

Solicitation ITB-21-014-MC

NE 35TH AVENUE ROADWAY & WATER MAIN IMPROVEMENTS

Bid Designation: Public



City of North Miami Beach

Bid ITB-21-014-MC

NE 35TH AVENUE ROADWAY & WATER MAIN IMPROVEMENTS

Bid Number	ITB-21-014-MC
Bid Title	NE 35TH AVENUE ROADWAY & WATER MAIN IMPROVEMENTS
Bid Start Date	Jun 8, 2021 2:57:44 PM EDT
Bid End Date	Jul 12, 2021 2:00:00 PM EDT
Question & Answer End Date	Jun 28, 2021 5:00:00 PM EDT
Bid Contact	Meghan Cianelli Bennett Purchasing Supervisor
Bid Contact	Donna Rockfeld Chief Procurement Officer
Contract Duration	One Time Purchase
Contract Renewal	Not Applicable
Prices Good for	Not Applicable
Pre-Bid Conference	Jun 24, 2021 11:00:00 AM EDT Attendance is optional Location: Join Zoom Meeting https://us02web.zoom.us/j/8235709045?pwd=a0VGR0FqbmlIVElSaisxWEVQaVp0UT09 Meeting ID: 823 570 9045 Passcode: 2kV5Tg
Bid Comments	<p>The City of North Miami Beach, Florida ("City") is seeking a qualified firm(s) ("CONTRACTOR") to submit a Bid for the NE 35TH AVENUE ROADWAY & WATER MAIN IMPROVEMENTS.</p> <p>The Bidder is hereby notified that this project is being partially funded through WIFIA and is subject to all of the requirements pertaining to thereof. Specifically, Article III of the agreement requires compliance with all applicable laws, rules, regulations, and requirements, including without limitation 40 U.S.C. § 3141-3144, 3146, and 3147 (relating to Davis-Bacon Act requirements) and 33 U.S.C. § 3914 (relating to American iron and steel products). Copies of the requisite reporting documentation are attached.</p> <p>SITE VISIT: There will be no official scheduled site visit to review the City's expectations for this project, the project background, or to discuss the overview of scope. It is recommended that all interested proposers visit the site at their own leisure. It will be the sole responsibility of the bidder to ensure that his bid is submitted prior to the bid opening date and time listed. PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. BIDS MUST BE SUBMITTED ELECTRONICALLY VIA BIDSYNC.COM.</p> <p>Bid Security bond: A certified check, cashier's check, bank officer's check or bid bond for FIVE percent (5%) of the bid amount, made payable to the City North Miami Beach, Florida, shall accompany each proposal. Bidders can submit bid bonds for projects four different ways:</p> <ol style="list-style-type: none"> 1.) BidSync allows bidders to submit bid bonds electronically directly through their system using Surety 2000 . For more information on this feature and to access it, contact BIDSYNC customer care department. 2.) Bidders may upload their original executed bid bond on BIDSYNC to accompany their bids with the electronic proposal, and deliver the original, signed and sealed hard copy within five (5) business days after bid opening, with the company name, bid number and title clearly indicated. 3.) Bidders can hand deliver their bid bond in a sealed envelope to the Procurement Management Division, Suite 315, 17011 NE 19th Ave. North Miami Beach, FL 33162-3100, before time of bid opening, with the company name, bid number and title clearly

indicated on the envelope.

4.) Bidders can **mail** their bid bond to the Procurement Management Division, Suite 315, 17011 NE 19th Ave. North Miami Beach, FL 33162-3100, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.

Certified Checks, Cashier’s Checks and Bank Drafts. These **cannot** be submitted via BIDSYNC, nor are their images allowed to be uploaded and submitted with your electronic bid. These forms of securities, as well as hard copy bid bonds, must be received on or before the Invitation to Bid (ITB) opening date and time, at the Procurement Management Division, Suite 315, 17011 NE 19th Ave. North Miami Beach, FL 33162-3100, with the bid number and title clearly indicated on the envelope. It is the bidder’s sole responsibility to ensure that his bid bond or other bid security is received by the Procurement Services Division before time of bid opening. Failure to adhere to this requirement may be grounds to consider the bid as non-responsive.

The City of North Miami Beach reserves the right to waive any informality in any or all bids and to reject any or all bids. For information concerning technical specifications, please utilize the question/answer feature provided by Periscope Source at www.bidsync.com. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures, will only be transmitted by written addendum. Contractors please note: No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Contractor has familiarized himself with the nature and extent of the work, equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation.

Added on Jun 10, 2021:
Added Zoom information to pre-bid meeting.
Added on Jul 2, 2021:
Addendum #1 July 1, 2021

Bid Tab:
Item 2-3 - Quantity was changed to “1”. Bid Tabulation has been revised. Use revised bid tabulation sheet when submitting bid prices.

Specification 01025:
The language in Section 01025-1.40 describing Bid Tab item 5-12 was modified to indicate the measurement for payment to be in “square feet” (SF). The technical specifications have been modified and updated. Section 01025 Measurement and Payment replaced.

Addendum # 1

Pre-Bid Conference Changes **Pre-Bid Conference information has changed. Please review all Pre-Bid Conferences.**

Addendum # 2

New Documents	Technical Specifactions 6_30_21.pdf bid tab addendum.xlsx
Removed Documents	W005a_SPC_Bid Set_20210526.pdf W005s_CAL_Bid Tabulation_20210526.xlsx

Item Response Form

Item	ITB-21-014-MC--01-01 - General Conditions
Quantity	1 each
Unit Price	<input style="width: 100%;" type="text"/>
Delivery Location	City of North Miami Beach <u>NMB Water</u> 17050 NE 19th AVE North Miami Beach FL 33162 Qty 1

Description

Input total for Item No. 1

Item **ITB-21-014-MC--01-02 - Demolition****Quantity** **1 each****Unit Price** **Delivery Location** **City of North Miami Beach**NMB Water

17050 NE 19th AVE

North Miami Beach FL 33162

Qty 1**Description**

Input total for Item No. 2

Item **ITB-21-014-MC--01-03 - Storm Drainage****Quantity** **1 each****Unit Price** **Delivery Location** **City of North Miami Beach**NMB Water

17050 NE 19th AVE

North Miami Beach FL 33162

Qty 1**Description**

Input total for Item No. 3

Item **ITB-21-014-MC--01-04 - Portable Water****Quantity** **1 each****Unit Price** **Delivery Location** **City of North Miami Beach**NMB Water

17050 NE 19th AVE

North Miami Beach FL 33162

Qty 1**Description**

Input total for Item No. 4

Item **ITB-21-014-MC--01-05 - Roadway and Site Improvements****Quantity** **1 each****Unit Price** **Delivery Location** **City of North Miami Beach**NMB Water

17050 NE 19th AVE

North Miami Beach FL 33162

Qty 1**Description**

Input total for item No. 5

Item **ITB-21-014-MC--01-06 - Signage and Pavement Markings**
 Quantity **1 each**
 Unit Price
 Delivery Location **City of North Miami Beach**
NMB Water
 17050 NE 19th AVE
 North Miami Beach FL 33162
Qty 1

Description
 Input total for Item No. 6.

Item **ITB-21-014-MC--01-07 - Planting and Irrigation**
 Quantity **1 each**
 Unit Price
 Delivery Location **City of North Miami Beach**
NMB Water
 17050 NE 19th AVE
 North Miami Beach FL 33162
Qty 1

Description
 Input total for Item No. 7

Item **ITB-21-014-MC--01-08 - Stormwater Pollution Prevention**
 Quantity **1 each**
 Unit Price
 Delivery Location **City of North Miami Beach**
NMB Water
 17050 NE 19th AVE
 North Miami Beach FL 33162
Qty 1

Description
 Input total for Item No. 8

Item **ITB-21-014-MC--01-09 - Conduits**
 Quantity **1 each**
 Unit Price
 Delivery Location **City of North Miami Beach**
NMB Water
 17050 NE 19th AVE
 North Miami Beach FL 33162
Qty 1

Description
 Input total for Item No. 9

Item **ITB-21-014-MC--01-10 - Owners Allowance**
Quantity **1 each**
Unit Price
Delivery Location **City of North Miami Beach**
NMB Water
17050 NE 19th AVE
North Miami Beach FL 33162
Qty 1

Expected Expenditure \$319,000.00

Description

The Owner's Allowance is set at \$319,000. (Contingency) Bidder shall include this on the bid tab - it may not be changed.

SECTION 1.0 GENERAL TERMS AND CONDITIONS

1.1 DEFINITIONS

When used in Contract Documents (defined below) or in related documents, the following terms shall have the meanings given below:

Addendum: A modification of the Plans, Specifications or other Contract Documents distributed to prospective Bidders prior to the opening of Bids/Proposals.

Advertisement for Bids: The public notice inviting the submission of bids for the work.

Bid/Proposal Bond: A bond executed by a Bidder/Proposer and its Surety in the attached form guaranteeing that the Bidder/Proposer, if awarded the Contract will execute the same and will timely furnish the required Performance Bond, Payment Bond, and evidence of Insurance.

Calendar Day: Every day shown on the calendar.

Change Order: A written agreement executed by the City, the Contractor and the Contractor's Surety, covering modifications to the Contract recommended by the Project Manager and approved by the City Manager and/or City Commission.

Contract: The written agreement between the City and the Bidder for performance of the Work in accordance with the requirements of the Contract Documents and for the payment of the agreed consideration.

Contract Documents: The Instructions to Bidders, Bid Form, Bid Bond, Contract, Performance Bond, Payment Bond, General Conditions, Special Conditions, and Scope of Work, together with all Addenda.

Contract Manager: North Miami Beach's City Manager or designee or duly authorized representative designated to manage the Contract.

Contractor: The individual, firm, partnership, corporation or joint venture whose bid is accepted and who enters into a Contract with the City of North Miami Beach and who is liable for the

acceptable performance of the work and for the payment of all legal debts pertaining to the Work.

Contract Date: The date on which the Agreement is effective.

Contract Time: The number of days allowed for completion of the work. All contract time shall be measured in calendar days.

City: A political subdivision, Incorporated City within Miami-Dade County of the State of Florida, whose governing body is a City Commission consisting of a Mayor, Vice Mayor and five City Commission members.

City Manager: The Manager of the City of North Miami Beach, Florida.

Days: Reference made to Days shall mean consecutive calendar days.

Deliverables: All documentation and any items of any nature submitted by the Contractor to the City's

Contract Manager for review and approval in writing pursuant to the terms of the Agreement.

Lessee: Any individual, partnership or corporation having a tenant relationship with the City of North Miami Beach.

Owner: The term Owner as used in this Contract shall mean the City of North Miami Beach.

Performance Deposit: Certified Bank Check executed by the Contractor, on the attached forms, assuring that the Contractor will, in good faith, perform and guarantee the work in full conformity with the terms of the Contract Documents and will promptly pay all persons supplying the Contractor with labor, materials, or supplies, used directly or indirectly by the Contractor in the prosecution of the Work.

Project Manager: The duly authorized representative designated to manage the Project.

Bid: The written offer of a Bidder to perform the work or service.

Bid Documents: Bid Guarantee or Bid deposit. The Advertisement for Bid, Instructions to Bidders, Bid Form, Bidder Bond, Contract, Performance Bond, Payment Bond, General

Conditions, Special Conditions, and Scope of Work, together with all Addenda.

Bid Form: The form on which Bids are submitted.

Bidder: Any individual, firm, partnership or corporation submitting a Bid in accordance with the Instructions to Bidders.

Scope of Service: Document which details the work to be performed by the Bidder.

Subcontractor or Sub consultant: Any person, entity, firm or corporation, other than the employees of the Contractor, who furnishes labor and/or materials, in connection with the Work, whether directly or indirectly, on behalf of and/or under the direction of the Contractor and whether or not in privity of Contract with the Contractor.

The words "Work", "Services", "Program", or "Project": All matters and things required to be done by the Bidder in accordance with the provisions of the Contract.

The words "Directed", "Required", "Permitted", "Ordered", "Designated", "Selected", "Prescribed", or words of like import to mean respectively, the direction, requirement, permission, order, designation, selection or prescription of the City's Contract Manager; and similarly the words "approved", "acceptable", "satisfactory", "equal", "necessary", or words of like import to mean respectively, approved by, or acceptable or satisfactory to, equal or necessary in the opinion of the City's Contract Manager. In resolving disputes and in all respects the City Manager's decision shall be final.

1.2 VENDOR REGISTRATION INSTRUCTIONS

It is the policy of the City to encourage full and open competition among all available qualified vendors. All vendors regularly engaged in the type of work specified in the Solicitation are encouraged to submit Bids. At the time of contract award (including small purchase orders), Bidders must complete a Vendor Application. For information and to apply as a vendor, please visit our website at www.Citynmb.com to download an application and submit it to Procurement Management Division, 17011 NE 19 Avenue, Suite 315 North Miami Beach, Florida 33162. To get solicitation document, specifications and updates go to www.Citynmb.com.

1.3 CONE OF SILENCE AND REQUEST FOR ADDITIONAL INFORMATION

"Cone of Silence," as used herein, means a prohibition on any communication regarding a particular Request for Proposal ("RFP"), Request for Qualification ("RFQ") or Invitation to Bid ("ITB").

Pursuant to Section 2-11.1(t) of the County Code, all solicitations, once advertised and until an award recommendation has been forwarded to the appropriate authority are under the "Cone of Silence". Any communication or inquiries, except for clarification of process or procedure already contained in the solicitation, are to be made in writing to the attention of the Chief Procurement Officer or Procurement Supervisor. Such inquiries or request for information shall be submitted to the Chief Procurement Officer or Procurement Supervisor and shall contain the requester's name, address, and telephone number. If transmitted by facsimile, the request should also include a cover sheet with Bidder's facsimile number. The request may also be electronically mailed to bids@Citynmb.com or mailed to Procurement Management Division, 17011 NE 19 Avenue, Suite 315, North Miami Beach, Florida 33162.

During the Cone of Silence the following is prohibited: Any communication regarding this solicitation between a potential vendor, service provider, Bidder, lobbyist, or consultant and the City's professional staff including, but not limited to City Commission, the City Manager and his or her staff. All communication regarding this solicitation should be sent in writing only to the Procurement Management Division at bids@Citynmb.com.

1.4 BIDDERS RESPONSIBILITIES

Bidders are required to submit their bids upon the following express conditions:

- A. Bidders shall thoroughly examine the drawings, specifications, schedules, instructions and all other contract documents.
- B. Bidders shall make all investigations necessary to thoroughly inform themselves regarding site(s) and facilities for delivery of material and equipment as required by the solicitation conditions. No plea of ignorance, by the Bidder, of conditions that exist or that may hereafter exist as a result of failure or omission on

the part of the Bidder to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the contract documents, will be accepted as a basis for varying the requirements of the City or the compensation due the Bidder.

- C. Bidders are advised that all City contracts are subject to all legal requirements provided for in the City of North Miami Beach Purchasing Code and applicable Miami-Dade County Ordinances, State Statutes and Federal Statutes.

1.5 SUBMISSION OF BIDS

- A. Bids and Addenda thereto shall be delivered via Bidsync.com by the due/time specified.

1.6 ADDENDA

The Procurement Management Division may issue an addendum in response to any inquiry received, prior to the bid opening, which changes, adds to or clarifies the terms, provisions or requirements of the solicitation. The Bidder should not rely on any representation, statement or explanation, whether written or verbal, other than those made in this solicitation document or in any addenda issued. Where there appears to be a conflict between this solicitation and any addenda, the last addendum issued shall prevail. It is the Bidder's responsibility to ensure receipt of all addenda and any accompanying documents. Bidder(s) shall acknowledge receipt of any formal Addenda via Bidsync.com. Failure to acknowledge Addenda shall deem the response non-responsive provided, however, that the City may waive this requirement in its best interest.

1.7 REJECTION OF BID

The City 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) calendar days after Bids opening date.

1.8 WITHDRAWAL OF BID

- A. Bids may not be withdrawn and shall be deemed enforceable for a period of 120 days after the time set for the Bid opening.

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

- C. The City will permanently retain as liquidated damages the Bid deposit furnished by any Bidder who requests to withdraw a Bid after the Bid opening.

1.9 LATE BIDS OR MODIFICATIONS

Only Bids received as of opening date and time will be considered timely. Bids and modifications received after the time set for the Bid opening will be rejected as late.

1.10 CONFLICTS WITHIN THE SOLICITATION

Where there appears to be a conflict between the General Terms and Conditions, Special Conditions, Scope of Services, Bid Submittal Section, or any addendum issued, the order of precedence shall be as follows: The last addendum issued, the General Terms and Conditions, the Special Conditions, the Scope of Services, and the Bid Submittal Section.

1.11 CLARIFICATION OR OBJECTION TO BID SPECIFICATIONS

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of the specifications or other bid documents or any part thereof, he/she may submit to the Chief Procurement Officer on or before the date and time stated herein, a request for clarification. All such requests for clarification shall be made in writing and the person submitting the request will be responsible for its prompt delivery. Any interpretation of the bid, if made, will be made only by Addendum duly issued. The City will not be responsible for any other explanation or interpretation of the proposed made or given prior to the award of the contract. Any objection to the specifications and requirements as set forth in this bid must be filed in writing with the **Chief Procurement Officer by the deadline for Questions posted on Bidsync.com.**

1.12 INVOICING/PAYMENT

All invoices should be sent to:
Finance Department,
17011 NE 19 Avenue, 3rd Floor,
North Miami Beach, Florida 33162.

In accordance with Florida State Statutes, Chapter 218, payment will be made within 45 days after receipt of services and a proper invoice. The City cannot make advance payments, make deposits in advance of receipt of goods, or pay C.O.D. Bidders should state any payment discount in the space provided on the bid form.

1.13 COMPETENCY OF BIDDERS

- A. Pre-award inspection of the Bidder's facility may be made prior to the award of contract. Bids will be considered only from firms which are regularly engaged in the business of providing the goods and/or services as described in this solicitation(s); have a record of performance for a reasonable period of time; and have sufficient financial support, equipment and organization to ensure that they can satisfactorily deliver the material and/or services if awarded a Contract under the terms and conditions herein stated. The terms "equipment and organization" as used herein shall be construed to mean a fully equipped and well established company in line with the best business practices in the industry and as determined by the proper authorities of the City.
- B. The City may consider any evidence available to it of the financial, technical and other qualifications and abilities of a Bidder, including past performance (experience) in making the award in the best interest of the City. In all cases the City of North Miami Beach shall have no liability to any contractor for any costs or expense incurred in connection with this bid or otherwise.

1.14 NOTICE REQUIREMENTS UNDER THE AGREEMENT

All notices required or permitted under the Agreement shall be in writing and shall be deemed sufficiently served if delivered by Registered or Certified Mail, with return receipt requested; or delivered personally; or delivered via e-mail (if provided below) and followed with delivery of hard copy; and in any case addressed as follows:

To the Chief Procurement Officer.

Procurement Management Division
17011 NE 19th Avenue, Suite 315
North Miami Beach, FL 33162
Phone: (305) 948-2946
Email: bids@Citynmb.com

and,

To the City Attorney
City Attorney
17011 NE 19th Avenue, 4th Floor
North Miami Beach, FL 33162
Phone: (305) 948-2939

To the Bidder

Notices will be sent to the Bidder at the e-mail address and to the person listed in the bid, as applicable.

