or by other intent of the Department, are greater than 30 feet. Final measurement will be determined by plan dimensions or stations, subject to the requirements of Subarticle 1.07 F.3 of the General Requirements to these Specifications.

K. Basis of Payment.

1. General:
   a. Prices and payments will be full compensation for all work specified in this Article, including all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.
   b. Final payment will be withheld until all deficiencies are corrected.
2. Lump Sum Payment: When the item for Painted Pavement Markings (Final Surface) is included in the proposal, prices and payments will be full compensation for two applications of all painted pavement markings applied to the final surface, and one application of retro-reflective pavement markers applied to the final surface in accordance Article 706 of these Specifications.
3. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

711 THERMOPLASTIC TRAFFIC STRIPES AND MARKINGS (REV. 05-02-12)

A. Description.

1. Apply new thermoplastic traffic stripes and markings, or refurbish existing thermoplastic traffic stripes and markings, in accordance with the Contract Documents.

B. Materials.

1. Thermoplastic: Use only thermoplastic materials listed on the FDOT Qualified Products List (QPL). Engineer may require random samples of all material. Use materials meeting the following requirements:

Initial or Recapped Stripes and Markings:	FDOT 971-1 and 971-5
Refurbishing Existing Stripes and Markings:	FDOT 971-1 and 971-5
Preformed Stripes and Markings:	FDOT 971-1 and 971-6

2. Glass Spheres: Use only glass spheres listed on the FDOT QPL, meeting the requirements of FDOT 971-1 and 971-2. Engineer may require random samples of all glass spheres in accordance with ASTM D 1214.
3. Sand: Use materials meeting the requirements of FDOT 971-5.4.

C. Equipment.

1. Use equipment capable of providing continuous uniform heating of striping materials to temperatures exceeding 390ºF, mixing and agitation of the material reservoir to provide a homogeneous mixture without segregation. Use equipment that will maintain the striping material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied.

2. Use equipment which can produce varying width traffic stripes and which meets the following requirements:

   a. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of striping material and capable of following straight lines and making normal curves in a true arc.

   b. Capable of applying glass spheres to the surface of the completed stripe by a double drop application for initial traffic striping and marking and a single drop application for recapping and refurbishing. The bead dispenser for the first bead drop shall be attached to the striping machine in such a manner that the beads are dispensed closely behind with the thermoplastic material. The second bead dispenser bead shall be attached to the striping machine in such a manner that the beads are dispensed immediately after the first bead drop application. Glass spheres dispensers shall be equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the glass spheres in a manner such that the spheres appear uniform on the entire traffic stripes and markings surface with, 50 to 60 percent embedment.

   c. Equipped with a special kettle for uniformly heating and melting the striping material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.

   d. Meet the requirements of the National Fire Protection Association, state, and local authorities.

D. Application.

1. General:

   a. Remove, by a method approved by Engineer, existing pavement markings such that scars or traces of removed markings will not conflict with new stripes and markings. Clean and dispose at an approved site all resulting debris. Use of paint to cover conflicting pavement markings is prohibited. Cost for removal of pavement markings is incidental to the work specified in this Article. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic.

   b. Remove any vegetation, soil, and other materials covering the pavement where the marking is to be applied.

   c. Before applying traffic stripes and markings remove, by a method approved by Engineer and consistent with manufacturer's specifications, any material that would adversely affect the bond of the traffic stripes. Before applying traffic stripes to any Portland cement concrete surface, apply a primer, sealer or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of Portland cement concrete pavement.

   d. Apply traffic stripes or markings only to dry surfaces, and when the ambient air and surface temperature is at least 50ºF and rising for asphalt surfaces and 60°F and rising for concrete surfaces.

   e. Apply striping to the same tolerances in dimensions and in alignment specified under "Tolerances in Dimension and in Alignment" below. When applying traffic stripes and markings over existing markings, ensure that not more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

   f. Apply thermoplastic material to the pavement either by spray, extrusion or other means approved by Engineer.

   g. Conduct field tests in accordance with Florida Method (FM) 5-541. Take test readings representative of the striping performance. Remove and replace traffic stripes and markings not meeting the requirements of this Article at no additional cost to the Department.

   h. Apply all final pavement markings prior to opening the road to traffic.

   i. Preformed Thermoplastic: Apply markings only to dry surfaces and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.