Either party may at any time designate a different address and/or contact person by giving notice as provided above to the other party. Such notices shall be deemed given upon receipt by the addressee.

1.15 EMPLOYEES

All employees of the Bidder shall be considered to be at all times the sole employees of the Bidder under the Bidder's sole direction, and not employees or agents of the City of North Miami Beach. The Bidder shall supply competent and physically capable employees and the City is authorized to require the Bidder to remove any employee it deems careless, incompetent, insubordinate or otherwise objectionable and whose presence on City property is not in the best interest of the City.

Each employee at all times shall have and display in plain view proper identification. The names of the employee and the company shall be displayed on the front of the employee's shirt.

1.16 AWARD OF BID

The bid, or contract, shall be awarded to the lowest responsible and responsive bidder whose bid conforms with the terms and conditions of the Invitation to Bid.

1.17 PROTESTS

- A. Right to protest. Any Bidder or interested parties (hereinafter collectively referred

to as the " Bidder ") who has a substantial interest in, and is aggrieved in connection with the solicitation or proposed award of the ITB may protest to the City Manager or designee. Protests arising from the decisions and votes of any evaluation or selection committee shall be limited to protests based upon alleged deviation(s) from established purchasing procedures set forth in City Purchasing Code, any written guidelines of the procurement department, and the specifications, requirements and/or terms set forth in the ITB.

1. Any protest concerning the ITB specifications, requirements, and/or terms must be made within three business days (for the purposes of this section, "business day" means a day other than Saturday, Sunday or a national holiday), from the time the facts become known and, in any case, at least seven business days prior to the opening of the responses. Such protest must be made in writing (as provided for herein *Notice Requirements*) to the Chief Procurement Officer with copy to the City Manager and City Attorney, and such protest shall state the particular grounds on which it is based and shall include all pertinent documents and evidence. No protest shall be accepted unless it complies with the requirements of this section. Failure to timely protest ITB specifications, requirements and/or terms is a waiver of the ability to protest the specifications, requirements and/or terms.
2. Any protest after the bid opening, including challenges to actions of any evaluation or selection committee as provided in subsection (1) above shall be submitted in writing to the Chief Procurement Officer with copy to the City Manager and City Attorney. The City will allow such bid protest to be submitted anytime until two business days following the release of the notice of the City Manager's written recommendation to the City Commission for award of the solicitation in question. Such protest shall state the particular grounds on which it is based and shall include all pertinent grounds on which it is based, and shall include all pertinent documents and evidence. No protest shall be accepted unless it complies with the requirements of this section. All Bidders shall be notified in writing (which may be transmitted by electronic communication, such as facsimile transmission and/or e-mail), following the release of the City Manager's written recommendation to the City Commission.
 - B. The City may request reasonable reimbursement for expenses incurred in processing any protest hereunder, which expenses shall include, but not be limited to, staff time, legal fees and expenses (including expert witness fees), reproduction of documents and other out-of-pocket expenses.
 - C. Authority to resolve protests. The City Manager or designee shall have the authority to settle and resolve a protest concerning the solicitation or award of the ITB.
 - D. Responsiveness. Prior to any decision being rendered under this section with respect to a protest, the City Manager and the City Attorney, or their respective designees, shall certify whether the submission of the response to the ITB in question is responsive. The parties to the protest shall be bound by the determination of the City Manager and the City Attorney with regard to the issue of responsiveness.
 - E. Decision and appeal procedures. If the protest is not resolved by mutual agreement, the City Manager and the City Attorney, or their respective designees, shall promptly issue a decision in writing. The decision shall specifically state the reasons for the action taken and inform the protestor of his or her right to challenge the decision. Any person aggrieved by any action or decision of the City Manager, the City Attorney, or their respective designees, with regard to any decision rendered

under this section may appeal said decision by filing an original action in the Circuit Court of the Eleventh Judicial Circuit in and for Miami-Dade County, Florida, in accordance with the applicable court rules. Any action not brought in good faith shall be subject to sanctions including damages suffered by the City and attorney's fees incurred by the City in defense of such wrongful action.

- F. Distribution. A copy of each decision by the City Manager and the City Attorney shall be mailed or otherwise furnished immediately to the protestor.
- G. Stay of procurements during protests. In the event of a timely protest under this section, the City shall not proceed further with the solicitation or with the award pursuant to the ITB unless a written determination is made by the City Manager, that the award pursuant to the ITB must be made without delay in order to protect a substantial interest of the City.
- H. The institution and filing of a protest under this section is an administrative remedy that shall be employed prior to the institution and filing of any civil action against the City concerning the subject matter of the protest.
- I. Protests not timely made under this section shall be barred. Any basis or ground for a protest not set forth in the letter of protest required under this section shall be deemed waived.
- J. At the time the City Manager's written recommendation for award of the ITB is presented at a meeting of the Mayor and City Commission, the City Attorney, or designee, shall present a report to inform the Mayor and City Commission of any legal issues relative to any protest filed in connection with the ITB in question.
- K. The determination of the City Manager and the City Attorney with regards to all procedural and technical matters shall be final.

1.18 AGREEMENT

An agreement shall be sent to the awarded Bidder to be signed, witnessed, and returned to the City for execution. The City will provide a copy of the fully executed agreement to the awarded Bidder.

1.19 DISQUALIFICATION OF BIDDERS

A Bidder may be disqualified temporarily or permanently and his/her bid(s) rejected for:

- Poor performance or default, in the City's opinion, on previous contracts with the City.
- Poor performance or default, in the City's opinion, on previous contracts with other public entities.
- Insufficient financial or company size, in the City's opinion, to perform the requirements of the contract.

1.20 SUBCONTRACTING

The Bidder will not assign, transfer or sub-contract any work either in whole or in part, without prior written approval of the City. The Bidder shall furnish in writing to the City the names of the Subcontractors. The Bidder shall not contract with any Subcontractors to whom the City has made reasonable and timely objection. The final Subcontractors list shall be presented to the City.

1.21 ASSIGNMENT

The successful Bidder shall not assign, transfer, hypothecate, or otherwise dispose of this contract, including any rights, title or interest therein, or its power to execute such contract to any person, company or corporation without the prior written consent of the City and City's approval.

1.22 FRAUD AND MISREPRESENTATION

In accordance with City Purchasing Policy 3.6 and pursuant to Section 2-8-1.4 of the Miami-Dade County Code, any individual, corporation or other entity that attempts to meet its contractual obligations with the City through fraud, misrepresentation or material misstatement, may be debarred from doing business with the City. The City as further sanction may terminate or cancel any other contracts with such individual, corporation or entity. Such individual or entity shall be responsible for all direct or indirect costs associated with termination or cancellation, including attorney's fees.

1.23 COLLUSION

The Bidder, by affixing his signature to this bid, agrees to the following: "Bidder certifies that his/her bid is made without previous understanding, agreement, or connection with any person, firm or corporation, making a bid for the same items, or the initiating City department, and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action."

1.24 PATENTS AND COPYRIGHTS

It shall be understood and agreed that by the submission of a bid, the Bidder, if awarded a contract, shall save harmless and fully indemnify the City and any of its officers or agents from any and all damages that may, at any time, be imposed or claimed for infringement of any patent right, trademark, or copyright, of any person or persons, association, or corporation, as the result of the use of such articles by the City, or any of its officers, agents, or employees, and of which articles the contractor is not the patentee, assignee, licensee, or owner, or lawfully entitled to sell same.

1.25 PUBLIC RECORDS LAW

Pursuant to Florida Statute 119.07, public records may be inspected and examined by anyone desiring to do so, at a reasonable time, under reasonable conditions, and under supervision by the custodian of the public record. Sealed Bids and Proposals become subject to this statute, notwithstanding Bidders' requests to the contrary, at the time the City provides notice of a decision or intended decision, or 30 days after bid or bid opening, whichever is earlier.

Financial statements submitted in response to a request by the City are confidential, and exempt from disclosure. Data processing software obtained under a licensing agreement which prohibits its disclosure is also exempt.

Bidders are hereby notified and agree that all information submitted as part of, or in support of bid/proposal submittals will be available for public inspection after opening of bids/proposals in compliance with Chapter 119 of the Florida Statutes. The Bidder shall not submit any information in response to this invitation which the Bidder considers to be a trade secret, proprietary or confidential. The submission of any information to the City in connection with this ITB shall be deemed conclusively to be a waiver of any trade secret or other protection, which would otherwise

be available to the Bidder. In the event that the Bidder submits information to the City in violation of this restriction, either inadvertently or intentionally and clearly identifies that information in the bid/proposal as protected or confidential, the City shall endeavor to redact and return that information to the Bidder as quickly as possible, and if appropriate, evaluate the balance of the bid/proposal. The redaction or return of information pursuant to this clause may render a bid/response non-responsive.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (TELEPHONE NUMBER: (305) 787-6001, E-MAIL ADDRESS: CITYCLERK@CITYNMB.COM, AND MAILING ADDRESS: CITY CLERK, NMB CITY HALL, 17011 N.E. 19 AVENUE, NORTH MIAMI BEACH, FLORIDA 33162-3100).

1.26 EXCEPTIONS TO BID

The Bidder must clearly indicate any exceptions they wish to take to any of the terms in this Bid, and outline what, if any, alternative is being offered. All exceptions and alternatives shall be included and clearly delineated, in writing, in the Bid. The City, at its sole and absolute discretion, may accept or reject any or all exceptions and alternatives. In cases in which exceptions and alternatives are rejected, the City shall require the Bidder to comply with the particular term and/or condition of the ITB to which the Bidder took exception to (as said term and/or condition was originally set forth on the ITB.)

1.27 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT

The Bidder shall indemnify and hold harmless the City of North Miami Beach and its officers, employees, agents and instrumentalities from any and all liability, losses or damages in an amount not less than \$1,000,000 per occurrence. In addition to \$1,000,000 per occurrence, the City shall be entitled to attorney's fees and costs of defense, which the City of North Miami Beach, or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of this project by the awarded Bidder or its employees, agents, servants, partners, principals or subcontractors. Furthermore, the awarded Bidder shall pay all claims and losses in an amount not less than \$1,000,000 per occurrence in connection therewith and shall investigate and defend all claims, suits or actions of any kind of nature in the name of the City of North Miami Beach, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may issue thereon. The awarded Bidder expressly understands and agrees that any insurance protection required by the resulting agreement or otherwise provided by the awarded Bidder shall cover the City of North Miami Beach, its officers, employees, agents and instrumentalities and shall include claims for damages resulting from and/or caused by the negligence, recklessness or intentional wrongful misconduct of the indemnifying party and persons employed or by utilized by the indemnifying party in the performance of the contract.

1.28 COPELAND "ANTI-KICKBACK"

Contractor and all subcontractors will comply with the Copeland Anti-Kickback Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).

1.29 CHOICE OF LAW

If and when this contract is disputed, and should it be necessary to litigate, the substantive and procedural laws of the State of Florida shall govern the outcome of such litigation. This shall apply notwithstanding such factors which include, but are not limited to, place where contract is entered into, place where accident arises and choice of law principles.

1.30 QUANTITIES

The City specifically reserves the right to accept all or any part of the bid, to split the award, to increase or decrease the quantity to meet additional or reduced requirements of the City, without such change affecting the contract price set forth in the bid form by the Bidder.

1.31 CLAIMS

Successful Bidder(s) will be responsible for making any and all claims against carriers for missing or damaged items.

1.32 MODIFICATION OF CONTRACT

The contract may be modified by mutual consent, in writing through the issuance of a modification to the contract, purchase order, change order or award sheet, as appropriate.

1.33 PUBLIC ENTITY CRIMES

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid/proposal on a contract to provide any goods or services to a public entity, may not submit a bid/proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids/proposals on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Florida Statutes, Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

1.34 DISCRIMINATION

Any entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid/proposal on a contract to provide goods or services to a public entity, may not submit a bid/proposal on a contract with a public entity for construction or repair of a public building or public work, may not submit bids/proposals on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity.

1.35 DRUG-FREEWORKPLACE PROGRAM

Bidders are required to maintain and enforce a Drug-Free Workplace Program for the duration of the agreement and any extensions thereof. Bidders shall complete and submit a copy of the attached form and a copy of the program with their bid.

1.36 SOLICITATION, GIVING, AND ACCEPTANCE OF GIFTS POLICY

Bidders shall sign and submit this attached form indicating understanding and compliance with the City's and State's policies prohibiting solicitation and acceptance of gifts by public officers, employees, or candidates.

Failure to submit this signed form will result in your bid being declared non-responsive; provided, however, that the low Bidder may be given the opportunity to submit the form to the City within five calendar days after notification by the City, if this is determined to be in the best interest of the City.

1.37 ACCESS TO RECORDS

The City reserves the right to require the Bidder to submit to an audit. The Bidder shall provide access to all of its records which relate directly or indirectly to the Agreement at its place of business during regular business hours. The selected Bidder shall retain all records pertaining to the Agreement and upon request make them available to the City for three years following expiration of the Agreement. The Bidder agrees to provide such assistance as may be necessary to facilitate the review or audit by the City to ensure compliance with applicable accounting and financial standards at no cost to the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT (TELEPHONE

NUMBER: (305) 787-6001, E-MAIL ADDRESS:

CITYCLERK@CITYNMB.COM, AND MAILING ADDRESS: CITY CLERK, NMB CITY HALL, 17011 N.E. 19 AVENUE, NORTH MIAMI BEACH, FLORIDA 33162-3100).

1.38 BEST INTEREST OF NORTH MIAMI BEACH

The City of North Miami Beach reserves the right to reject any and all submissions, to waive any and all irregularities in any submission, and to make awards in the best interest of the City.

1.39 INSURANCE REQUIREMENTS

The Bidder shall maintain and carry in full force during the Term the insurance required herein. Upon City's notification, the Bidder shall furnish to the Procurement Management Division, Certificates of Insurance that indicate that insurance coverage has been obtained which meets the requirements as outlined below:

- A. Worker's Compensation Insurance for all employees of the Bidder as required by Florida Statute 440. Should the Bidder be exempt from this Statute, the Bidder and each employee shall hold the City harmless from any injury incurred during performance of the Contract. The exempt Bidder shall also submit a written statement detailing the number of employees and that they are not required to carry Worker's Compensation insurance, and do not anticipate hiring any additional employees during the term of this contract or a copy of a Certificate of Exemption.
- B. General Liability Insurance on a comprehensive basis in an amount not less than \$1,000,000 per person, \$2,000,000 per occurrence for bodily injury and property damage. City of North Miami Beach must be shown as an additional insured with respect to this coverage. The mailing address of City of North Miami Beach 17011 NE 19 Avenue, Suite 315, North Miami Beach, Florida 33162, as the certificate holder,

must appear on the certificate of insurance.

- C. Automobile Liability Insurance covering all owned, non-owned, and hired vehicles used in connection with the Services, in an amount not less than \$1,000,000 per person and \$2,000,000 per occurrence. City of North Miami Beach must be shown as an additional insured with respect to this coverage. The mailing address of City of North Miami Beach 17011 NE 19 Avenue, Suite 315, North Miami Beach, Florida 33162, as the certificate holder, must appear on the certificate of insurance. Add: Uninsured Motorist Coverage.

The insurance coverage required shall include those classifications, as listed in standard liability insurance manuals, which most nearly reflect the operation of the Bidder. All insurance policies required above shall be issued by companies authorized to do business under the laws of the State of Florida with the following qualifications:

The company must be rated no less than "B" as to management, and no less than "Class V" as to financial strength, according to the latest edition of Best's Insurance Guide published by A.M. Best Company, Oldwick, New Jersey, or its equivalent, subject to the approval of the City's Risk Management Division.

Certificates of Insurance must indicate that for any cancellation of coverage before the expiration date, the issuing insurance carrier will endeavor to mail thirty (30) day written advance notice to the certificate holder. In addition, the Bidder hereby agrees not to modify the insurance coverage without thirty (30) days written advance notice to the City.

NOTE: CITY OF NORTH MIAMI BEACH CONTRACT NUMBER AND TITLE MUST APPEAR ON EACH CERTIFICATE OF INSURANCE.

Compliance with the foregoing requirements shall not relieve the Bidder of this liability and obligation under this section or under any other section in the Agreement.

Award of this Contract is contingent upon the receipt of the insurance documents, as required, within fifteen (15) calendar days after City

notification to Bidder to comply before the award is made. If the insurance certificate is received within the specified time frame but not in the manner prescribed in the Agreement, the Bidder shall be verbally notified of such deficiency and shall have an additional five (5) calendar days to submit certificate to the City. If the Bidder fails to submit the required insurance documents in the manner prescribed in the Agreement within twenty (20) calendar days after City notification to comply, the Bidder shall be in default of the contractual terms and conditions and award of the Contract will be rescinded, unless such time frame for submission has been extended by the City.

The Bidder shall be responsible for assuring that the insurance certificates required in conjunction with this Section remain in force for the duration of the contractual period of the Contract, including any and all option years or extension periods that may be granted by the City. If insurance certificates are scheduled to expire during the contractual period, the Bidder shall be responsible for submitting new or renewed insurance certificates to the City at a minimum of thirty (30) calendar days in advance of such expiration. In the event that expired certificates are not replaced with new or renewed certificates which cover the contractual period, the City shall suspend the Contract until such time as the new or renewed certificates are received by the City in the manner prescribed herein; provided, however, that this suspended period does not exceed thirty (30) calendar days. Thereafter, the City may, at its sole discretion, terminate this contract.

1.40 CITY WEBSITE

The City utilizes the following procedures for notification of bid opportunities: www.bidsync.com and on the City Website: <https://www.citynmb.com/214/Bid-Opportunities>. These are the only forms of notification by the City. The City shall not be responsible for receipt of notification and information from any source other than those listed. It shall be the bidder's responsibility to verify the validity of all bid information received by sources other than those listed.

1.41 DISCLAIMER

The City of North Miami Beach may, in its sole and absolute discretion without prejudice or

liability, accept or reject, in whole or in part, for any reason whatsoever any or all bids; re-advertise this ITB; postpone or cancel at any time this ITB process; or, waive any formalities of or irregularities in the process. Bids that are not submitted on time and/or do not conform to the City of North Miami Beach's requirements will not be considered. After all bids are analyzed, Bidder(s) submitting bids that appear, solely in the opinion of the City of North Miami Beach, to be the most qualified, shall be submitted to the City of North Miami Beach's City Commission, and the final selection will be made thereafter with a timetable set solely by the City of North Miami Beach. The selection by the City of North Miami Beach shall be based on the ITB, which is, in the sole opinion of the City Commission of the City of North Miami Beach, in the best interest of the City of North Miami Beach. The issuance of this ITB constitutes only an invitation to make presentations to the City of North Miami Beach. The City of North Miami Beach reserves the right to determine, at its sole discretion, whether any aspect of the response satisfies the criteria established in this ITB. In all cases the City of North Miami Beach shall have no liability to any bid for any costs or expense incurred in connection with this ITB.

1.42 CONFIDENTIALITY

As a political subdivision, the City of North Miami Beach is subject to the Florida Government in the Sunshine Act and Public Records Law. By submitting a bid, Bidder acknowledges that the materials submitted with the bid and the results of the City of North Miami Beach's evaluation are open to public inspection upon proper request. Bidder should take special note of this as it relates to proprietary information that might be included in its bid.

1.43 NATURE OF THE AGREEMENT

The Agreement incorporates and includes all negotiations, correspondence, conversations, agreements, and understandings applicable to the matters contained in the Agreement. The parties agree that there are no commitments, agreements, or understandings concerning the subject matter of the Agreement that are not contained in the Agreement, and that the Agreement contains the entire agreement between the parties as to all matters contained herein. Accordingly, it is agreed that no deviation from the terms hereof shall be predicated upon

any prior representations or agreements, whether oral or written. It is further agreed that any oral representations or modifications concerning the Agreement shall be of no force or effect, and that the Agreement may be modified, altered or amended only by a written amendment duly executed by both parties hereto or their authorized representatives.

The Bidder shall provide the services set forth in the Scope of Services, and render full and prompt cooperation with the City in all aspects of the Services performed hereunder.

The Bidder acknowledges that the Agreement requires the performance of all things necessary for or incidental to the effective and complete performance of all Work and Services under this Contract. All things not expressly mentioned in the Agreement but necessary to carrying out its intent are required by the Agreement, and the Bidder shall perform the same as though they were specifically mentioned, described and delineated.

The Bidder shall furnish all labor, materials, tools, supplies, and other items required to perform the Work and Services that are necessary for the completion of this Contract. All Work and Services shall be accomplished at the direction of and to the satisfaction of the City's Contract Manager.

The Bidder acknowledges that the City shall be responsible for making all policy decisions regarding the Scope of Services. The Bidder agrees to provide input on policy issues in the form of recommendations.

The Bidder agrees to implement any and all changes in providing Services hereunder as a result of a policy change implemented by the City. The Bidder agrees to act in an expeditious and fiscally sound manner in providing the City with input regarding the time and cost to implement said changes and in executing the activities required to implement said changes.

1.44 PAYMENT FOR SERVICES/AMOUNT OBLIGATED

The Bidder warrants that it has reviewed the City's requirements and has asked such questions and conducted such other inquiries as the Bidder deemed necessary in order to determine the price the Bidder will charge to

provide the Work and Services to be performed under this Contract. The compensation for all Work and Services performed under this Contract, including all costs associated with such Work and Services, shall be in the total amount submitted on the Bid Form. The City shall have no obligation to pay the Bidder any additional sum(s) in excess of this amount, except for a change and/or modification to the Contract which is approved and executed in writing by the City and the Bidder.

All Services undertaken by the Bidder before City's approval of this Contract shall be at the Bidder's risk and expense.

1.45 PRICING

Prices shall remain firm and fixed for the term of the Contract, including any option or extension periods; however, the Bidder may offer incentive discounts to the City at any time during the Contract term, including any renewal or extension thereof.

1.46 MANNER OF PERFORMANCE

- A. The Bidder shall provide the Services described herein in a competent and professional manner satisfactory to the City in accordance with the terms and conditions of the Agreement. The City shall be entitled to a satisfactory performance of all Services described herein and to full and prompt cooperation by the Bidder in all aspects of the Services. At the request of the City, the Bidder shall promptly remove from the project any Bidder's employee, subcontractor, or any other person performing Services hereunder. The Contractor agrees that such removal of any of its employees does not require the termination or demotion of any employee by the Bidder.
- B. The Bidder agrees to defend, hold harmless and indemnify the City and shall be liable and responsible for any and all claims, suits, actions, damages and costs (including attorney's fees and court costs) made against the City, occurring on account of, arising from or in connection with the removal and replacement of any Bidder's personnel performing services hereunder at the

behest of the City. Removal and replacement of any Bidder's personnel as used in this Article shall not require the termination and or demotion of such Bidder's personnel.

- C. The Bidder agrees that at all times it will employ, maintain and assign to the performance of the Services a sufficient number of competent and qualified professionals and other personnel to meet the requirements to which reference is hereinafter made. The Bidder agrees to adjust its personnel staffing levels or to replace any of its personnel upon reasonable request from the City, should the City make a determination, in its sole discretion that said personnel staffing is inappropriate or that any individual is not performing in a manner consistent with the requirements for such a position.
- D. The Bidder warrants and represents that its personnel have the proper skill, training, background, knowledge, experience, rights, authorizations, integrity, character and licenses as necessary to perform the Services described herein, in a competent and professional manner.
- E. The Bidder shall at all times cooperate with the City and coordinate its respective work efforts to most effectively and efficiently maintain the progress in performing the Services.
- F. The Bidder shall comply with all provisions of all federal, state and local laws, statutes, ordinances, and regulations that are applicable to the performance of the Agreement.

1.47 INDEPENDENT CONTRACTOR RELATIONSHIP

The Bidder is, and shall be, in the performance of all work services and activities under the Agreement, an independent contractor, and not an employee, agent of the City. All persons engaged in any of the work or services performed pursuant to the Agreement shall at all times, and in all places, be subject to the Bidder's sole direction, supervision and control. The Bidder shall exercise control over the means and

manner in which it and its employees perform the work, and in all respects the Bidder's relationship and the relationship of its employees to the City shall be that of an independent contractor and not as employees and agents of the City.

The Bidder does not have the power or authority to bind the City in any promise, agreement or representation other than specifically provided for in the Agreement.

1.48 AUTHORITY OF THE CITY'S CONTRACT MANAGER

- A. The Bidder hereby acknowledges that the City's Contract Manager will determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, the Agreement including without limitations: questions as to the value, acceptability and fitness of the Services; questions as to either party's fulfillment of its obligations under the Contract; negligence, fraud or misrepresentation before or subsequent to acceptance of the Bid; questions as to the interpretation of the Scope of Services; and claims for damages, compensation and losses.
- B. The Bidder shall be bound by all determinations or orders and shall promptly obey and follow every order of the Contract Manager, including the withdrawal or modification of any previous order and regardless of whether the Bidder agrees with the Contract Manager's determination or order. Where orders are given orally, they will be issued in writing by the Contract Manager as soon thereafter as is practicable.
- C. The Bidder must, in the final instance, seek to resolve every difference concerning the Agreement with the Contract Manager. In the event that the Bidder and the Contract Manager are unable to resolve their difference, the Bidder may initiate a dispute in accordance with the procedures set forth in the section below. Exhaustion of these procedures shall be a condition precedent to any lawsuit permitted

hereunder.

- D. In the event of such dispute, the parties to the Agreement authorize the City Manager or designee, who may not be the Contract Manager or anyone associated with this Project, acting personally, to decide all questions arising out of, under, or in connection with, or in any way related to or on account of the Agreement (including but not limited to claims in the nature of breach of contract, fraud or misrepresentation arising either before or subsequent to execution hereof) and the decision of each with respect to matters within the City Manager's purview as set forth above shall be conclusive, final and binding on parties. Any such dispute shall be brought, if at all, before the City Manager within 10 days of the occurrence, event or act out of which the dispute arises.

The City Manager may base this decision on such assistance as may be desirable, including advice of experts, but in any event shall base the decision on an independent and objective determination of whether Bidder's performance or any Deliverable meets the requirements of the Agreement and any specifications with respect thereto set forth herein. The effect of any decision shall not be impaired or waived by any negotiations or settlements or offers made in connection with the dispute, whether or not the City Manager participated therein, or by any prior decision of others, which prior decision shall be deemed subject to review, or by any termination or cancellation of the Agreement. All such disputes shall be submitted in writing by the Bidder to the City Manager for a decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. The parties agree that whenever the City Manager is entitled to exercise discretion or judgment or to make a determination or form an opinion pursuant to the provisions of this Article, such action shall be deemed fair and impartial when exercised or taken. The City Manager shall render a decision in writing and deliver a copy of the same to the Bidder.

Except as such remedies may be limited or waived elsewhere in the Agreement, Contractor reserves the right to pursue any remedies available under law after exhausting the provisions of this Article.

1.49 MUTUAL OBLIGATIONS

The Agreement, including attachments and appendices to the Agreement, shall constitute the entire Agreement between the parties with respect hereto and supersedes all previous communications and representations or agreements, whether written or oral, with respect to the subject matter hereto unless acknowledged in writing by the duly authorized representatives of both parties.

Nothing in the Agreement shall be construed for the benefit, intended or otherwise, of any third party that is not a parent or subsidiary of a party or otherwise related (by virtue of ownership control or statutory control) to a party.

In those situations where the Agreement imposes an indemnity or defense obligation on the Contractor, the City may, at its expense, elect to participate in the defense if the City should so choose. Furthermore, the City may at its own expense defend or settle any such claims if the Contractor fails to diligently defend such claims, and thereafter seek indemnity for costs and attorney's fees from the Contractor.

1.50 QUALITY ASSURANCE/QUALITY ASSURANCE RECORD KEEPING

The Contractor shall maintain, and shall require that its subcontractors and suppliers maintain, complete and accurate records to substantiate compliance with the requirements set forth in the Scope of Services. The Contractor and its subcontractors and suppliers shall retain such records, and all other documents relevant to the Services furnished under the Agreement for a period of three (3) years from the expiration date of the Agreement and any extension thereof.

1.51 SUBSTITUTION OF PERSONNEL

In the event the Contractor wishes to substitute personnel for the key personnel identified by the Contractor's Bid, the Contractor must notify the City in writing and request written approval for the substitution at least ten (10) business days prior to effecting such substitution.

1.52 ASSUMPTION, PARAMETERS, PROJECTIONS, ESTIMATES AND EXPLANATIONS

The Contractor understands and agrees that any assumptions, parameters, projections, estimates and explanations presented by the City were provided to the Contractor for evaluation purposes only. However, since these assumptions, parameters, projections, estimates and explanations represent predictions of future events, the City makes no representations or guarantees, the City shall not be responsible for the accuracy of the assumptions presented, the City shall not be responsible for conclusions to be drawn there from, and any assumptions, parameters, projections, estimates and explanations shall not form the basis of any claim by the Contractor. The Contractor accepts all risks associated with using this information.

1.53 SEVERABILITY

If the Agreement contains any provision found to be unlawful, the same shall be deemed to be of no effect and shall be deemed stricken from the Agreement without affecting the binding force of the Agreement as it shall remain after omitting such provision.

1.54 TERMINATION FOR CONVENIENCE AND SUSPENSION OF WORK

- A. The City may terminate the Agreement if an individual or corporation or other entity attempts to meet its contractual obligation with the City through fraud, misrepresentation or material misstatement.
- B. The City may, as a further sanction, terminate or cancel any other contract(s) that such individual or corporation or other entity has with the City. Such individual, corporation or other entity shall be responsible for all direct and indirect costs associated with such termination or cancellation, including attorney's fees.
- C. Contractor acknowledges and agrees that ten dollars (\$10.00) of the compensation to be paid by the City, the receipt and adequacy of which is hereby acknowledged by Contractor is given

specific consideration to Contractor for City's right to terminate this Agreement for convenience.

- D. The City, through its City Manager, and for its convenience and without cause, terminate the Contract at any time during the term by giving written notice to consultant of such termination; which shall become effective within fifteen (15) days following receipt by the Contractor of such notice. If the Contract is terminated for convenience by the City, the Contractor shall be paid for any services satisfactorily performed up to the date of termination; following which the City shall be discharged from any and all liabilities, duties, and terms arising out, or by virtue of, this Contract.
- E. The foregoing notwithstanding, any individual, corporation or other entity which attempts to meet its contractual obligations with the City through fraud, misrepresentation or material misstatement may be debarred from City contracting in accordance with the City debarment procedures. The Contractor may be subject to debarment for failure to perform and all other reasons set forth in Chapter 3 of the City's Purchasing Policies and Procedures Manual.

In addition to cancellation or termination as otherwise provided in the Agreement, the City may at any time, in its sole discretion, with or without cause, terminate the Agreement by written notice to the Contractor and in such event:

- F. The Contractor shall, upon receipt of such notice, unless otherwise directed by the City:
1. Stop work on the date specified in the notice ("the Effective Termination Date");
 2. Take such action as may be necessary for the protection and preservation of the City's materials and property;
 3. Cancel orders;
 4. Assign to the City and deliver to any location designated by the City any

non-cancelable orders for Deliverables that are not capable of use except in the performance of the Agreement and which have been specifically developed for the sole purpose of the Agreement and not incorporated in the Services;

5. Take no action which will increase the amounts payable by the City under the Agreement.
- G. In the event that the City exercises its right to terminate the Agreement pursuant to this Article the Contractor will be compensated as stated in the payment Articles, herein, for the:
1. Portion of the Services completed in accordance with the Agreement up to the Effective Termination Date; and
 2. Non-cancelable Deliverables that are not capable of use except in the performance of the Agreement and which have been specifically developed for the sole purpose of the Agreement but not incorporated in the Services.
- H. All compensation pursuant to this Article is subject to audit.

1.55 EVENT OF DEFAULT

- A. An Event of Default shall mean a breach of the Agreement by the Contractor. Without limiting the generality of the foregoing and in addition to those instances referred to herein as a breach, an Event of Default, shall include the following:
1. The Contractor has not delivered Deliverables on a timely basis;
 2. The Contractor has refused or failed, except in any case for which an extension of time is provided, to supply enough properly skilled staff personnel;
 3. The Contractor has failed to make prompt payment to subcontractors or suppliers for any Services;

4. The Contractor has become insolvent (other than as interdicted by the bankruptcy laws), or has assigned the proceeds received for the benefit of the Contractor's creditors, or the Contractor has taken advantage of any insolvency statute or debtor/creditor law or if the Contractor's affairs have been put in the hands of a receiver;
 5. The Contractor has failed to obtain the approval of the City where required by the Agreement;
 6. The Contractor has failed to provide "adequate assurances" as required under subsection "B" below; and
 7. The Contractor has failed in the representation of any warranties stated herein.
- B. When, in the opinion of the City, reasonable grounds for uncertainty exist with respect to the Contractor's ability to perform the Services or any portion thereof, the City may request that the Contractor, within the time frame set forth in the City's request, provide adequate assurances to the City, in writing, of the Contractor's ability to perform in accordance with terms of the Agreement. Until the City receives such assurances the City may request an adjustment to the compensation received by the Contractor for portions of the Services which the Contractor has not performed. In the event that the Contractor fails to provide to the City the requested assurances within the prescribed time frame, the City may:
1. Treat such failure as a repudiation of the Agreement;
 2. Resort to any remedy for breach provided herein or at law, including but not limited to, taking over the performance of the Services or any part thereof either by itself or through others.
- C. In the event the City shall terminate the Agreement for default, the City or its

designated representatives may immediately take possession of all applicable equipment, materials, products, documentation, reports and data.

1.56 REMEDIES IN THE EVENT OF DEFAULT

If an Event of Default occurs, the Contractor shall be liable for all damages resulting from the default, including but not limited to:

- A. Lost revenues;
- B. The difference between the cost associated with procuring Services hereunder and the amount actually expended by the City for procurement of Services, including procurement and administrative costs; and,
- C. Such other direct damages.

The Contractor shall also remain liable for any liabilities and claims related to the Contractor's default. The City may also bring any suit or proceeding for specific performance or for an injunction.

1.57 PATENT AND COPYRIGHT INDEMNIFICATION

- A. The Contractor warrants that all Deliverables furnished hereunder, including but not limited to: services, equipment programs, documentation, software, analyses, applications, methods, ways, processes, and the like, do not infringe upon or violate any patent, copyrights, service marks, trade secret, or any other third party proprietary rights.
- B. The Contractor shall be liable and responsible for any and all claims made against the City for infringement of patents, copyrights, service marks, trade secrets or any other third party proprietary rights, by the use or supplying of any programs, documentation, software, analyses, applications, methods, ways, processes, and the like, in the course of performance or completion of, or in any way connected with, the Work, or the City's continued use of the Deliverables furnished

hereunder. Accordingly, the Contractor at its own expense, including the payment of attorney's fees, shall indemnify, and hold harmless the City and defend any action brought against the City with respect to any claim, demand, and cause of action, debt, or liability.

- C. In the event any Deliverable or anything provided to the City hereunder, or a portion thereof is held to constitute an infringement and its use is or may be enjoined, the Contractor shall have the obligation, at the City's option, to (i) modify, or require that the applicable subcontractor or supplier modify, the alleged infringing item(s) at the Contractor's expense, without impairing in any respect the functionality or performance of the item(s), or (ii) procure for the City, at the Contractor's expense, the rights provided under the Agreement to use the item(s).
- D. The Contractor shall be solely responsible for determining and informing the City whether a prospective supplier or subcontractor is a party to any litigation involving patent or copyright infringement, service mark, trademark, violation, or proprietary rights claims or is subject to any injunction which may prohibit it from providing any Deliverable hereunder. The Contractor shall enter into agreements with all suppliers and subcontractors at the Contractor's own risk. The City may reject any Deliverable that it believes to be the subject of any such litigation or injunction, or if, in the City's judgment, use thereof would delay the Work or be unlawful.
- E. The Contractor shall not infringe any copyright, trademark, service mark, trade secrets, patent rights, or other intellectual property rights in the performance of the Work.

1.58 PROPRIETARY RIGHTS

- A. The Bidder hereby acknowledges and agrees that the City retains all rights, title and interests in and to all materials, data, documentation and copies thereof furnished by the City to the Bidder

hereunder or furnished by the Bidder to the City and/or created by the Bidder for delivery to the City, even if unfinished or in process, as a result of the Services the respondent performs in connection with this Agreement, including all copyright and other proprietary rights therein, which the Bidder as well as its employees, agents, subcontractors and suppliers may use only in connection with the performance of Services under this Agreement. The Bidder shall not, without the prior written consent of the City, use such documentation on any other project in which the Bidder or its employees, agents, subcontractors or suppliers are or may become engaged. Submission or distribution by the Bidder to meet official regulatory requirements or for other purposes in connection with the performance of Services under this Agreement shall not be construed as publication in derogation of the City's copyrights or other proprietary rights.

- B. All rights, title and interest in and to certain inventions, ideas, designs and methods, specifications and other documentation related thereto developed by the Bidder and its subcontractors specifically for the City, hereinafter referred to as "Developed Works" shall become the property of the City.
- C. Accordingly, neither the Bidder nor its employees, agents, subcontractors or suppliers shall have any proprietary interest in such Developed Works. The Developed Works may not be utilized, reproduced or distributed by or on behalf of the Bidder, or any employee, agent, subcontractor or supplier thereof, without the prior written consent of the City, except as required for the Bidder's performance hereunder.

1.59 ELECTRONIC BIDDING

The City maintains an automated vendor address list that has been generated for each specific commodity class item through our electronic bid issuing service, www.bidsync.com. Notices of Invitations to Bids (ITB'S) are sent by email to the selection of bidders who have fully registered with www.bidsync.com, and to every vendor on those lists, who may then view the bid documents

online. Bidders who have been informed of a bid's availability in any other manner are responsible for registering with BidSync in order to view the bid documents. There is no fee for doing so. If you wish bid notifications be provided to another e-mail address contact www.bidsync.com.