2. Thickness:

   a. Initial or Recapped Stripes and Markings:

      1) Apply or recap traffic stripes or markings such that all lane lines, center lines, transverse markings and traffic stripes and markings within traffic wearing areas, will have a thickness of 0.10 to 0.15 inch when measured above the pavement surface.

      2) Gore, island, and diagonal stripe markings, bike lane symbols and messages, wherever located, will have a thickness of 0.09 to 0.12 inch when measured above the pavement surface.

      3) Measure, record, certify and submit to Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

   b. Refurbishing Existing Traffic Stripes and Markings: Apply a minimum of 0.06 inch of thermoplastic material. Ensure that the combination of the existing stripe and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch for all lines.

3. Retroreflectivity:

   a. Apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 450 mcd/lx•m^2 and not less than 350 mcd/lx•m^2, respectively for all longitudinal lines.

   b. All transverse lines, messages and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx•m^2 and 250 mcd/lx•m^2 for white and yellow respectively.

c. All pedestrian crosswalks, bike lane symbols or messages in a proposed bike lane shall attain an initial retroreflectivity of not less than 275 mcd/lx•m^2.

d. Measure, record, certify, and submit to Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

4. Glass Spheres:

a. Longitudinal Lines:

1) For initial traffic striping and marking, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres.

2) For refurbishing, apply a single drop of Type 3 glass spheres.

3) Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

b. Transverse Stripes and Markings:

1) Apply a single drop of Type 1 glass spheres.

2) Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

3) Apply a mixture consisting of 50 percent glass spheres and 50 percent sharp silica sand to all thermoplastic pedestrian crosswalk lines and bike lane symbols at the rates determined by the manufacturer's recommendations.

c. Preformed Markings: These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.

E. Tolerances in Dimensions and in Alignment.

1. Establish tack points at appropriate intervals for use in aligning stripes, and set a stringline from such points to achieve accuracy.

2. Dimensions:

a. Longitudinal Lines: Apply thermoplastic skip line segments with no more than ±12 inches variance, so that over-tolerance and under-tolerance lengths between skip line and the gap will approximately balance. Apply longitudinal lines at least 2 inches from construction joints of Portland cement concrete pavement.

b. Transverse Markings, Gore Markings, Arrows, and Messages: Apply thermoplastic in multiple passes when the marking cannot be completed in one pass, with an overall line width allowable tolerance of ±1 inch

c. Contrast Lines: Use black paint to provide contrast on concrete or light asphalt pavement, when specified by Engineer. Apply black paint in 10 foot segments following each longitudinal skip line.

3. Alignment:

a. Apply thermoplastic stripes that will not deviate more than 1 inch from the stringline on tangents and curves one degree or less.

b. Apply thermoplastic stripes that will not deviate more than 2 inches from the stringline on curves greater than one degree.

c. Apply thermoplastic edge stripes uniformly, not less than 2 inches or more than 4 inches from the edge of pavement, without noticeable breaks or deviations in alignment or width.

d. Remove and replace at no additional cost to the Department, traffic stripes that deviate more than the above stated requirements.

4. Correction Rates:

a. Make corrections of variations in width at a maximum rate of 10 feet for each 0.5 inches of correction. Make corrections of variations in alignment at a maximum rate of 25 feet for each 1 inch of correction, to return to the stringline.

F. Contractor's Responsibility for Notification.

1. Notify Engineer prior to the placement of the thermoplastic materials.

2. Furnish Engineer with the manufacturer's name and batch numbers of the thermoplastic materials and glass spheres to be used.

3. Ensure that the approved batch numbers appear on the thermoplastic materials and glass spheres packages.

G. Protection of Newly Applied Traffic Stripes and Markings.

1. Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry.

2. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

H. Observation Period.

1. Pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

2. The pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of reflectivity or vehicular damage. The retroreflectivity must meet the initial requirements stipulated above. The Department reserves the right to check the color and retroreflectivity any time prior to the end of the observation period.