1.60 LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS

Bidder agrees to comply, subject to applicable professional standards, with the provisions of any and all applicable Federal, State, County and City orders, statutes, ordinances, rules and regulations which may pertain to the Services required under the Agreement, including but not limited to:

- A. Equal Employment Opportunity (EEO), in compliance with Executive Order 11246 as amended and applicable to this Contract.
- B. Miami-Dade County Florida, Department of Small Business Development Participation Provisions, as applicable to this Contract.
- C. Occupational Safety and Health Act (OSHA) as applicable to this contract.
- D. Environmental Protection Agency (EPA), as applicable to this Contract.
- E. Miami-Dade County Code, Chapter 11A, Article 3. All contractors and subcontractors performing work in connection with this Contract shall provide equal opportunity for employment because of race, religion, color, age, sex, national origin, sexual preference, disability or marital status. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in a conspicuous place available for employees and applicants for employment, such notices as may be required by the Dade County Fair Housing and Employment Commission, or other authority having jurisdiction over the Work setting forth the provisions of

the nondiscrimination law.

- F. "Conflicts of Interest" Section 2-11 of the County Code, and Ordinance 01-199.
- G. North Miami Beach Purchasing Policies and Procedures Manual Policy 3.6 "Debarment and Suspension".
- H. Florida Building Code (FBC).
- I. Notwithstanding any other provision of the Agreement, Contractor shall not be required pursuant to the Agreement to take any action or abstain from taking any action if such action or abstention would, in the good faith determination of the Contractor, constitute a violation of any law or regulation to which Contractor is subject, including, but not limited to, laws and regulations requiring that Contractor conduct its operations in a safe and sound manner.

1.61 NONDISCRIMINATION

During the performance of this Contract, Bidder agrees to not discriminate against any employee or applicant for employment because of race, religion, color, sex, handicap, marital status, age or national origin, and will take affirmative action to ensure that they are afforded equal employment opportunities without discrimination. Such action shall be taken with reference to, but not be limited to, recruitment, employment, termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training. By entering into this Contract with the City, the Bidder attests that it is not in violation of the Americans with Disabilities Act of 1990 (and related Acts). If the Bidder or any owner, subsidiary or other firm affiliated with or related to the Bidder is found by the responsible enforcement agency or the City to be in violation of the Act, such violation shall render this Contract void. This Contract shall be void if the Bidder submits a false affidavit or the Contractor violates the Act during the term of this Contract, even if the Bidder was not in violation at the time it submitted its affidavit.

1.62 CONFLICT OF INTEREST

The Bidder represents that:

- A. No officer, director, employee, agent, or other consultant of the City or a member of the immediate family or household of the aforesaid has directly or indirectly received or been promised any form of benefit, payment or compensation, whether tangible or intangible, in connection with the grant of the Agreement.
 - B. There are no undisclosed persons or entities interested with the Bidder in the Agreement. The Agreement is entered into by the Bidder without any connection with any other entity or person making a bid for the same purpose, and without collusion, fraud or conflict of interest. No elected or appointed officer or official, director, employee, agent or other consultant of the City, or of the State of Florida (including elected and appointed members of the legislative and executive branches of government), or member of the immediate family or household of any of the aforesaid:
 - 1. Is interested on behalf of or through the Bidder directly or indirectly in any manner whatsoever in the execution or the performance of the Agreement, or in the services, supplies or work, to which the Agreement relates or in any portion of the revenues; or
 - 2. Is an employee, agent, advisor, or consultant to the Contractor or to the best of the Bidder's knowledge, any subcontractor or supplier to the Bidder.
 - C. Neither the Bidder nor any officer, director, employee, agent, parent, subsidiary, or affiliate of the Bidder shall have an interest which is in conflict with the Bidder's faithful performance of its obligations under the Agreement; provided that the City Attorney, in its sole discretion, may consent in writing to such a relationship, and provided the Bidder provides the City with a written notice, in advance, which identifies all the individuals and entities involved and sets forth in detail the nature of the relationship and why it is in the City's best interest to consent to such relationship.
 - D. The provisions of this Article are supplemental to, not in lieu of, all applicable laws with respect to conflict of interest. In the event there is a difference between the standards applicable under the Agreement and those provided by statute, the stricter standard shall apply.
 - E. In the event Bidder has no prior knowledge of a conflict of interest as set forth above and acquires information which may indicate that there may be an actual or apparent violation of any of the above, Bidder shall promptly bring such information to the attention of the City's Attorney. Bidder shall thereafter cooperate with the City Attorney's review and investigation of such information, and comply with the instructions Bidder receives from the Contract Manager in regard to remedying the situation.
- 1.63 PRESS RELEASE OR OTHER PUBLIC COMMUNICATION**
- Under no circumstances shall the Bidder, its employees, agents, subcontractors and suppliers, without the express written consent of the City:
- A. Issue or permit to be issued any press release, advertisement or literature of any kind which refers to the City, or the Work being performed hereunder, unless the Bidder first obtains the written approval of the City. Such approval may be withheld if for any reason the City believes that the publication of such information would be harmful to the public interest or is in any way undesirable; and
 - B. Communicate in any way with any contractor, department, board, agency, Commission or other organization or any person whether governmental or private in connection with the Services to be performed hereunder except upon prior written approval and instruction of the City; and
 - C. Represent, directly or indirectly, that any product or service provided by the Bidder or such parties has been approved or endorsed by the City, except as may be

required by law.

1.64 BANKRUPTCY

The City reserves the right to terminate this contract if, during the term of any contract the Bidder has with the City, the Bidder becomes involved as a debtor in a bankruptcy proceeding, or becomes involved in a reorganization, dissolution, or liquidation proceeding, or if a trustee or receiver is appointed over all or a substantial portion of the property of the Bidder under federal bankruptcy law or any state insolvency law.

1.65 GOVERNING LAW/VENUE

This Contract, including appendices, and all matters relating to this Contract (whether in contract, statute, tort (such as negligence), or otherwise) shall be governed by, and construed in accordance with, the laws of the State of Florida. Venue shall be in Miami-Dade County.

1.66 SURVIVAL

The parties acknowledge that any of the obligations in the Agreement will survive the term, termination and cancellation hereof. Accordingly, the respective obligations of the Bidder and the City under the Agreement, which by nature would continue beyond the termination, cancellation or expiration thereof, shall survive termination, cancellation or expiration hereof.

1.67 VERBAL INSTRUCTIONS PROCEDURE

No negotiations, decisions, or actions shall be initiated or executed by the Bidder as a result of any discussions with any City employee. Only those communications which are in writing from an authorized City representative may be considered. Only written communications from Bidder, which are assigned by a person designated as authorized to bind the Bidder, will be recognized by the City as duly authorized expressions on behalf of Bidder.

1.68 PROHIBITION OF INTEREST

No contract will be awarded to a proposing firm who has City elected officials, officers or employees affiliated with it, unless the proposing firm has fully complied with current Florida State Statutes and City Ordinances relating to this

issue. Bidders must disclose any such affiliation. Failure to disclose any such affiliation will result in disqualification of the Bidder or termination of the agreement, removal of the Bidder from the City's Bidder lists, and prohibition from engaging in any business with the City.

1.69 NO CONTINGENT FEES

Vendor warrants that it has not employed or retained any company or person other than a bona fide employee working solely for the Vendor to solicit or secure the Agreement, and that it has not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the Vendor any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of the Agreement. For the breach or infraction of this provision, the City shall have the right to terminate the Agreement without liability at its discretion, to deduct from the contract price, or otherwise recover the full amount of such fee, commission, percentage, gift or consideration.

1.70 E-VERIFY

Bidder acknowledges that the City may be utilizing the Bidder's services for a project that is funded in whole or in part by State funds pursuant to a contract between the City and a State agency. Bidder shall be responsible for complying with the E-Verify requirements in the contract and using the U.S. Department of Homeland Security's E-Verify system to verify the employment of all new employees hired by Bidder during the Agreement term. The Bidder is also responsible for e-verifying its subcontractors, if any, pursuant to any agreement between the City and a State Agency, and reporting to the City any required information. Bidder acknowledges that the terms of this paragraph are material terms, the breach of any of which shall constitute a default under the Agreement.

1.71 FORCE MAJEURE

The Agreement which is awarded to the successful Bidder may provide that the performance of any act by the City or Bidder hereunder may be delayed or suspended at any time while, but only so long as, either party is hindered in or prevented from performance by acts of God, the elements, war, rebellion, strikes, lockouts or any cause beyond the reasonable

control of such party, provided however, the City shall have the right to provide substitute service from third parties or City forces and in such event the City shall withhold payment due Bidder for such period of time. If the condition of force majeure exceeds a period of 14 days the City may, at its option and discretion, cancel or renegotiate the Agreement.

1.72 BUDGETARY CONSTRAINTS

In the event the City is required to reduce contract costs due to budgetary constraints, all services specified in this document may be subject to a permanent or temporary reduction in budget. In such an event, the total cost for the affected service shall be reduced as required. The Bidder shall also be provided with a minimum 30-day notice prior to any such reduction in budget.

1.73 ANNEXATION

Bidder agrees to extend all terms, conditions and pricing in the Agreement and any amendments thereto, to any areas annexed into the City.

1.74 SOVEREIGN IMMUNITY

Nothing in the Agreement shall be interpreted or construed to mean that the City waives its common law sovereign immunity or the limits on liability set forth in Section 768.28, Florida Statute.

1.75 SCRUTINIZED COMPANIES PURSUANT TO SECTION 287.135 AND 215.473

Contractor must certify that the company is not participating in a boycott of Israel. Contractor must also certify that Contractor is not on the Scrutinized Companies that Boycott Israel list, not on the Scrutinized Companies with Activities in Sudan List, and not on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or has been engaged in business operations in Cuba or Syria. Subject to limited exceptions provided in state law, the City will not contract for the provision of goods or services with any scrutinized company referred to above. Contractor must submit the certification that is attached to this contract. Submitting a false certification shall be deemed a material breach of contract. The City shall provide notice, in writing, to the Contractor of the City's determination concerning the false certification. The Contractor

shall have five (5) days from receipt of notice to refute the false certification allegation. If such false certification is discovered during the active contract term, the Contractor shall have ninety (90) days following receipt of the notice to respond in writing and demonstrate that the determination of false certification was made in error. If the Contractor does not demonstrate that the City's determination of false certification was made in error then the City shall have the right to terminate the contract and seek civil remedies pursuant to Section 287.135, Florida Statutes, as amended from time to time.

END OF SECTION

SECTION 2.0 SPECIAL CONDITIONS

2.1 COMPETENCY OF BIDDERS

Bids shall be considered only from firms that have been continuously engaged in providing products and services similar to those specified herein for a minimum of five (5) years and that are presently engaged in the provision of these services. Contract(s) will be awarded only to responsible and responsive Bidder(s) qualified by experience to do the work specified.

The Bidder shall submit, prior to award of Contract, satisfactory evidence of his experience in like work and that he is fully prepared with the necessary organization, capital, and personnel to complete the Scope of Services. Bidder shall be insured, licensed and certified by all applicable local, county, and state agencies.

2.2 PERFORMANCE OF SERVICES

Bidder agrees to perform services in a professional and workmanlike manner and in compliance with all applicable laws, ordinances, rules, regulations, and permits. Only the highest quality services shall be acceptable. Services, equipment and workmanship not conforming to the intent of the Agreement or meeting the approval of the City may be rejected.

2.3 CONTRACT TERM

This contract shall commence upon the effective date of the duly executed Agreement, and shall remain in effect until such time as the commodities, equipment and/or services acquired in conjunction with this Invitation to Bid, have been delivered and completed and accepted by the City's authorized representative and upon completion of the expressed and/or implied warranty periods. Bidding firms shall provide timelines within their bid packages outlining investment, project and revenue milestones as applicable.

2.4 PRICING

Pricing shall be all-inclusive. Successful bidders shall include in their pricing all the labor specified, performed according to the provisions of the contract, supplying all materials, supplies, permits and any other necessary services to complete the work. All material, workmanship,

and equipment shall be subject to the inspection and approval of the City's Project Manager.

2.5 REQUESTS FOR INFORMATION

For Requests for Information (RFI) prior to the bid opening, the bidder is to follow this procedure. For information concerning specifications please utilize the question / answer feature provided by BidSync at www.bidsync.com. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. (See addendum section of BidSync Site). Please note: No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Bidder has familiarized themselves with the nature and extent of the work, and the equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in www.bidsync.com shall become part of any contract that is created from this ITB.

For RFIs after the Notice of Award, the bidder shall submit the RFI form stipulated at the Pre-Construction meeting to the Construction Manager for processing. If the information required is necessary before a certain date to preclude a delay to the Construction of the Project, said date must be clearly delineated in the RFI and added to the header.

2.6 VARIATIONS, CONTRADICTIONS AND SUBSTITUTIONS

Any variations from ITB specifications, no matter how slight, including substitutions of products or methods, must be noted and explained fully in a submittal with bid entitled "Exceptions to Specifications". If no exceptions are noted, it shall be understood that the plans and specifications will be adhered to exactly.

Where an "or equal" is specified, the City shall be the sole judge in determining equality. Any deviation from these specifications and/or changes during construction must be approved by the City in writing. If specifications are in contradiction, or if they contain any errors or omissions, bidders shall notify the Procurement

Division in writing at least ten (10) working days before the Solicitation opening, or at the pre-Bid conference, to allow sufficient time to resolve all discrepancies.

2.7 VENDOR AS AN INDEPENDENT CONTRACTOR

It is expressly agreed that the Bidder is an independent contractor and not an agent of City. The Bidder shall not pledge or attempt to pledge the credit of City or in any other way attempt to bind the City.

2.8 PROTECTION OF PROPERTY

The Bidder shall take extra precaution to protect all property while conducting services. Any damage done by the Bidder shall be corrected to its original or better state, and shall be corrected to the satisfaction of the Project Manager or designee.

2.9 BIDDER'S REPRESENTATIONS

Bidder must familiarize itself with the nature and extent of the Solicitation Documents, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the services.

Bidder must give Project Manager written notice of all conflicts, errors or discrepancies that he has discovered in the Solicitation Documents and the written resolution thereof by Project Manager is acceptable to Bidder.

2.10 PERSONNEL

Bidder's personnel shall carry photo identification, commercial driver's license, and show same to City personnel at any time upon request. The City reserves the right to request the same of Subcontractors.

2.11 REQUIRED LICENSES / CERTIFICATIONS

Bidder must be properly registered to practice their profession and licensed to engage in contracting in the State of Florida at the time of Bid Submission. Contractor must have proper licensing and be able to provide evidence of the same, if requested at the time of award. All construction personnel shall have the appropriate certifications for the work to be performed including OSHA 10-hour Construction Safety.

2.12 PERFORMANCE AND PAYMENT BOND

Within ten (10) days of the award of contract, the Proposer shall provide the following surety bonds, each in the amount of one hundred percent (100%) of the contract price, and issued by a properly licensed surety company, listed in the current issue of the Federal Register published by the Department of the Treasury, acceptable to the City of North Miami Beach. The bonds should provide that the surety's liability will be co-extensive with the Proposer's liability, and should contain a provision that the surety waives notice of changes to the contract, including, but not limited to, changes in the times for performance.

- a) A Performance and One-Year Warranty Bond covering the faithful performance of the contract and a one-year warranty on labor and materials from the date of final acceptance of the work.
- b) A Labor and Material Payment Bond.

2.13 PRE-CONSTRUCTION MEETING

Soon after Proposer has been notified of award of RFP, Proposer, and City shall agree upon a date and time for a pre-construction meeting. The Proposer shall have in attendance a principal of the firm or the project manager. Depending on the scope of the project, the additional stakeholders may be requested to attend.

The following matters (if applicable), at a minimum, shall be discussed and presented at this meeting:

- a) Signed contract
- b) Certificates of Insurance
- c) Performance and Payment Bonds
- d) Project Managers
- e) Substantial Completion

Schedule of Values - The Schedule of Values shall allocate the entire contract sum among the various portions of the work and be prepared in such form and supported by such data to substantiate its accuracy. This Schedule shall be used as a basis for reviewing the Proposer's Applications for Payment.

Construction Schedule with Critical Path Method

or Bar Chart Procedure with start and completion dates for each task. The construction schedule at a minimum shall include the following;

- a) Notice to Proceed
- b) Schedule of on-site construction progress meetings
- c) Shop drawings submittals
- d) As-built submittal
- e) Stakeout Surveys
- f) Securing of construction site
- g) Work to be performed by Subcontractors
- h) Staging area
- i) Material deliveries
- j) Obtain Permits
- k) Cities scheduled events affecting involved facility/site
- l) Sequence of Construction
- m) Substantial Completion
- n) Final Completion
- o) Training of City staff on the use and maintenance of materials and/or equipment

2.14 MATERIALS, INSPECTION, AND RESPONSIBILITY

The City shall have a right to inspect any material to be used in carrying out this contract. The City does not assume any responsibility for the availability of any controlled materials or other materials and equipment required under this contract. The Proposer shall be responsible for the contract quality and standards of all materials, components or completed work finished under this contract for 12 months from the date of final approved inspection and acceptance. Materials, components, or completed work not complying therewith may be rejected by the City and shall be replaced by the Proposer at no cost to the City. Any materials or components rejected shall be removed within a reasonable time from the premises at the entire expense of the Proposer, after written notice has been mailed by the City to the Proposer that such materials or components for work have been rejected.

2.15 PROGRESS MEETINGS

The Project Managers will schedule and hold regular on-site progress meetings at least monthly, and at other times as requested by the City Project Manager. The City, Proposer, and all subcontractors active on the site shall be represented at each meeting. City or Proposer may request attendance by representatives of

suppliers or manufacturers. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve problems which may develop. To expedite the planning and coordination of the work, the Contractor shall provide a four week look-ahead schedule at each and every project meeting showing what work they are planning to do until the next meeting. Minutes shall be kept of each meeting by the City and shall be part of the documentation for the project.

2.16 PROGRESS PAYMENTS

Based on Applications for Payment submitted to the City by the Proposer, and Certificates for Payment issued by the Architect/Engineer or City, the City shall make progress payments to the Proposer based on the Schedule of Values and percentage of completion, or units completed. A retainage of ten percent (10%) will be deducted from the monthly payment. The City shall reduce the retainage to five percent (5%) after successful completion of fifty (50%) of work.

Applications for Payment shall indicate the percentage of completion of each portion of the work, or the volume, area, or linear measurement of work completed as of the end of the period covered by the Application for Payment. The period covered by each Application for Payment shall be one calendar month or as otherwise agreed upon at the Pre-construction Conference. As-built records of the work performed and requested for payment shall be submitted prior to submitting the partial payment request.

2.17 NOTICE TO PROCEED

The date of commencement of construction will be established during the Pre-Construction Conference, which shall be held shortly after the award of contract, and will be stated in the Notice to Proceed.

Immediately after the Notice to Proceed is issued and prior to actually commencing work, the bidder agrees to deliver to the Engineer in a form satisfactory to the Engineer, a Construction Progress Schedule. Showing dates of commencement and completion for each and every subdivision of the project and a schedule of material delivery dates to be incorporated into each

phase of work as set forth in the specifications. Within five working days of the receipt of said schedule, the Engineer shall meet with the Contractor for a joint review. The Contractor shall submit six copies of the corrected schedule at the Preconstruction Meeting for review and approval. All work must be completed within the Contract Term herein specified.

2.18 SUBSTANTIAL COMPLETION

For the purpose of this project, Substantial Completion shall be defined as that point which the City has occupancy and/or use of the facility under construction, including equipment and systems installed. This date is considered the end of major work in the field for scheduling purposes and all activities necessary to facilitate operation including Operations and Maintenance Manuals, As-Built Drawings and Training shall be completed as required prior to Substantial Completion.

2.19 FINAL COMPLETION

For the purpose of this project, Final Completion shall be defined at that point after which the Director of Public Utilities or his representative, the City's Building Official, and the using Department have made and approved the Final Inspection and the Punch List has been completed, and all deliverable have been provided to the City.

2.20 SUPERVISION

The Proposer is to be responsible for his employees and Subcontractors, and for compliance with all laws and ordinances governing his work. He shall be responsible for the accuracy of the laying out and giving his personal superintendence to the work. He shall have at all times a competent representative available to answer questions or handle problems, who shall be satisfactory to the City. He shall at all times take proper precautions to protect his work and materials from damage and disfigurement until accepted.

2.21 PERMITS

The Proposer shall obtain all permits and call for inspections required for this project. The Building Dept. is mandated to charge fees. The Proposer shall be responsible for the payment of all permit fees including but not limited to: State BPR Building Certification Fee, State DCA Surcharge, County Code Compliance Fee, Microfilm Fee, and Structural Examination Fee. Fees for re-inspections shall be charged to the Proposer at normal rate and all costs shall be borne by the Proposer. The Proposer shall obtain all required permits to do the job. Proposer shall present the City with proof of payment for all permit fees. The Proposer is required to perform all controlled inspections required by the requisite permits at no additional cost to the City.

2.22 PROTECTION OF PROPERTY

The Proposer shall take extra precaution to protect all property while removing and replacing materials and equipment. Any damage done by the Proposer, whether it is necessary to the installation or accidental, shall be corrected to its original or better state, and shall be corrected to the satisfaction of the Director of the Department of Public Utilities.

2.23 WARRANTY

All materials and workmanship must be warranted for a minimum period of one year from the date of final acceptance. Equipment or systems carrying more than a one year warranty shall be enumerated on the Bid Proposal form.

2.24 FINAL ACCEPTANCE

The Final Inspection shall be made only after the City is satisfied that the work described in the plans and specifications has been completed in accordance with the intent of these specifications. The acceptance of the work shall not in any way prejudice the City's rights to demand replacement of defective materials and workmanship.

2.25 SAFETY

Proposer shall provide and place safety barriers and signage to modify and direct

circulation at and around construction site. Every effort shall be made to minimize and limit construction noise, dirt, and dust. The Proposer is solely responsible for the safety of his personnel, but the Engineer reserves the right to discuss safety concerns on the site.

2.26 Hazardous Material

No hazardous materials have been designed into this project, nor have been specified. Proposer shall use no hazardous materials in the execution of the work covered by these specifications except as necessary for the immediate prosecution of the work. Such materials shall be properly stored and disposed of in accordance with Local, State, and Federal law. If suspected Hazardous Materials are encountered during the normal course of the work, the Proposer will notify the City so that the material can be identified and remediated in accordance with Local, State and Federal Laws.

2.27 TRAINING

Proposer shall provide training to City staff on the use and maintenance of equipment and/or materials use in this project. The details of how the training will be conducted are contained in the Project Technical Specifications.

2.28 MANUALS

Proposer shall provide the specified number of manufacturers' training and maintenance manuals for any equipment installed. Details as to the contents and format of the manuals shall be in accordance with the Project Technical Specifications.

2.29 CHANGE ORDERS

Each Change Order to the Contract must be supported in writing and signed by the Proposer and the City. Without this prior written authorization, the City will not pay for extra work performed. The amount of Proposer's overhead and profit allowed for any change order, whether increase or decrease, shall not exceed the following limits for work

by the Proposer:

Overhead Limit: 10% of direct cost;

Profit Limit: 5% of the sum of direct cost and overhead cost.

For any portion of the work for a change order that is performed by a Subcontractors or a Sub Proposer, Proposer's combined overhead and profit limits allowed will not exceed 5% of the actual direct cost of the work. The City will verify the Change Orders compliance, the determination of the final completion status, and the reception of all due related documents, including his/her approval of the updated record drawings, etc.

2.30 CLEAN UP

Proposer shall remove and dispose of any dirt or debris resulting from this project. All debris shall be disposed of at an authorized dumping facility. Dump tickets shall be submitted to the City with each pay request.

Exposed metal shall be polished, glass shall be cleaned, surrounding structures or landscaping affected or damaged during completion of this project shall be restored to an equal or better condition. Paint shall be touched up if and where needed. Proposer's equipment and surplus material shall be removed from site.

2.31 ARCHITECT/ENGINEER OF RECORD

The A/E of Record will verify the Change Orders compliance, the determination of the final completion status, and the reception of all due related documents, including his/her approval of the updated record drawings, approval of all NOA compliances, etc.

2.32 CONTRACT TIME / LIQUIDATED DAMAGES

Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of Five Hundred Dollars (\$500.00) for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. Should an act of God or

the acts or omissions of the City, its agents or representatives, in derogation to the terms of this Agreement cause the delay, the Contractor shall not be responsible for the delay nor liquidated damages. Liquidated damages are fixed and agreed upon between the Parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by the City as a consequence of such delay and both parties desiring to obviate any question of dispute concerning the amount of damages and the cost and effect of the failure of the Contractor to complete the Work on time. Liquidated damages shall apply separately to each portion of the Work for which a time of completion is given. The City shall have the right to deduct from or retain any compensation which may be due or which may become due and payable to the Contractor the amount of liquidated damages, and if the amount retained by the City is insufficient to pay in full such liquidated damages, the Contractor shall pay all liquidated damages in full. The Contractor shall be responsible for reimbursing the City, in addition to liquidated damages or other 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 the Contractor whichever is later. Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor shall not give rise to a claim by Contractor for damages for increase in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T, and Florida East Coast Railway, LLC.

2.33 AS-BUILT DRAWINGS

A set of drawings, which depicts the actual as-built conditions of the completed construction, provides the user with a permanent record of each project feature. These working as-built drawings will typically be red lined mark ups of the Construction plans. The working As-built drawings must be reviewed at least periodically by the City's Project Manager in conjunction with the

approval of progress payments. The contract requires the Proposer to prepare, maintain and deliver to the City a set of redlined, record drawings, which show the actual as-built conditions of the construction phases.

2.34 PROPOSER'S WORK AND STAGING AREA

a) As applicable, the Proposer shall use only site areas designated by the City as Proposer Staging area for the project. The Proposer shall keep this area in a secure, clean and orderly condition, and shall be responsible for screening and fencing the area so as not to cause a nuisance or sight obstruction to motorists or pedestrians.

b) Responsibility for protection and safekeeping of equipment and materials at or near the sites will be solely that of the Proposer and no claim shall be made against the City.

c) Upon completion of the Contract, the Proposer shall remove from the storage areas all of their equipment, temporary fencing, surplus materials, rubbish, etc., and restore the areas to their original condition.

d) Proposer's insurance shall extend coverage to all designated storage areas.

2.35 DAVIS-BACON ACT (2 CFR §200.326 Appendix II to Part 200 (D))

CONTRACTOR shall pay wages to laborers and mechanics at a rate not less than those in the attached Davis-Bacon Act Wage Rate Table(s) as made by the Secretary of Labor. CONTRACTOR shall pay wages not less than once per week.

2.36 BID SECURITY

A certified check, cashier's check, bank officer's check or bid bond for FIVE percent (5%) of the bid amount, made payable to the City of North Miami Beach, Florida, shall accompany each bid.

2.37 AUTHORITY OF THE ENGINEER

The supervision of this execution of this Contract is vested in the Engineer, the

Construction Manager and his/her instructions shall be carried into effect promptly and efficiently.

The Engineer shall in all cases shall determine the amount, quality, fitness and acceptability of the work and materials to be paid for and shall decide finally and conclusively all questions or differences of opinion that may arise as to the interpretation of the Plans and Specifications or the fulfillment of the terms of the Contract. In the event of such a question or difference of opinion, the decision of the Engineer is to be a condition precedent to the Contractor's right to receive any money for the work or the materials to which the question or difference of opinion relates.

If the Contractor considers any work demanded of him/her to be outside the requirements of the Contract, or if he/she considers any decision or ruling of the Engineer to be unfair, he/she shall immediately, upon such work being demanded or ruling or decision being made, shall asked for written instructions or decisions, whereupon he/she shall proceed without delay to perform the work or conform to the decision or ruling. Beginning with the first day of this work, the Contractor and the Inspector shall fill out daily Time and Material Records for the work. Such records shall be signed by both parties. This documentation does not constitute acknowledgement for authorization to pay for this work. In the event that a claim for this work is approved by the City subsequent to the commencement of the work, an accurate accounting of work shall be agreed upon by both parties upon completion of this work and will be paid for as work as provided in the Specifications by Allowance Account if funds are available, or by an approved Change Order by the Board of Commissioners.

The work will be paid for either by a unit price item in the Contract or as extra work for labor, material and equipment which shall be full and complete compensation to the Contractor.

Failure of the Contractor's representatives to meet with the Inspector to maintain daily records of the work shall be deemed that the Contractor does not wish to pursue this claim

and has waived all grounds for making a claim.

Unless the Contractor files such a written protest with the Director of NMB Water within ten (10) days of the receipt of such written instructions or decisions, he/she shall be deemed to have waived all rounds for such protest and to have accepted the requirement, decision or ruling of the Engineer as just and reasonable and as being within the scope of the Contractor's obligations under the Contract Documents and no further documentation will be required by the City.

No payment for any claim will be made in the event that a timely Contractor's written protest to the Director is formally denied.

The Engineer of Record shall furnish the Contractor with vertical and horizontal controls which shall be utilized as specified elsewhere to layout the work. The Contractor shall retain the services of a Florida Registered Land Surveyor whom shall verify all controls. It is the responsibility of the Contractor to preserve all such controls.

2.38 AUTHORITY AND DUTIES OF INSPECTORS

Inspectors employed by the City, will be authorized to inspect all work and materials which are to be part of the completed project. Inspectors have no authority to revoke, alter or waive any requirements of the Specifications or to make any changes in the plans. Each inspector is authorized to call the attention of the Contractor to any failure of the work to conform to the Plans and Specifications and will have the authority to suspend the work affected until any question at issue can be referred to and decided by the Engineer. The written notification of such defects is a Non-Conformance Report and the Contractor is required to acknowledge all such reports issued and resolve them as directed by the Engineer. The Inspector shall have no authority to delay the Contractor by failure to inspect the work and materials with reasonable promptness.

2.39 WATER INFRASTRUCTURE AND INNOVATION FINANCE ACT COMPLIANCE

The Bidder is hereby notified that this project is being partially funded through WIFIA and is subject to all of the requirements pertaining to thereof. Specifically, Article III of the agreement requires compliance with all applicable laws, rules, regulations, and requirements, including without limitation 40 U.S.C. § 3141-3144, 3146, and 3147 (relating to Davis-Bacon Act requirements) and 33 U.S.C. § 3914 (relating to American iron and steel products). Copies of the requisite reporting documentation are attached.

Federal Lobbying Restrictions (31 U.S.C 1352) – “Recipients of federal financial assistance may not pay any person for influencing or attempting to influence any officer or employee of a federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress with respect to the award, continuation, renewal, amendment, or modification of a federal grant, loan, or contract. These requirements are implemented for USEPA in 40 CFR Part 34, which also describes types of activities, such as legislative liaison activities and professional and technical services, which are not subject to this prohibition. Upon award of this contract, Contractor shall complete and submit to the City the certification and disclosure forms in Appendix A and Appendix B to 40 CFR Part 34. Contractor shall also require all subcontractors and suppliers of any tier awarded a subcontract over \$100,000 to similarly complete and submit the certification and disclosure forms pursuant to the process set forth in 40 CFR 34.110.”

Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment – “The John S. McCain National Defense Authorization Act for Fiscal Year 2019 (P.L. 115232), at Section 889, prohibits EPA financial assistance recipients, including WIFIA borrowers, from expending loan funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services

as a substantial or essential component of any system, or as critical technology as part of any system. As described in the Act, “covered telecommunications equipment or services” means:

- a) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- b) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- c) Telecommunications or video surveillance services provided by such entities or using such equipment.
- d) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

The Act does not prohibit:

- a) Procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements.
- b) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.”

END OF SECTION

SECTION 3.0 SCOPE OF SERVICES

3.1 PURPOSE AND INTENT

The City of North Miami Beach, Florida ("City") is seeking a qualified firm(s) ("CONTRACTOR") to submit a bid for the NE 35th Avenue Improvement project.

The City expects to retain a Firm that can meet the challenges of a dynamic City, capable of providing reliable and expedient response times to meet project deadlines, staff requests, and outstanding service delivery. In addition, the awarded Firm shall be able to provide technical assistance and maintain industry best practices throughout the project.

3.2 DESCRIPTION OF CITY OF NORTH MIAMI BEACH

The City of North Miami Beach is a first-tier suburb in northeastern Miami-Dade County, which is located in the southeast part of Florida. Located midway between Miami and Fort Lauderdale with excellent regional highway access, it is primarily a residential and shopping community. Its central location and easy access has made North Miami Beach one of South Florida's best known regional shopping areas and offers a wide variety of recreational, cultural, and dining experiences. The City of North Miami Beach celebrated its 90th Anniversary in 2016.

3.3 SCOPE OF SERVICES

The Bidder shall ensure smooth and efficient project planning, staffing, communication updates, and scheduling, through project completion, as required by the scope of services herein contained. Bidders shall include in their offer all required project labor, machinery, rentals, tools, travel, transportation, delivery, materials, equipment, supplies, permits, and related incidentals necessary to meet, in its entirety, the ITB requirements specified herein.

Bidder shall be responsible for ensuring it is in possession of all required City permits prior to commencement of work, and maintaining permits throughout the contract award, as required. All costs associated with obtaining required permits shall be the responsibility of the awarded Bidder(s). The Contractor shall minimize the impact of this project on the general public ensuring that all service interruptions are kept to a minimum and providing temporary services, structures, and facilities as required.

The existing water service to the Residents and businesses may not be interrupted for more than 4 hours without written permission from the City. All such facilities are considered part of this Contract and shall be provided at no additional cost to the City. The Contractor shall perform work between the hours 7:00 AM and 6:00 PM Monday through Friday. Work outside these hours or on weekends and holidays is prohibited without permission from the City.

The Contractor is to maintain appropriate signage, guards, and flagmen for the purpose of safeguarding the general public while work is ongoing. All work shall be completed in a safe and workmanlike manner every day and the Contractor shall secure the site prior to leaving at the end of each and every day.

Specific responsibilities include but are not limited to the following;

The Work to be performed under this Contract shall consist of furnishing all equipment, materials, supplies, and manufactured articles and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all work, materials, and services not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be

performed, furnished, and installed by the CONTRACTOR as though originally so specified or shown, at no increase in cost to the CITY.

The Work to be done under this Contract and in accordance with these Specifications and drawings outlined in BID SET included hereafter and it consists of furnishing all equipment, superintendence, labor, skill, material and all other items necessary for the NE 35th Avenue Improvements project.

The CONTRACTOR shall perform all work required for such construction in accordance with the Contract Documents and subject to the terms and conditions of the Contract, complete and ready for use.

3.4 BIDDER QUALIFICATIONS AND EXPERIENCE INCLUDING KEY PERSONNEL

The successful Bidder shall have a valid State of Florida license that enables them to procure all required permits, complete all of the work as specified herein and required by law, and shall successfully completed at least three (3) projects of similar type, size and complexity in the State of Florida within the last five (5) years.

The Bidder shall provide the following information for consideration of the project, failure to provide this information will deem the Bid non-responsive and non-responsible.

- 3.4.1 Names of key members who will be performing the work on this project and name of the project manager(s) will be supervising the construction work on this project
- 3.4.2 Written assurance that the key individuals listed and identified in this section will be performing the work and will not be substituted with other personnel without the City's approval.
- 3.4.3 Bidder shall state the length of time the company has been in business providing the services requested in this ITB.
- 3.4.4 List of all judgments from lawsuits in the last three (3) years involving the corporation, partnership or individuals.
- 3.4.5 State that the business is licensed, permitted, and/or certified to do business in the State of Florida. All required federal, state, and local licenses and permits shall be kept in force during the term(s) of the contract. Copies of all required licenses are to be provided with submittal.
- 3.4.6 The Bidder must include references for three (3) projects relevant in scope to this ITB. The references shall include:
 - Description and scope of the project;
 - Owner's point of contact and contact information;
 - Status of the project;
 - Originally scheduled contractual completion date;
 - Actual completion date;
 - Original contractual cost;
 - Final cost, including all change orders (if applicable); and
 - A narrative explaining reasons for cost and schedule variances (if applicable).

NE 35th Avenue Roadway & Water Main Improvements

Technical Specifications

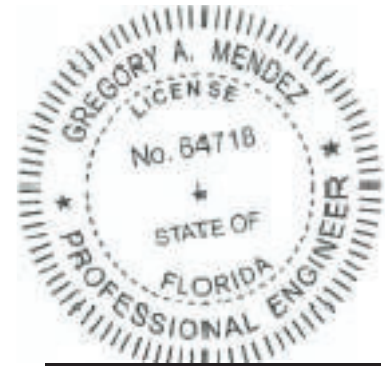


City of North Miami Beach
17011 NE 19th Avenue
North Miami Beach, FL 33162

This item has been digitally signed and sealed by Gregory A. Mendez, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed
by Gregory A
Mendez
Date: 2021.05.26
18:58:49 -04'00'



Gregory A. Mendez, P.E.
FL Reg. No. 64718

Prepared By:



2013 Coral Way, Suite 401
Miami, Florida 33145
State of Florida Engineering Business
License No.4593

05/26/2021

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PART 1 - GENERAL

1.01 SCOPE

Work under this contract includes furnishing materials, labor, tools equipment, supervision and incidentals necessary to construct infrastructure improvements.

1.02 GENERAL

- A. The provisions of this Section shall amplify the NMB Water Standard Documents and NMB Public Works Department Standards and shall have full force and effect as if contained in these documents.
- B. In case of a conflict between the NMB Water Standard Documents, NMB Public Works Department Standards, these TECHNICAL SPECIFICATIONS, and/or project drawings, the documents will govern in the order listed below:
 - 1. NMB Water Standard Documents and NMB Public Works Department Standards
 - 2. Technical Specifications
 - 3. Project Drawings

1.03 ITEMS SPECIFIED ON DRAWINGS

- A. Items of material, equipment, machinery and the like may be specified on the Drawings and not in the Technical Specifications. The CONTRACTOR shall provide such items in accordance with the General Notes on the Drawings.

1.04 FIELD LAYOUT OF THE WORK AND RECORD DRAWINGS

- A. After completion of construction, the CONTRACTOR shall provide three sets of As-Built Drawings with all the As-Built information; all locations, coordinates, dimensions and elevations of the constructed facilities, certified, signed and sealed thereon by a Land Surveyor registered in the State of Florida. All elevations shall refer to N.G.V.D. 29 (National Geodetic Vertical Datum of 1929) and all state plane coordinates shall be NAD 83/2011 (North American Datum of 1983 with 2011 adjustment). The cost of such field layout and recording work shall be the responsibility of the CONTRACTOR. The As-Built Drawings shall be approved by the ENGINEER and meet the requirements of the NMB Water, NMB Public Works Department and any other permitting agencies having jurisdiction on this project.