3. Replace, at no additional expense to the Department, any pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

I. Corrections for Deficiencies.

1. Recapping applies to conditions where additional striping material is applied to new or refurbished traffic stripes or markings to correct a deficiency. Recap a 1.0 mile section centered around the deficiency with additional striping material or by complete removal and reapplication at no additional cost to the Department.
2. If recapping will result in a thickness exceeding the maximum allowed, the traffic stripes or markings must be removed and reapplied.

J. Submittals.

1. Submittal Instructions: Prepare a certification of quantities, for each project in the Contract. Submit the certification of quantities and daily worksheets to Engineer. The Department will not pay for any disputed items until Engineer approves the certification of quantities.
2. Contractor's Certification of Quantities: Request payment by submitting a certification of quantities with each payment requisition, based on the amount of work done or completed. Ensure the certification of quantities includes the following:
   a. Contract Number, Certification Number, Certification Date and the period that the certification represents.
   b. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

K. Method of Measurement.

1. Quantities to be measured by Engineer for payment under this Article will be as follows:
   a. The length, in net miles, of 6 inch Solid Traffic Stripe, authorized and acceptably applied.
   b. The total traversed distance in gross miles of 10-30 or 3-9 skip line. The actual applied line is 25 percent of the traverse distance, for a 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.
   c. The net length, in feet, of all other types of lines and stripes, authorized and acceptably applied.
   d. The area, in square feet, of Removal of Existing Pavement Markings, acceptably removed. Cost for removing conflicting pavement markings during maintenance of traffic operations is included in Maintenance of Traffic.
   e. The number of pavement messages, symbols and directional arrows, authorized and acceptably applied.

L. Basis of Payment.

1. Prices and payments will be full compensation for all work specified in this Article, including all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

715 ROADWAY LIGHTING (REV. 12-31-2015)

A. Description.

1. Install a roadway lighting system in accordance with the details shown in the Plans. Use pole assemblies as shown in the FDOT Design Standards when standard aluminum pole assemblies are required by the Contract Documents. Include in the system the light poles, bases, luminaires, ballasts, cable, conduit, protective devices, and control devices; all as specified or required for the complete facility.
2. Obtain conventional light pole assemblies from a fabrication facility that is listed on FDOT's Production Facility Listing with an Accepted Quality Control Program, meeting the requirements of FDOT 105-3.
3. Provide metal lighting poles with internal vibration damping devices in accordance with FDOT Design Standard 17515 in all installations on bridges, walls and concrete median barriers.
4. When used on bridges, in order to minimize vibration of light poles due to traffic, locate light poles near substructure supports.

B. Shop Drawings and Working Drawings.

1. Submit shop drawings and working drawings with descriptive specifications and engineering data for the service main, control panel enclosure, control panel main disconnect, lighting contactor, electrical panel, transformer, in-line fuse holders, surge protective devices, non-standard light poles (including brackets), luminaires, ballast, photo-electric cell, conduit and cable or any other item requested by Engineer as specified in the Contract Documents.

C. Materials and Equipment to be Installed.

1. General: Meet the materials and equipment requirements of FDOT Section 992.
2. Criterion Designation of Materials and Equipment: Where a criterion specification is designated for any material or equipment to be installed, by the name or catalog number of a specific manufacturer, understand that such designation is intended only for the purpose of establishing the style, quality, performance characteristics, etc., and is not intended to limit the acceptability of competitive products. Engineer will consider products of other manufacturers which are approved as similar and equal as equally acceptable.

D. Furnishing of Electrical Service.

1. Start the system with a weatherhead on a riser on a service pole and extend through the required metering

equipment of the power company, and through the lighting system as shown on the Plans.

2. The power company will provide service to the areas in the vicinities indicated. Consult and cooperate with the power company in locating its distribution transformer and service pole so that the lines will be as short and direct as possible. Bear any line-extension costs up to the first 2,000 feet. Furnish or install only those parts of the metering equipment or connections that are customary and required by the power company in the locality involved.