1.05 SALVAGE

- A. Any existing equipment or material, including but not limited to valves, pipes, fittings, fire hydrant assemblies, couplings, etc., which is removed as a result of construction under this project may be designated as salvage by the ENGINEER, and if so, shall be delivered clean to the OWNER at a location directed by the ENGINEER. Any equipment or material not worthy of salvaging shall be disposed of by the CONTRACTOR at a suitable location in accordance with all applicable regulations, ordinances and laws at no additional cost to the OWNER.

1.06 POWER

- A. The CONTRACTOR shall furnish and pay for all electrical power required for the construction, testing and trial operation, prior to final acceptance by the OWNER.

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1.07 WATER SUPPLY

- A. All water required for testing, flushing, and construction shall be furnished by the OWNER and paid by the CONTRACTOR. All temporary piping, valves, hoses, equipment, and other items required for handling water shall be furnished by the Contractor. Under no circumstance shall the Contractor utilize a water source until such source has been approved for use by NMB Water.
- B. The CONTRACTOR is responsible for purchasing the meter through MNB Water and can obtain a meter through proper application and payment of deposit fee at NMB Water's Utility Technical Services Office located at 17050 NE 19th Avenue, North Miami Beach. The deposit fee will be refunded to the Contractor upon return of the meter in a sound satisfactory condition. The largest meter available is 2-inches NPS. Any additional fees, which may be required by other governmental agencies for utilizing the fire hydrants shall be borne by the Contractor. The quantity of water used shall be determined by reading the meter at the start and at the finish of construction. The CONTRACTOR shall make all arrangements and incur all expense involved in having the OWNER furnish and install the necessary water meters. Each water service line shall be provided with a vacuum relief or backflow preventer which shall meet the requirements of ASA A40.6, latest revision, and the local administrative authority.

1.08 MAINTENANCE

- A. The CONTRACTOR shall fully cooperate at all times with the OWNER in order to maintain the operation of the existing water and/or sewer system with the least amount of interference and interruption possible. The schedule plans and work of the CONTRACTOR shall at all times be subject to alteration and revision if necessary for public health and safety considerations. The creation of a public nuisance will not be permitted.
- B. It may be necessary to interrupt the operation of the existing water and/or sewer system. In all cases where the CONTRACTOR must cause an interruption, CONTRACTOR shall prepare and submit to the OWNER and ENGINEER five (5) working days prior to commencing the work, a complete description of the proposed procedure and a time schedule, which CONTRACTOR will guarantee. At least forty-eight (48) hours prior to the time proposed for starting the work, the OWNER will notify the CONTRACTOR whether or not the work will be permitted as proposed.
1. The OWNER reserves the right to require the CONTRACTOR to work 24 hours per day in all cases where, in OWNER's opinion, interference with operation of the system may result in dangerous health hazards or offensive conditions.
 2. In no case will the CONTRACTOR be permitted to interfere with the existing system until all materials, supplies, equipment, tools and incidentals necessary to complete the work are on the site. Backup equipment on key equipment items shall be required on work necessitating interference with the existing system.

1.09 SITE RESTORATION

- A. The CONTRACTOR shall remove all excess material and shall clean up and restore the site to its original condition or better. All damage, as a result of work under this Contract, done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basins, flagstones, rocked, graveled, or stabilized areas of driveways, and including all obstructions

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not specifically named herein, shall be repaired, or replaced, as determined by the ENGINEER. Site restoration shall be done in a timely manner as the work progresses. Site restoration work shall be completed on private property within 30 days after being disturbed.

1.10 SANITARY FACILITIES

- A. The CONTRACTOR shall provide temporary facilities at the site as directed by the OWNER.

1.11 STANDARDS

- A. Wherever in these TECHNICAL SPECIFICATIONS or in the drawings name and/or number refer to certain standards or regulations, the applicable publication shall be the latest revision thereof. Reference by abbreviation is made in accordance with the Section 01070, "Abbreviations of Institutions."

1.12 QUALITY OF ITEMS

- A. All material furnished for this project shall be new and unused. Any material, which has become excessively weathered or damaged since manufacture, shall not be considered as new. ENGINEER shall be the sole judge as to what constitutes excessive weathering or damage.

1.13 TESTING

- A. The OWNER may require that materials and equipment supplied meet given standards and testing may be required to demonstrate conformance to the standards. The cost of these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the OWNER on account of such testing.
- B. The CONTRACTOR will select a recognized, independent testing laboratory to make tests on concrete, asphalt, soils and other materials for the construction phase, to determine conformity with the TECHNICAL SPECIFICATIONS, FDOT, Miami-Dade County and City of North Miami Beach Construction Standards, and any other application testing/quality control standards as required by all permitting agencies having jurisdiction over this project. The CONTRACTOR shall supply the necessary samples for this testing without any cost. The costs for actual testing shall be paid by the CONTRACTOR and scheduling of all required test will be the responsibility of the CONTRACTOR.
- C. Construction in areas where installation and restoration must satisfy the additional requirements of a local, state or federal authority may require testing to demonstrate conformance. The CONTRACTOR shall ascertain the extent of testing required by regulatory agencies within these areas. The CONTRACTOR is responsible for performing such tests, including but not limited to, tests of compaction, and all costs for these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the OWNER on account of such testing.

1.14 UTILITY CROSSINGS

- A. It is intended that wherever existing utilities must be crossed that the pipe may be deflected up to 50% of the manufacturer's recommended limits, but shall not exceed the allowable limits of the City. Adequate cover shall be used to adequately clear the obstruction. However, when in the opinion of the ENGINEER, this procedure is not feasible ENGINEER may direct the use

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of fittings to clear a utility crossing as detailed on the Drawings. The cost of such crossing including joint restraints shall be on the basis of the schedule of pay items applied.

- B. Deflections and adjustments of the proposed water to avoid all other existing utilities shall be verified/determined in the field during construction.

1.15 BASIS OF MEASUREMENT

- A. Where mains are to be paid for on a unit price per linear foot basis, the number of linear feet will be determined by measurement along the centerline of the pipe in place, including fittings. Areas will be determined by the actual area installed.

1.16 ADJUSTMENT AND RELOCATION OF EXISTING LINES

- A. When the drawings indicate that existing lines must be deflected, the pipe may be deflected up to 50% of the manufacturer's recommended limits but shall not exceed the allowable limits of the OWNER. The CONTRACTOR will need to be directed by the ENGINEER. If the ENGINEER determines that the use of new pipe and fittings is required for deflection, the CONTRACTOR will be directed to use this method. The price for either method shall be based upon the unit prices bid. This does not apply to connections to existing system (Paragraph 1.17, this Section).

1.17 CONNECTION TO EXISTING SYSTEM

- A. The CONTRACTOR shall perform all work necessary to locate, excavate and prepare for connection to the existing mains as shown on the Drawings and follow local, state, and federal regulations including regulations for pipe removal. The cost of this work and for the actual connection to the existing main shall be based upon the unit prices for installing the pipe and necessary appurtenances that the CONTRACTOR deem necessary and shall not result in any additional cost to the OWNER. The cost of ductile iron sleeves shall be included in the price for connection to existing water main line item.
- B. Additional valves used for the CONTRACTOR's convenience shall not be considered as an extra cost payable by the CITY for the tie-in to the existing system and shall be included in the price for connecting to the existing water main line item.
- C. During all phases of the work, (i.e. installation, testing and restoration), the CONTRACTOR shall ensure at all times the safe operation of the existing water and/or sewage systems. Service to the customers shall be maintained with the least amount of interference and interruption as possible.

1.18 RELOCATIONS

- A. The CONTRACTOR shall be responsible for the relocation of structures that are shown on the drawings, including, but not limited to, light poles, signs, fences, mailboxes, piping, conduits and drains that interfere with the proposed positioning of the water mains. The cost of all such relocations shall be included in the prices bid for the appropriate items.

1.19 UTILITIES

- A. Existing utilities are shown on the Drawings insofar as information is reasonably available; however, it will be the responsibility of the CONTRACTOR to preserve all existing utilities

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whether shown on the Drawings or not. If utility conflicts are encountered by the CONTRACTOR during construction, CONTRACTOR shall give sufficient notice to their owners so that they may make the necessary adjustments. Damage to any utility, which in the opinion of the OWNER is caused by carelessness on the part of the CONTRACTOR shall be repaired at the expense of the CONTRACTOR.

1.20 GUARANTEE

- A. The CONTRACTOR shall guarantee the equipment, material and labor performed under the Contract against any and all failures in proper use and operation for a period of one (1) year from date of written acceptance by the OWNER.
- B. The CONTRACTOR shall also obtain warranties from manufacturers for each piece of equipment furnished so that the manufacturer's warranty fully covers the equipment for a period of one (1) year from the date of written acceptance by the OWNER.

1.21 PERFORMANCE OF WORK

- A. The CONTRACTOR shall provide all personnel and equipment required to complete all work specified herein and on the Drawings.
- B. Construction shall start and end for the day according to the standards of the municipality where work is to be performed. For the City of North Miami Beach, no work shall be done between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, or between 7:00 p.m. Friday and 7:00 a.m. Monday, or on any legal holiday without prior written approval for doing the Work. The City of North Miami Beach requires a written request a minimum of 48 hours before starting any work outside of normal work hours. The request will include the proposed hours of work and justification for the request. Upon authorization by the City of North Miami Beach and any other effected agencies, the Work may proceed.

1.22 BARRICADING (SAFETY)

- A. The CONTRACTOR shall be responsible for the furnishing and maintaining of all required barricades, either the lighted or the reflector type, to ensure the public's safety during open trench work or for any other potentially unsafe or hazardous construction activities. Barricades shall be located and displayed in conformance with the most stringent regulations required by the governing agencies. All costs for barricading, including any permits, shall be the responsibility of the CONTRACTOR.
- B. All work in public rights-of-way and on private property shall be done in strict compliance with these specifications, the City of North Miami Beach, Miami-Dade County Public Works and Florida Department of Transportation (FDOT). Failure to so comply will result in cessation of operations and the removal of project related obstructions from the right-of-way until compliance is achieved.

1.23 EMERGENCY ACCESS AND SECURITY

- A. In order to provide protection to the workers and residents, the CONTRACTOR shall maintain emergency access to all adjacent properties at all times during construction. If a road is required to be closed to vehicular traffic and the distance of the closure exceeds 150 feet between stabilized surfaces, or prevents access to properties for a distance that exceeds 150 feet, the CONTRACTOR shall provide a 10-foot-wide stabilized access way on one side of the

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trench capable of supporting a Fire Truck. The CONTRACTOR shall also provide stabilized access ways across the trench or unstabilized area a minimum of 6 feet in width at a spacing not to exceed 100 feet capable of supporting foot traffic. These access ways shall be protected and delineated with lighted barricades or other such devices as approved by the regulatory agency. Both ends of the emergency access way shall be blocked in accordance with the MOT permit approved by the OWNER with signage indicating that this access way is to be used by emergency vehicles only.

- B. No trenches or holes shall be left open after working hours. In the event a trench must be left open after hours, it shall be done so only with the express written permission from the OWNER and ENGINEER, and it shall be the CONTRACTOR'S responsibility to provide proper protection of the open trench or hole as required by the regulatory agency. In addition, the CONTRACTOR shall provide a security guard at the site whenever the CONTRACTOR'S personnel are not present, 24 hours per day/ 7 days per week. It shall be the Security Guard's responsibility to protect the open trench or hole from trespassers and to direct emergency personnel on site. The Security Guard shall not have any other responsibilities such as operating pumps or equipment but shall be dedicated to protecting the trench or open hole. The Security Guard shall be equipped with a wireless telephone capable of calling 911 to report an emergency and shall keep that telephone on their person at all times. In addition to this provision the CONTRACTOR shall maintain trench safety and comply with current OSHA regulations and the Trench Safety Act. The CONTRACTOR shall maintain and keep all safety barricades, signage, flashers, and detours, in operating condition. A copy of the approved MOT plans, and details, shall be on site at all times.
- C. Measurement and payment for security guard services shall be included in the utility pipe installation unit price.
- D. All roads are to be maintained during the described construction as to always allow Emergency Access. This item will be paid for under the bid item for Mobilization as named in the Bid Schedule.

1.24 DEWATERING

- A. The CONTRACTOR shall be aware that there may be contaminated sites, per Miami-Dade County Department of Environmental Resources Management (DERM) Pollution Remediation Section, located within a one-quarter (1/4) mile radius of the proposed work. Please see Section 02140 Dewatering and dewatering permit requirements. The CONTRACTOR will be responsible for all costs associated with the means and methods of dewatering including, but not limited to, preparation of a dewatering plan, obtaining all dewatering permits from applicable jurisdictional agencies including applicable permitting costs, costs for cleaning existing drainage facilities if used for discharge, installation of injection or monitoring wells and groundwater monitoring testing costs.

1.25 VIBRATORY COMPACTION

- B. The use of vibratory compaction equipment shall be limited to a total gross weight of three (3) tons. The use of vibratory equipment shall be limited to compacting backfill of utility trenches and subgrade of roadways only. If approved in writing by the ENGINEER, larger vibratory compaction equipment may be allowed if operated in a static mode only.

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1.26 REPORTING OF DAMAGE CLAIMS

- A. The CONTRACTOR shall keep the OWNER informed of any damage claims made against the CONTRACTOR during the construction period. All claims for automobile damage, property damage/bodily injury will be reported to the OWNER within 24 hours of receipt of notice. CONTRACTOR will conduct a timely investigation of the claim and determine if they will honor the claim and/or report to their insurance carrier. CONTRACTOR will advise the OWNER in writing of their decision/referral to carrier. Due to the nature of the project, the CONTRACTOR will have close contact with the community. The CONTRACTOR shall notify the OWNER and the ENGINEER of any and all community concerns or claims arising from the CONTRACTOR's operations. The claims referenced herein are exclusive of damages or property claims as outlined.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01005

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE

- A. The general location of the WORK is within the right-of-way of NE 35th Avenue between NE 171st Street and NE 163rd Street with connections to existing infrastructure within intersecting rights-of-way of NE 171st Street, NE 170th Street, NE 169th Street, NE 168th Street, NE 167th Street, NE 166th Street, NE 165th Street, NE 164th Street and NE 163rd Street all within the Eastern Shores Neighborhood of North Miami Beach, Florida.
- B. The WORK of this Contract comprises the installation of 8-in, 12-in, 16-in, and 20-in water main pipe, storm drainage, roadway and walkway restoration and construction, landscape relocation and improvements, irrigation system installation and pavement marking and signage installation, and minor electrical improvements per the document provided in the solicitation package directly from the City. The water main installation work shall be installed by a combination of open trench, horizontal directional drill and pipe bursting methods as depicted in the Project Drawings. New water main pipe material shall be HDPE.
- C. The WORK to be performed under this Contract shall consist of furnishing and installing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.02 NOTICE TO BIDDERS

- A. The successful bidder, in order to be considered responsive, must possess the appropriate requirements and Licenses as described in the Contract Documents.

1.03 STANDARD SPECIFICATION

- A. All materials and workmanship shall meet the requirements on NMB Water Standard Documents, NMB Public Works Department Standards, Miami-Dade County Public Works Department Standards and the Florida Department of Transportation.

1.04 SITE INVESTIGATION

- A. The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and all subcontractors have satisfied themselves to the nature and location of the work, the general and local conditions including, but not restricted to: those bearing upon transportation; disposal, handling and storage of materials; access roads to the site; the conformation and conditions of the work area; the specific condition of asphalt surfaces including local variations in elevation and slope; and the character of equipment and facilities needed preliminary to and during the performance of the work. Failure on the part of the CONTRACTOR to completely or properly evaluate the site conditions shall not be grounds for additional compensation.
- B. Soil boring information is being provided to the CONTRACTOR in Appendix B is for information only. Neither OWNER nor ENGINEER guarantee that the soil boring information is indicative of the soil conditions observed by the CONTRACTOR at the time of work. The

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CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and subcontractors have satisfied themselves as to the nature and extent of soil and (underground) water conditions on the project site based on his own observations/tests and limited information provided in Appendix B.

1.05 WORK BY OTHERS

- A. Concurrent Work by Other CONTRACTORS. The CONTRACTOR'S attention is directed to the fact that other CONTRACTORS may conduct work at the site during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause little or no delay to WORK of such other CONTRACTORS, and shall coordinate fully with such CONTRACTORS to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.
- B. Interference with Work on Utilities. The CONTRACTOR shall coordinate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.
- C. CONTRACTOR shall be notified by OWNER of active construction projects within the vicinity of this work upon release of Bid Documents.

1.06 WORK SEQUENCE

- A. CONTRACTOR shall sequence the work so as to minimize impact on residents.
- B. The CONTRACTOR shall be responsible to coordinate construction activities with CONTRACTOR of adjacent phases and sections as applicable.
- C. Refer to Section 01311 for information on work sequencing requirements.

1.07 WORK SCHEDULE

- A. Because time is of the essence, the CONTRACTOR shall commit the necessary resources to this project to complete it in a timely manner. Those resources may include multiple working crews, working overtime, etc. The CONTRACTOR'S construction progress will be monitored closely on a weekly basis. The Construction progress will be measured with the construction schedule submitted by the CONTRACTOR. Refer to section 01311 for more information.

1.08 COMPUTATION OF CONTRACT TIME

- A. It is the CONTRACTOR'S responsibility maintain project schedule and avoid all delays as feasible. Refer to Section 01311 for more information.

1.09 CONTRACTOR USE OF PREMISES

- A. The CONTRACTOR's use of the project site shall be limited to immediate construction operations only. Refer to Section 01550.

1.10 PRE-CONSTRUCTION CONFERENCE

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- A. After the award of Contract, a Pre-Construction Work Conference will be held between the CONTRACTOR, the ENGINEER, the OWNER, other interested agencies, representatives of utility companies and others affected by the work. The OWNER will set the time and place of this conference. The CONTRACTOR shall bring to the conference a copy of the proposed work schedule for the approval by the ENGINEER and OWNER of the proposed methods and manner of executing the work including sequences of operation and time schedule. The work shall be performed in accordance with such schedule or approved amendments thereto.

1.11 UTILITY LOCATIONS

- A. As far as possible, all existing utility lines in the project area have been shown on the plans. However, the ENGINEER and OWNER do not guarantee that all lines are shown, or that said lines are in their true location. It shall be the CONTRACTOR'S responsibility to identify and locate all underground or overhead utility lines or equipment affected by the project. No additional payment will be made to the CONTRACTOR because of discrepancies in actual and plan location of utilities and damages suffered as a result thereof.
- B. The CONTRACTOR shall notify each utility company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. The CONTRACTOR shall pay for relocation of water mains or other utilities for the convenience of the CONTRACTOR. The CONTRACTOR shall pay for all charges by utility companies for temporary support of its utilities. All costs of permanent utility relocations to avoid conflict shall be the responsibility of the CONTRACTOR and the utility company involved.
- C. The CONTRACTOR shall schedule and coordinate their work in such a manner that they are not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the CONTRACTOR for any loss of time or delay.
- D. All overhead, surface, and underground structures and/or utilities encountered are to be carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The OWNER reserves the right to remedy any damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All repairs made by the CONTRACTOR are to be made to the satisfaction of the utility owner and shall be inspected by a representative of the utility owner and the ENGINEER.
- E. The CONTRACTOR should be aware of the Sunshine State One Call Center, which has a free locating service for CONTRACTORS and excavators. Within forty-eight hours before excavating, dial toll free 1-800-432-4770, and a locator will be dispatched to the work location. CONTRACTOR shall reasonably notify other utility companies not notified by Sunshine State One Call Center. The CONTRACTOR is responsible to protect marks of existing utilities on the ground and as necessary, recall the locates once the marks expired.
- F. The CONTRACTOR shall obtain all applicable construction permits and is responsible for compliance with any and all permit conditions as indicated in Section 01060.

1.12 LINE AND GRADE

- A. The CONTRACTOR shall establish control points as needed to accurately match geometries provided in the plans. The CONTRACTOR shall develop and make all detailed surveys needed

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for construction and shall establish all working points, lines and elevations necessary to perform the work. A Professional Land Surveyor registered in the State of Florida shall supervise this surveying work.

1.13 PROTECTION AND RESTORATION OF SURVEY MONUMENTS

- A. The CONTRACTOR shall carefully protect from disturbance all survey monuments, stakes and benchmarks, whether or not established by CONTRACTOR, and shall not remove or destroy any surveying point until it has been properly witnessed by the ENGINEER. All major survey monuments that have been damaged by the CONTRACTOR such as section corners, 1/4 section corners, property corners or block control points shall be replaced at the CONTRACTOR'S expense with markers of a size and type approved by the ENGINEER. The replacement shall be under the supervision of a Florida Registered Land Surveyor where directed by the ENGINEER.

1.14 EQUIPMENT

- A. All equipment necessary and required for the proper construction of all facilities shall be in first-class working condition. The CONTRACTOR shall be solely responsible for any delay caused by a lack of or malfunction equipment needed to perform work.

1.15 STORAGE SITES

- A. The CONTRACTOR shall furnish, at CONTRACTOR's expense, properly zoned areas suitable for field office, material storage and equipment service and storage. The CONTRACTOR may negotiate with the OWNER for storage sites but the OWNER makes no guarantee to provide a storage site for this project. The CONTRACTOR shall keep these areas in a clean and orderly condition so as not to cause a nuisance or sight obstruction to motorists or pedestrians. The entire area used for storage shall be enclosed with chain link fence with green privacy slats.

1.16 OWNERSHIP OF EXISTING MATERIALS

- A. All materials removed or excavated from the job site shall remain the property of the City of North Miami Beach until released by the ENGINEER, at which time it shall become the property of the CONTRACTOR, who shall dispose of it in a manner satisfactory to the ENGINEER.

1.17 EXCESS MATERIAL

- A. Upon direction of the ENGINEER, all vegetation, debris, concrete or other unsuitable materials shall be disposed of in areas provided by the CONTRACTOR and approved by the ENGINEER. Any excess material desired to be retained by the OWNER shall be delivered by the CONTRACTOR to a designated area within a 5-mile radius of the project, at no extra cost to the OWNER.

1.18 AUDIO-VISUAL PRECONSTRUCTION RECORD

A. General:

1. The CONTRACTOR shall engage the services of a professional electrographer. A responsible commercial firm known to be skilled and regularly engaged in the business

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of preconstruction color audio-video documentation shall prepare the color audio-video DVD's. The electrographer shall furnish to the ENGINEER a list of all equipment to be used for the audio-video recording i.e., manufacturer's name, model number, specifications and other pertinent information. Additional information to be furnished by the electrographer are the names and addresses of two references that the electrographer has performed color audio-video recording for on projects of a similar nature within the last 12 months.

2. Prior to beginning the work, the CONTRACTOR shall have a continuous color audio-video recording taken along the entire length of the project to serve as a record of preconstruction conditions. No construction shall begin prior to review and approval of the video covering the construction area by the ENGINEER. The ENGINEER shall have the authority to reject all or any portion of the videos not conforming to the specifications and order that it be redone at no additional charge. The CONTRACTOR shall reschedule unacceptable coverage within five days after being notified. The ENGINEER shall designate those areas, if any, to be omitted from or added to the audio-video coverage.

B. Digital Video Disk (DVD):

1. DVD's shall be new. Reprocessed DVD's will not be acceptable. They shall be interchangeable with the color DVD player and shall be compatible for playback with a standard player-receiver, DVD format. Any other format must be approved by ENGINEER.
2. CONTRACTOR shall provide the ENGINEER and the OWNER with one complete set of DVD's for the project area.

C. Equipment:

1. All equipment, accessories, materials and labor to perform this service shall be furnished by the CONTRACTOR.
2. The total audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume and clarity and be free from distortion and interruptions.
3. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be less than twelve feet. In some instances audio-video recording coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the ENGINEER.
4. The color video camera used in the recording system shall have a horizontal resolution of 300 lines at center, a luminance signal to noise ratio of 45 dB and a minimum illumination requirement of 25 foot-candles.

D. Recorded Information - Audio

1. Each DVD shall begin with the current date, project name and municipality and be followed by the general location, i.e., name of street, house address, viewing side and direction of progress. The audio track shall consist of an original live recording. The

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recording shall contain the narrative commentary of the electrographer, recorded simultaneously with the electrographer's fixed elevation video record of the zone of influence of construction.

E. Recorded Information - Video

1. All video recordings must, by electronic means, display continuously and simultaneously generated with the actual transparent digital information to include the date and time of recording. The date information shall contain the month, day and year. The time information shall contain the hour, minutes and seconds. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name, contract number, name of street, house address, direction of travel and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.
2. All video recording shall be done during times of good visibility. No video recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.
3. The rate of speed of the vehicle used during video recording shall not exceed 10 miles per hour. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.
4. DVD coverage shall include all surface features located within the zone influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, pavement markings, ditches, mailboxes, landscaping, culverts, fences, signs and headwalls within the area covered.

F. Payment:

1. Compensation for the audio-video preconstruction record shall be included in the lump sum price bid for Mobilization.

1.19 CONFLICT STRUCTURES

- A.** The CONTRACTOR shall abide by the following criteria concerning conflicts between new water construction and existing utilities.
1. The CONTRACTOR shall verify the location of all utilities suspected of being potential conflicts and inform the ENGINEER and OWNER as to CONTRACTOR'S findings.
 2. The OWNER shall have full authority to direct the addition, deletion, or relocation of any pipe or fixture shown in the plans in order to facilitate construction, expedite completion and avoid conflicts with existing utilities as recommended by the ENGINEER.
 3. Where an existing utility is to pass through a conflict structure, the CONTRACTOR shall protect the utility from damage by whatever means the utility owner and the OWNER and ENGINEER deem necessary. In no case shall there be less than 6

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inches between any two (2)-pipe lines within the structure or between pipelines and the structure.

1.20 ENVIRONMENTAL PROTECTION

- A. The CONTRACTOR shall furnish all labor and equipment and perform all work required for the prevention of environmental pollution during and as a result of the work under this contract. For the purpose of this contract, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants. Environmental pollution prevention shall be in accordance with NPDES requirements with no additional cost to the OWNER.
- B. The CONTRACTOR shall take all steps necessary to protect water quality in the connected waters around the project and shall utilize such additional measures as directed by the ENGINEER. Silt screens adjacent to outfall construction shall not be removed until the turbidity of the affected waters is equal to or lower than the ambient turbidity of undisturbed segments of the surface water body. Any discharge into existing drainage facilities shall require the approval of the owner of the system. This may require an engineered plan to be furnished at no additional cost to the OWNER.

1.21 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. The CONTRACTOR shall provide all necessary traffic control devices in order to redirect, protect, warn or maintain existing vehicular and pedestrian traffic during the course of construction.

1. CONSTRUCTION PHASING REQUIREMENTS

Following are general requirements for construction phasing to minimize resident disruption, yet maximize cost effectiveness of the construction scheduling.

- a. No two adjacent roadways may be under construction at the same time (i.e. construction shall be on alternating roadways, and every other roadway shall remain open for access). In no case shall more than 50% of all roadways in a section be under construction at one time. At least 50% of all roadways shall have an asphalt surface, either original or new asphalt, at all times. The CONTRACTOR shall make every effort to provide access to driveways at the end of the working day. If a driveway is not accessible, the homeowner should have access to a neighboring swale area for temporary parking. When vehicular access to homes is not possible for parking of vehicles, an area for parking shall be provided within one block of the furthest home effected. This condition is to be avoided whenever possible and shall last no longer than five (5) working days. The CONTRACTOR, with the OWNER's approval, shall coordinate the parking area location. The CONTRACTOR shall lease the property from the landowner, and will provide a compacted, graded parking surface acceptable to the ENGINEER.

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1. The CONTRACTOR shall not begin construction on subsequent roadways until the initial roadways under construction are substantially complete. A roadway shall be considered substantially complete when all work is complete except for the last lift of asphalt. All work on private property and landscaping must be complete before a road is considered substantially complete.
 2. Site restoration work shall be complete on private property within 30 days after being disturbed.
- b. Construction within the right of way of affected roads shall be scheduled so that all improvements are completed at once, and the residents are only disrupted for one-time period.
 - c. The OWNER, ENGINEER, all affected residents and property owners shall be notified by the contractor in writing a minimum of fifteen (15) days, or earlier if required by the OWNER, prior to the commencement of field activities. This notification is in addition to any specific notifications of disruption to or construction in roadway, driveways, and road rights-of-way adjacent to their homes. The notification shall also indicate any special parking or traffic conditions that will affect residents throughout the construction period.
 - d. All affected residents shall be notified by the contractor a minimum of seventy-two (72) hours, or earlier if required by the OWNER, prior to a shut off of water supply. Any water supply interruptions shall be rescheduled to be as short as possible and not exceed twelve (12) hours.
 - e. Access for emergency vehicles shall be maintained at all times to all homes and businesses. Excavation must be back-filled or barricaded at the end of each workday to prevent hazardous conditions. If a trench, excavation or structure is to be left open, it must be covered with a steel plate and barricaded at the end of each workday or when work will be suspended for more than eight (8) hours.
 - f. Transportation provisions for handicapped or disabled residents shall be made by the CONTRACTOR if construction prevents access to homes.
 - g. The CONTRACTOR shall also make provisions with local bus, school bus, garbage collection, mail delivery and other agencies for continuation of service. A traffic maintenance plan indicating proposed street closings, schedules, and alternate routes, which have been approved by the ENGINEER and the OWNER, shall be submitted to all affected agencies for coordination and routing purposes.
 - h. Materials and equipment shall be stored in a chain link fence with green privacy slats or otherwise enclosed area during non-working hours. Pipe and material shall not be strung out along installation routes for longer than two (2) weeks prior to installation.

B. TRAFFIC CONTROL

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1. The CONTRACTOR is required to submit a conceptual Traffic Control Plan at the Pre-Construction Conference which is in accordance with all permits and FDOT standards and stipulations. This preliminary plan should identify the phases of construction that the CONTRACTOR plans to proceed with and identify traffic flows during each phase. The ENGINEER will have ten (10) days to notify the CONTRACTOR of any comments. Once the conceptual plan for maintaining traffic has been approved, the CONTRACTOR will be required to submit a detailed plan showing each phase's Maintenance and Protection Plan prior to starting construction of any phase.
2. The "Maintenance of Traffic" plan shall include pedestrian traffic as well as vehicular traffic.

A safe walk route for all schools within the vicinity of the construction zone shall be maintained during the arrival and dismissal of school. CONTRACTOR shall not block bus access to schools during school hours.

In the case that a designated crossing of any portion of the designated walk route cannot be maintained, then the CONTRACTOR shall notify the OWNER and ENGINEER a minimum of ten (10) working days prior to closing that route so that an alternate route can be established with the school and the enforcing agency.

It shall be the responsibility of the CONTRACTOR for any necessary Construction, Pavement Marking and Signage or any Pedestrian Signalization and/or Signal Modification to accommodate an alternate safe walk route.

Thirty (30) days prior to the beginning of construction the CONTRACTOR shall notify the OWNER and ENGINEER to set up a pre-construction – school safety meeting.
3. The CONTRACTOR, at all times, shall conduct the work in such a manner as to insure the least obstruction to traffic as is practical. Convenience of the general public and of the residents adjacent to the work shall be provided for in a satisfactory manner, as determined by the ENGINEER.
4. Sidewalks, gutters, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within twenty (20) feet of any such hydrant.
5. Construction materials stored upon the public street shall be placed so as to cause as little obstruction to the general public as is reasonably possible.
6. Streets may be closed only as permitted by the approved Maintenance of Traffic Plan, and as directed by the ENGINEER and, whenever the street is not closed, the work must be conducted with the provision for a safe passageway for traffic at all times. The CONTRACTOR shall make all necessary arrangements with the ENGINEER concerning maintenance of traffic and selection of detours required.
7. All existing stop and street name signs will be maintained as long as deemed necessary by the ENGINEER.
8. When permission has been granted to close an existing roadway, the CONTRACTOR shall furnish and erect signs, barricades, lights, flags and other protective devices,

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which shall conform to the requirements, and be subject to the approval of the ENGINEER. The CONTRACTOR shall furnish and maintain proper protective devices at such location for the entire time of closure as the ENGINEER may direct. Signage shall be affected one week before closure.

9. The CONTRACTOR shall furnish a sufficient number of protective devices to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the ENGINEER shutting down the work until the CONTRACTOR provides the necessary protection.
10. Any time traffic is diverted for a period of time that will exceed one-work day temporary pavement markings will be required. Existing pavement markings that conflict with the new work zone traffic pattern must be obliterated. Painting over existing pavement markings (black out) is not permitted.
11. The CONTRACTOR shall temporarily restore asphalt roads as required by the public authorities having jurisdiction. The CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements. All temporary pavement shall conform to the requirements of the affected pavement OWNER.

1.22 MAINTENANCE AND PROTECTION OF EXISTING DRAINAGE SYSTEM

- A. It shall be the responsibility of the CONTRACTOR to maintain positive drainage on the surface and to ensure that the existing underground drainage system continues to function as intended during construction. The contractor shall follow the plans to ensure that existing catch basins and manholes are being protected during the entire phase of construction.

1.23 BASIS OF PAYMENT (SEE SECTION 01152)

1.24 APPLICATION FOR PAYMENT FOR STORED MATERIALS

- A. Application for payment for stored materials may not be made by the CONTRACTOR.

1.25 SPECIAL CONDITIONS FOR CONSTRUCTION BY OTHER AGENCIES

- A. It will be the CONTRACTOR'S responsibility to coordinate construction schedules with other contractors so as to minimize disruptions, and inconveniences. The project site shall be safe at all times for construction workers and residents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01010

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**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 - GENERAL

1.01 SCOPE

- A. Payment for various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor operations and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK all in accordance with requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenances needed to complete the items of work.
- B. Payment for the various items of the Bid Schedule shall constitute full compensation for CONTRACTOR's superintendent at the job site full-time during construction, for furnishing and installing all pipe and structures complete in place including but not limited to bends, tees, outlets, fittings, blind flanges and specials, including connections to existing pipelines shown on the Drawings; including surveying both horizontal and vertical control for construction of the roadways, structures, pipeline and appurtenances; including protecting and replacing if necessary existing monuments, control points, found iron rods, valves; including all earthwork, trench excavation as shown on the Drawings, removal and disposal of waste, unsuitable and excess material, furnishing and installing pipe bedding material, all backfill and compaction of native material, and dewatering as required; including the restoration of interfering portions of existing service and utility lines that are not included in other bid items and shown on the Drawings; including providing the water for pressure testing, cleaning the pipe, and disposal of the water as required when completed; furnishing, installation, and removal of test heads, cleanup; and restoration and temporary restoration of all improvements incidental to construction for which there are no other bid items; including but not limited to, existing sprinkler systems, and all other work not included in other bid items. No additional payment will be made for performing required tests and the furnishing of accurate As-Builts.
- C. Payment shall also include providing the necessary equipment and labor power to pothole and verify depths and locations of existing utilities sufficiently ahead of construction to avoid conflicts with the design. Conflicts with utilities shown on the Drawings which result from the Contractor's negligence to pothole sufficiently ahead of construction (a minimum of two days ahead of construction of the pipeline or as approved by the ENGINEER) shall be resolved by the CONTRACTOR at no additional cost to the OWNER.
- D. Payment for all bid items shall constitute full compensation for the complete installation of each bid item including but not limited to excavation, dewatering, backfill and compaction. The work shall include for all bid items to be completed, tested and ready for acceptance by the appropriate government agency.
- E. No separate payment for pavement restoration will be made unless specifically shown on the plans, called out in the Bid Schedule, or directed by the ENGINEER.

1.02 PERFORMANCE AND PAYMENT GUARANTEE AND INSURANCE (Item # 1-1)

- A. Payment for Performance and Payment Guarantee and Insurance will be made at the lump

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sum price named in the Bid Schedule. The CONTRACTOR may request payment for this bid item after the Initial Notice to Proceed has been issued.

- B. Payment Guarantee and Insurance are limited to 5.0% of the Total Bid Price. Any amount in excess of 5.0% will be moved to Line Item #1-2 Mobilization. However, the total bid amount will not change. The 5.0% ceiling on Performance and Payment Guarantee and Insurance is just an instruction on the amount the OWNER will pay for Performance and Payment Guarantee and Insurance.

1.03 MOBILIZATION (Item # 1-2)

- A. See Section 01505, "Mobilization" for payment limitations.
- B. Payment for mobilization will be made at the lump sum price named in the Bid Schedule. Mobilization is limited to 10.0% of the Total Bid Price. Payment for mobilization will be made in equal monthly amounts during the duration of the original contract time and includes the cost to implement the erosion and sediment controls.

1.04 MAINTENANCE OF TRAFFIC (Item # 1-3)

- A. See Section 01570 "Traffic Regulations" and all other references to traffic control and maintenance in this document and any regulatory requirements.
- B. Payment for maintenance of traffic will be made at the lump sum price named in the Bid Schedule. Maintenance of Traffic is limited to 5.0% of the Total Bid Price. Payment for maintenance of traffic will be made in equal monthly amounts during the duration of the original contract time.

1.05 SURVEYING, STAKE-OUT, AND AS-BUILT DRAWINGS (Item # 1-4)

- A. Payment for survey associated with project layout and as-built record drawings will be made at the lump sum price named in the Bid Schedule and distributed as a percentage of project completion.
- B. All as-built record drawings and redline drawings for pay application submittals are limited to the lump sum price named in the Bid Schedule.

1.06 MILL EXISTING ASPHALT PAVEMENT (Item # 2-1)

- A. Measurement for payment for mill of existing asphalt pavement will be based on the number of square yards of such pavement actually milled to a depth of two inches below existing asphalt surface, as detailed in the drawings, all in accordance with the requirements of the Contract Documents.
- B. Payment for milling existing asphalt pavement will be made at the unit price per square yard of such as named in the Bid Schedule which price shall constitute full compensation for milling, removal and disposal of asphalt, removal of reflective pavement markers, tack coat and restoration. Milling of roads will be at a minimum depth as indicated in the project plans.