E. Excavation and Backfilling.

1. General: For excavation and backfilling, meet the requirements of FDOT Section 125, except that when rock is encountered, carry the excavation 3 inches below the required level and refill with sand or with selected earth material, 100% of which passes the 1 inch sieve.

2. Trenches for Cable: Construct trenches for cable or conduit no less than 6 inches in width and deep enough to provide a minimum cover in accordance with the FDOT Design Standards.

3. Placing Backfill for Cable: For installation of the cable, place an initial layer of 6 inches thick, loose measurement, sand or selected earth material, 100% of which passes a 1 inch sieve. Place and compact the remaining material in accordance with FDOT 125-8.

F. Foundations for Light Poles.

1. Concrete Foundations: Provide foundations for light poles of the sizes and shapes shown in the Plans. Construct precast or cast-in-place concrete foundations in accordance with the FDOT Design Standards. Obtain precast foundations from a plant that is currently on the FDOT's Production Facility Listing with Accepted FDOT Quality Control Programs.

2. Setting Anchor Bolts: Set anchor bolts according to manufacturer's templates and adjust to a plumb line, check for elevation and location, and hold rigidly in position to prevent displacement while pouring concrete.

3. Installation:

   a. Do not erect roadway light poles until the concrete strength in the cast-in-place foundation is at least 2,500 psi. Determine concrete strength from tests on a minimum of two test cylinders sampled and tested in accordance with ASTM C31 and ASTM C39 and verifying test results have been provided to Engineer.

   b. Fill the voids around precast concrete foundations under roadway light poles with flowable fill meeting the requirements of Article 121 or clean sands placed using hydraulic methods to a level 6 inches below grade.

G. Pulling Conductors.

1. Leave at least 3 feet of conductor where the cable enters and leaves conduit. Protect conductors pulled into conduit or ducts against abrasion, kinking, and twisting. Locate pull boxes so that the conductors are not subjected to excessive pulling stresses.

H. Splicing.

1. Make all conductor splices in the bases of the light poles, or in pull boxes designed for the purpose. Do not make any other underground splices.

2. Unless otherwise shown in the FDOT Design Standards or authorized by Engineer, splices must be made with split bolt connectors. The connector must be sealed in silicone gel that easily peels away leaving a clean connection. The gel will be contained in a closure that when snapped around the split bolt will provide a waterproof connection without the use of tools or taping. This closure will be UV resistant, impact resistant and abrasion resistant.

I. Conduit and Ducts.

1. Install conduit at the locations shown in the Plans and in accordance with FDOT Section 630.

J. Erecting Light Poles.

1. General: Install the light poles at the locations and in accordance with the details shown in the Plans. Unless otherwise specifically approved by the Engineer, fasten bracket (truss) arms to the pole prior to erection. Do not field weld on any part of the pole assembly. Plumb the poles after erection and use metal shims or leveling nuts if necessary to obtain precise alignment. Use a thin cement grout where necessary to eliminate unevenness or irregularities in the top of the base.

2. Adjusting Anchor Bolts and Installing Nuts on Anchor Bolts: Where poles are to be placed on existing foundations or bases with anchor bolts in place, furnish poles with a base which fits the anchor bolt spacing. Include the cost of any necessary extension of existing anchor bolts in the price bid for the lighting system. For high mast light pole bases, install nuts on anchor bolts in accordance with FDOT 649-5.

3. Installation of Luminaire: Install the luminaire on the truss arm in accordance with the manufacturer's instructions, and place it so that the light pattern is evenly distributed along the roadway.

4. Electrical Connections: Make primary ballast connections in accordance with manufacturer's instructions. Install sufficient cable to allow all connections to be made outside the light pole base. Connect the ground conductor to the ground stud provided.

5. Identification Plates Stamp the identification plate on the pole with an identifying number or legend. Number the poles consecutively, beginning with number 1. Stamp each light pole number with 3/4 inch figures and stamp each circuit number with 1/2 inch figures.

K. Grounding.

1. Ground in accordance with the NEC, and local codes which exceed these Specifications.
2. Ground each metal light pole, not on a bridge structure, with an approved rod, 20 feet in length and at least 5/8 inch in diameter.
3. For poles on bridge structures, bring the grounding conductors out to a pull box at each end of the structure and connect them to driven ground rods, 20 feet in length and at least 5/8 inch in diameter.
4. The 20 feet length of rod may be either two rods 10 feet in length connected by a threaded coupling and driven as a single rod or two rods 10 feet in length separated by at least 6 feet.
5. Make all bonds between ground wires and grounding electrode assemblies or arrays with an exothermic bond with the following exception: do not exothermically bond grounding electrode to grounding electrode connections.
6. The work specified in this Subarticle will not be paid for directly, but will be considered as incidental work.

L. Labeling.

1. Stencil labels on the cases of transformer and panel board with white oil paint, as designated by Engineer. Also, mark the correct circuit designations in accordance with the wiring diagram on the terminal marking strips of each terminal block and on the card holder in the panel board.

M. Markers.

1. Construct duct, cable, and splice markers as shown in the Plans, and place them over the ends of underground ducts and at each change in direction of cable or conduit run. Place markers flat on the ground with 1 inch projecting above finished grade.

N. Tests of Installation.

1. Upon completion of the work, test the installation to ensure that the installation is entirely free of ground faults, short circuits, and open circuits and that it is in satisfactory working condition. Furnish all labor, materials, and apparatus necessary for making the required tests. Remove and replace any defective material or workmanship discovered as a result of these tests at no expense to the County, and make subsequent re-tests to the satisfaction of Engineer.
2. Make all arrangements with the power supplier for power. Pay all costs, excluding energy charges, required for the test period.
3. Not less than 48 hours prior to the beginning of the test period, give the power supplier the schedule for such test.
4. Test the installation under normal operating conditions during the seven day test period specified in 715-O below, rather than as a continuous burn test period.
5. If the work is not open to traffic at the end of the seven day test period, de-energize the lighting system until the work is opened.

O. Acceptance of Roadway Lighting.

1. Engineer may make partial acceptance of the roadway lighting based on satisfactory performance of all system for seven consecutive days. The seven day evaluation period may commence upon written authorization by the Engineer that roadway lighting is considered ready for acceptance evaluation. Contract Time will be charged during the entire roadway lighting evaluation period. Correct any defects in materials or workmanship which might appear during the evaluation period at no expense to the County. Transfer to the County any guarantees on equipment or materials furnished by the manufacturer and ensure that the manufacturer includes with such guarantees the provision that they are subject to such transfer, and proper validation of such fact. The County's written acceptance of roadway lighting and the transfer to the County of all manufacturer guarantees will be conditions precedent to final acceptance of all work under the Contract in accordance with Contract Final Acceptance.

P. Method of Measurement.

1. The quantities to be paid for will be as follows, completed and accepted:
   a. Conduit: Payment will be made in accordance with FDOT Section 630.
   b. Luminaire and Truss Arm: The Contract unit price will include the truss arm, luminaire with lamp, and all necessary mounting hardware as indicated in the Plans and the FDOT Design Standards.
   c. Electrical Power Service Assembly: The Contract unit price will include the service pole, insulators, weatherheads, transformers, enclosures, panel boards, breakers, safety switches, H.O.A. switches, lightning protectors, fuses, photo electric assembly, meter base, and all external and internal conduit and conductors for the service as indicated in the Plans and the DTPW Traffic Signals and Signs Section 639.
   d. Light Pole Foundation: The Contract unit price will include the foundation and anchor bolts with lock nuts and washers as indicated in the Plans and the FDOT Design Standards.
   e. Luminaire: The Contract unit price will include the luminaire with lamp and necessary mounting hardware as indicated in the Plans and the FDOT Design Standards.
   f. Pull Box: Payment will be made in accordance with Article 635.
   g. Frangible Base for Light Pole: The Contract unit price will include the frangible base, attachments, bolts, and washers as indicated in the Plans and the FDOT Design Standards.
   h. Photo Electric Control Assembly: The Contract unit price will include the photo electric control, transformers, conduit, and conductors as indicated in the Plans and the FDOT Design Standards.

i. Pre-Fab Pilaster: The Contract unit price will include the pilaster and all mounting hardware as indicated in the Plans.

j. Conductor: The length, in feet, as indicated in the Plans and the FDOT Design Standards.

k. Lighting Pole Complete: The Contract unit price will include the pole, internal vibration damping device, truss arm, luminaire with lamp, anchor bolts with lock nuts and washers, frangible base and foundation.

l. Pole Cable Distribution System: The Contract Unit price will include the surge protector, fuse holders with fuses, waterproof connectors and the waterproof wiring connection to the luminaries.

Q. Basis of Payment.

1. Prices and payments will be full compensation for all work specified in this Section, including all materials, equipment and tests.
2. Prices and payments will be full compensation for all work and materials specified in this Article and the Articles applicable to the items of work having awarded Contract Prices measured and approved for payment.

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

SRSI ENGINEERING,INC.
5001 S.W. 74 Court Suite 201
Miami, Florida 33155
Tel: (305) 662-8887
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TOWN OF MEDLEY
N.W. 105th WAY DRAINAGE IMPROVEMENTS
PELMAD INDUSTRIAL PARK
Total area of the project - 2.0 AC.

June 13, 2017
Revision 1 - 10-10-2017

ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY	UNIT COST	TOTAL COST
	Demolition				
101-1	Mobilization (2% of budget)	L.S.	1	$7,889.87	$7,889.87
102-1	Maintenance of Traffic (2% of budget)	L.S.	1	$7,889.87	$7,889.87
104-18	Storm Water Pollution Prevention & Erosion Control per Catch Basin	EA.	19	$150.00	$2,850.00
110-1-1	Clearing and Grubbing (2% of budget)	L.S.	1	$7,889.87	$7,889.87
				Sub-Total	**$26,519.62**
	Paving , Grading and Drainage				
125-1	Excavation for Structures	C.Y.	1,397	$3.25	$4,541.70
110-4-1	Existing Asphalt to be removed	S.Y.	5,095	$6.00	$30,569.33
334-1-13	Asphalt Concrete, Type SP-9.5 (2" Thick)	TON	509	$125.00	$63,686.11
	Inlet Curb Type (D-3-SD 2.2) P< 10'	EA.	16	$3,500.00	$56,000.00
	Inlet Curb Type (D-1-SD 3.1) P< 10'	EA.	2	$3,000.00	$6,000.00
	Inlet Curb Type (SD 2.6) J< 10' w/ USF 4700-6223	EA.	1	$4,500.00	$4,500.00
	Pollution Retardant Baffles	EA.	17	$600.00	$10,200.00
425-2-41	Manholes Type P-7 < 10'	EA.	10	$5,600.00	$56,000.00
430-175-118	Solid Pipe 18" diameter H.D.P.E	L.F.	679	$55.00	$37,345.00
443-70-3	Exfiltration Drain (18" perforated pipe)	L.F.	851	$115.00	$97,865.00
	As-Built (Entire Project)	L.S.	1	$1,000.00	$1,000.00
	Survey (Entire Project)	L.S.	1	$3,000.00	$3,000.00
	Utility Verification Prior to Construction of Drainage Structures	L.S.	1	$2,500.00	$2,500.00
				Sub-Total	**$373,207**
	Pavement Marking and Signage				
706-3	Retro-Reflective Pavement Marker (Yellow/Yellow)	EA.	50	$5.00	$250.00
711-11-121	6" White (Thermoplastic)	L.F.	2,401	$4.00	$9,604.00
711-11-124	18" White (Thermoplastic)	L.F.	31	$5.50	$170.50
711-11-125	24" White Stopbar (Thermoplastic)	L.F.	22	$6.00	$132.00
711-11-221	6" Double Yellow (Thermoplastic)	L.F.	2,070	$4.00	$8,280.00
				Sub-Total	**$18,436.50**

	Subtotal Amount	**$418,163**
	Overhead & Profit (10% of subtotal amount)	**$41,816.33**
	Bond & Insurance (2% of subtotal amount)	**$8,363.27**
	Contingency Fund (10% of subtotal amount)	**$41,816.33**
	TOTAL PROJECT COST:	**$510,159**