1.07 REMOVE AND DISPOSE OF EXISTING CONCRETE OR ASPHALT PAVEMENT (Item # 2-2, 2-3)

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- A. Measurement for payment to remove and dispose of existing concrete or asphalt pavement will be based upon the actual number of square yards of such pavement actually removed, all in accordance with the Contract Documents.
- B. Payment for removal and disposal of existing concrete or asphalt pavement will be made at the unit price per square yard of pavement named in the Bid Schedule which price shall constitute full compensation for sawcutting (as necessary), the removal and disposal of such pavement and include the removal of sidewalks, aprons, collars, miscellaneous concrete, reflective pavement markers, traffic loops (including coordination with Miami-Dade County Public Works), abandon valves and valve boxes, the removal and salvage of brass valve tabs. Thickness of existing asphalt may vary, asphalt removal will be paid at the square yard cost, no additional compensation will be made for asphalt thickness.
- 1.08 REMOVE AND DISPOSE OF EXISTING CONCRETE CURB (Item # 2-4)
- A. Measurement for payment to remove and dispose of existing concrete curbing will be based upon the actual number of linear feet of such curbing actually removed, all in accordance with the Contract Documents.
- B. Payment for removal and disposal of existing concrete curbing will be made at the unit price per linear feet of curb named in the Bid Schedule which price shall constitute full compensation for sawcutting (as necessary) and the complete removal and disposal of such concrete.
- 1.09 REMOVE AND DISPOSE OF EXSITING BRICK PAVERS (Item # 2-5)
- A. Measurement for payment to remove and dispose of existing brick pavers shall be based upon the actual number of square yards of such brick pavers actually removed, all in accordance with the requirements of the Contract Documents.
- B. Payment for removal and disposal of existing brick pavers will be made at the unit price per square yard of brick pavers named in the Bid Schedule which price shall constitute full compensation for the complete removal and disposal of such brick pavers and include any concrete support slabs and header bands.
- 1.10 REMOVE AND DISPOSE OF EXISTING SINGLE POST SIGN (Item # 2-6)
- A. Measurement for payment to remove and dispose of existing single post signs will be based upon actual quantity, each, of such signs removed and disposed of, all in accordance with the requirements of the Contract Documents.
- B. Payment for removing and disposing of existing single post signs will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the completed removal and disposal of the sign, post and any support.
- 1.11 REMOVE AND DISPOSE OF EXISTING DRAINAGE PIPE (Item # 2-7)
- A. Measurement for payment to remove and dispose of existing drainage pipe will be based upon the number of linear feet of such pipe actually removed and disposed of as determined by measurement along the centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.
- B. Payment for removing and disposing of existing drainage pipe will be made at the unit price

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per linear foot of pipe as named in the Bid Schedule only after pipe has been completely removed and disposed of offsite. This item shall include removal of limerock and subbase, trench excavation, de-watering, backfilling, compaction to the bottom of the subgrade and complete restoration of area including sodding and/or temporary pavement patch and driveway restoration.

1.12 REMOVE AND DISPOSE OF EXISTING DRAINAGE STRUCTURE (Item # 2-8)

- A. Measurement for payment to remove and dispose of existing drainage structure will be based upon the actual number of drainage structure(s) actually removed and disposed of, all in accordance with the requirements of the Contract Documents.
- B. Payment for removing and disposing of existing drainage structure will be made at the unit price, each, as named in the Bid Schedule only after existing drainage structure has been completely removed and disposed of off site. This item shall include removal of limerock and subbase, trench excavation, de-watering, backfilling, compaction to the bottom of the subgrade and complete restoration of area including sodding, temporary pavement patch and driveway restoration.

1.13 RELOCATE UTILITY POLE (Item # 2-9)

- A. Measurement for payment to relocate existing utility pole shall be based upon the actual number of utility pole(s) relocated, all in accordance with the requirements of the Contract Documents.
- B. Payment for relocated existing utility pole will be made at the unit price, each, as named in the Bid Schedule only after the existing utility pole has been completely removed and the relocated utility pole has been installed complete with all relocated lines. Payment shall constitute full compensation for the coordination with the utility provider regarding removal and relocation of all existing lines, removal and relocation of the existing utility pole, and complete restoration of area including sodding and temporary pavement patch.

1.14 ABANDON AND GROUT EXISTING WATER MAIN (20") (Item # 2-10)

- A. Measurement for payment to abandon and grout existing pipe shall be based upon the total linear feet of pipe abandoned and grouted, all in accordance with the requirements of the Contract Documents.
- B. Payment for abandoning and grouting existing water main will be made at the unit price per linear foot of such pipe actually grouted named in the Bid Schedule. Payment shall constitute full compensation for the abandoning, cutting and capping existing main, grouting and plugging of such pipe, including removing and disposing of existing valves and valve boxes, backfilling trench and restoration work.

1.15 REMOVE EXISTING VALVE AND BOX (Item # 2-11)

- A. Measurement for payment to remove and dispose of existing valve and box will be based upon the actual quantity, each, of such valves and boxes actually removed and disposed of, all in accordance with the Contract Documents.
- B. Payment to remove and dispose of existing valve and box will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the removal and

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disposal of the existing valve and box and all restoration work.

1.16 REMOVE AND DELIVER EXISTING FIRE HYDRANT (Item # 2-12)

- A. Measurement for payment to remove and salvage existing fire hydrant assemblies will be based upon the actual quantity, each, of such fire hydrant assemblies actually removed and salvaged, all in accordance with the Contract Documents. Salvaged fire hydrants are not to be reused for this project. The contractor shall coordinate with the City of North Miami Beach to deliver the salvaged fire hydrants to the City's storage yard.
- B. Payment to remove and salvage existing fire hydrant assemblies will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the plugging of the existing main, removal of all apparatus (i.e. bollards), excavation, backfilling, delivery of the fire hydrant assembly to OWNER and all restoration work.

1.17 FURNISH, INSTALL, AND REMOVE WATER SERVICE BYPASS (Item # 2-13)

- A. Measurement for payment to furnish, install, and remove water service bypass will be based upon the lump sum price, all in accordance with the requirements of the Contract Documents.
- B. Payment to furnish, install, and remove water service bypass will be made at the lump sum named in the Bid Schedule which price shall constitute full compensation for preparing a water service bypass plan for review and approval by the OWNER and ENGINEER, the furnishing and installing of all temporary piping, fittings, pipe connections, disinfection, testing, operating and maintaining the water service bypass as acceptable to the OWNER for the duration of the construction activities, removing of all items upon completion of construction operations. Payment for this item shall be made at the lump sum price named in the Bid Schedule in equal monthly amounts over duration of the original Contract time.

1.18 FURNISH AND INSTALL TYPE P-6 INLET (Item # 3-1)

- A. Measurement for payment to furnish and install type P-6 inlet and grate or top slabs will be based upon the actual quantity, each, of such inlet constructed and installed, all in accordance with the requirement of the Contract Documents.
- B. Payment for furnishing and installing type P-6 inlet will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the structure, top and grate including but not limited to excavation, dewatering, any form and amount of shoring, utility pole protection, backfill and compaction, trench protection and trench safety, all connections, all mortar and restoration work, and testing. As-builts for newly installed structure must be provided before compensation for said structure will be approved.

1.19 FURNISH AND INSTALL HDPE PIPE (Item # 3-2)

- A. Measurement for payment to furnish and install HDPE pipe will be based upon the number of linear feet of such pipe actually constructed as determined by measurement along the centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing HDPE drainage pipe will be made at the unit price per linear foot of pipe named in the Bid Schedule which price shall constitute full compensation for

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all pipes, connection to structures, excavation, dewatering, bedding, backfilling, compaction, relocation of existing utilities as required, material costs, trench protection and trench safety, restoration work and testing. As-builts for newly installed pipe must be provided before compensation for said pipe will be approved.

1.20 FURNISH AND INSTALL HDPE COUPLING (Item # 3-3)

- A. Measurement for payment to furnish and install HDPE coupling will be based upon the actual quantity, each, of such coupling installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing HDPE coupling will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the HDPE coupling including but not limited to excavation, dewatering, utility pole protection, trench protection and trench safety, all connections, backfilling, compaction, restoration work and testing.

1.21 FURNISH AND INSTALL HDPE WATER PIPE VIA PIPE BURSTING (Item # 4-1, 4-2)

- A. Measurement and payment for pipe bursting will be based upon the number of linear feet of such water pipe actually constructed as determined by measurement along the centerline of the pipe in place with minimum allowable cover or more to avoid other underground utilities, all in accordance with the requirements of the Contract Documents.
- B. Payment for pipe bursting will be made at the unit price for linear foot of pipe complete and in place including all materials, equipment, new pipe, excavation, backfill, pit restoration, removal and disposal of all debris, fragments and slurry, disinfection and testing. All governing regulations pertaining to the working with Asbestos Concrete (AC) pipes and disposal (as required) are included in this line item.

1.22 FURNISH AND INSTALL HDPE WATER PIPE VIA OPEN CUT (Items # 4-3, 4-4)

- A. Measurement for payment for furnishing, installing and connecting HDPE water main pipe will be based upon the number of linear feet of such pipe actually constructed as determined by measurement along the centerline of the pipe in place at minimum cover or more to avoid other underground utilities, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing, installing and connecting HDPE water main pipe will be made at the unit price per linear foot of such pipe complete and in place including all pipe restrained or not restrained, regardless of soil type, all clearing and grubbing, stockpile limerock, remove portions of existing pipe as necessary, coordination to shut down existing water mains as necessary, unloading, sheeting, excavation, utility pole protection, utility support, restoration of any decorations; including trench protection and trench safety, dewatering, laying, furnishing and installing mechanical joint restraints, installing tape marker, installing tracer wire, installing root barrier where required, backfilling, compaction, pressure testing, disinfection, flushing, pigging and temporary blow off with full cannon, and bacteriological testing as named in the Bid Schedule. Any appurtenances or pumping devices needed to increase system pressure to obtain successful pigging (internal swabbing) will be sole responsibilities of the CONTRACTOR who shall bear all costs. All governing regulations pertaining to the working with Asbestos Concrete (AC) pipes and disposal (as required) are included in this line item.
- C. Removal of existing asphalt pavement or concrete and limerock base material are included in

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this line item.

- D. Contractor shall be responsible for adjusting depth of water main to account for possible conflicts with existing utilities. No additional compensation will be provided for installing water main at depths that vary from the plans to account for these conflicts.

1.23 FURNISH AND INSTALL HDPE WATER PIPE VIA DIRECTIONAL DRILL (Item # 4-5)

- A. Measurement for payment for furnishing water main pipe through horizontal directional drill will be based upon the number of linear feet of such pipe actually furnished as determined by measurement along the centerline of the pipe, all in accordance with the requirements of the Contract Documents.
- B. Payment for performing horizontal directional drill will be made at the unit price per linear foot of pipe installed via horizontal directional drill, payment will be based on the completion of the horizontal directional drill and shall constitute compensation for the complete installation of the watermain pipe (including the pipe material) including but not limited to pit excavation and backfill, sheeting, carrier pipe, bentonite drilling slurry and/or any other additives and mixers required, MJ adapters, all fittings apparatus and equipment necessary, pressure testing, disinfection, flushing and temporary blow off with full cannon, and bacteriological testing, rod reports, asbuilts and full restoration of damages resulting from directional drill as named in the Bid Schedule.

1.24 FURNISH AND INSTALL HDPE FITTINGS (Item # 4-6 to 4-15)

- A. Measurement for payment to furnish and install water main fittings, shall be at the unit bid price per specific fitting and size including but not limited to crosses, reducing crosses, tees, side outlet tees, reducing tees, laterals, reducing laterals, bends and elbows of all angles and radius, reducing bends and elbows, concentric and eccentric reducers, offsets, wyes, true wyes, sleeves, plugs, caps, restraining glands and gaskets, base bends, base tees, reducing flanges, mega lugs, fillers and connecting pieces, furnished all in accordance with the Contract Documents.
- B. Payment for furnishing and installing fittings complete and in place shall be at the unit bid price per ton and shall include furnishing, storing, transporting and installing the fittings.

1.25 FURNISH AND INSTALL TAPPING SLEEVE AND VALVE (Items # 4-16, 4-17)

- A. Measurement for payment to furnish and install tapping sleeve and valve will be based upon the actual quantity, each, of such connections made in accordance with the Contract Documents.
- B. Payment for furnishing and installing tapping sleeve and valve shall be made at the unit price, each, named in the Bid Schedule which shall constitute full compensation for all materials (regardless of water main size) and labor needed to complete successful connection regardless of pipe size and material which shall include but it is not limited to sleeves, gaskets, bolts, nuts, washers, valves, saddles, fittings, spool pieces, corporation stops, concrete collars, removal and disposal of existing piping and fittings to prepare for connection, testing, dewatering and filling and flushing of main.

1.26 FURNISH AND INSTALL GATE VALVE (Items # 4-18, 4-19, 4-20, 4-21)

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- A. Measurement for payment to furnish and install gate valves will be based upon actual quantity, each, of gate valves furnished and installed, all in accordance with the requirements of the Contract Documents. Test valves will not be compensated for under this line item.
- B. Payment for furnishing and installing gate valves will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the gate valve, including valve box, valve concrete collar, extension to surface, 3" bronze ID disk, restraining glands, required painting, markings and Reflective Pavement Markings (RPM).
- C. If the contractor elects to use double valves for connections to the existing system, there will be no additional compensation for valves under this line item. Only valves that are on the plans will be paid under this line item.
- 1.27 FURNISH AND INSTALL PIPE COUPLING (Item # 4-22, 4-23)
- A. Measurement for payment to furnish and install pipe coupling will be based upon the actual quantity, each, of such coupling installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing pipe coupling will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the pipe coupling including but not limited to excavation, dewatering, utility pole protection, trench protection and trench safety, all connections, backfilling, compaction, restoration work and testing.
- 1.28 FURNISH AND INSTALL FIRE HYDRANT (Item # 4-24)
- A. Measurement for payment to furnish and install fire hydrant assemblies will be based upon actual quantity, each, of fire hydrant assemblies furnished and installed all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing fire hydrant assemblies will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the fire hydrant assembly including furnishing, storing, and transporting. Fire hydrant assembly shall include the complete fire hydrant, fire hydrant extensions, pipes, and bends, in place pole protection (bollards, if required), concrete pad, mechanical restraints, excavation, utility pole protection including additional shoring, and required painting, markings and Reflective Pavement Markings (RPM).
- 1.29 FURNISH AND INSTALL SAMPLE POINT (Item # 4-25)
- A. Measurement for payment for furnishing and installing sample points will be based upon the actual number, each, of such sample points furnished and installed, all in accordance with requirements of the Contract Documents.
- B. Payment for furnishing and installing sample points will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the complete installation of sample point and removal and disposal after sampling is complete.
- 1.30 FURNISH AND INSTALL AIR RELEASE VALVE (Item # 4-26)

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- A. Measurement for payment to furnish and install air release valve assemblies will be based upon the actual quantity, each, of such valve assemblies (including but not limited to required corporation stops, piping, valves, enclosures, and bollards) furnished and installed, all in accordance with the requirements of the Contract Documents. Test valves will not be compensated for under this line item.
- B. Payment for furnishing and installing air release valve assemblies will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for all materials and labor needed for the completed installation of the air release valve, including but not limited to fittings, spool pieces, corporation stops, furnishing and installing enclosure and bollards, extension to the surface, piping, furnishing and compacting subgrade, coordination to shut down existing water main, and all restoration including backfilling and compaction up to the limerock base.
- 1.31 FURNISH, INSTALL, AND CONNECT WATER SERVICE TO EXIST. METER (Item # 4-27, 4-28)
- A. Measurement for payment for furnishing and installing water service and connecting water service to existing meter will be based upon the actual number, each, of water services furnished and installed all in accordance with requirements of the Contract Documents. This includes the tapping of the new water main and providing saddle, corporation ball valve and service piping to the meter box (including service piping inside casing under pavement where necessary), key angle meter stop, including resetting the existing meter boxes, a 6 inch layer of pea rock (where necessary),. The CONTRACTOR is responsible for completing all connections to the existing meters and for the restoration of any disturbed surface features including, but not limited to clearing and grubbing, saw cut and removal of asphalt, removal of lime rock and subbase, trench excavation, de-watering, backfilling, compaction of subgrade, installation of limerock base material, installation of asphalt pavement patch, fencing, driveways, walkways, mailboxes, decorations, irrigation and landscaping inside and outside of the public right-of-way
- B. CONTRACTOR shall be responsible for installing new water service to existing meters. In the case where the existing water meter is no longer functional, the existing meter is to be replaced with a meter provided by the OWNER. CONTRACTOR is to coordinate with the OWNER to request these meters as necessary. The complete installation of this water service is to be done in accordance with the requirements of the Contract Documents and will be paid under this line item at the unit price, each, named in the Bid Schedule.
- C. CONTRACTOR shall be responsible for locating existing water service.
- 1.32 FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT (Item # 5-1, 5-2)
- A. Measurement for payment of asphalt concrete pavement will be based upon the number of square yards of such asphalt concrete pavement actually constructed, in accordance with the requirements of the Contract Documents.
- B. Payment for placement of asphalt concrete pavement at the thickness indicated will be made at the unit price per square yard for such placement as named and at the thickness indicated in the Bid Schedule which price will constitute full compensation for applying a tack coat, and furnishing, placing and compacting all asphalt surfaces, including all transportation, installing the specified lifts of asphalt pavement at the cross section and thickness specified in the Contract Documents, including replacing brass valve tabs, adjusting valve box and MAS rim

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elevations, saw cutting of all pavement, temporary striping and all cleanup of the area disturbed by this construction. Only final asphalt concrete pavement will be paid under this line item; temporary asphalt concrete is not included in this line item.

1.33 FURNISH AND PLACE ASPHALT LEVELING COURSE (Item # 5-3)

- A. Payment for placement of asphalt leveling course will be made at the lump sum price named in the Bid Schedule and distributed as a percentage of roadway improvement completion.
- B. Payment for placement of asphalt leveling course will constitute full compensation for placing asphalt leveling course at varying thickness (1/2" average) as needed to provide an evenly sloped surface upon which to install asphalt concrete pavement (see section 1.32), applying a tack coat, and furnishing, placing and compacting all asphalt surfaces, including all transportation and installing the specified asphalt material. Only final asphalt concrete pavement will be paid under this line item; temporary asphalt concrete is not included in this line item.

1.34 FURNISH AND PLACE ROADWAY SUBGRADE MATERIAL (Item # 5-4)

- A. Measurement for payment to furnish and place roadway subgrade material will be based upon the number of square yards of such materials actually furnished and placed, all in accordance with the requirements of the Contract Documents.
- B. Payment to furnish and place roadway subgrade will be made at the unit price per square yard named in the Bid Schedule, which price shall constitute full compensation for furnishing and placing all such material in place, including all transportation, handling, positioning and compacting of said material, disposal of waste or unsuitable material and testing.

1.35 FURNISH AND PLACE ROADWAY 8" LIMEROCK BASE MATERIAL (Item # 5-5)

- A. Measurement for payment to furnish and place roadway limerock base material will be based upon the number of square yards of such materials actually furnished and placed, all in accordance with the requirements of the Contract Documents. No reuse will be allowed.
- B. Payment to furnish and place roadway limerock base material will be made at the unit price per square yard named in the Bid Schedule, which price shall constitute full compensation for furnishing and placing all such material in place, including all transportation, handling, positioning and compacting of said material, disposal of waste or unsuitable material and testing.

1.36 FURNISH AND INSTALL CURB (Item # 5-6, 5-7, 5-8)

- A. Measurement for payment for furnishing and installing curb and gutter will be based upon the number of linear feet of such curb actually constructed as determined by measurement along the centerline of the curb in place, including but not limited to depressed and/or drop curb and gutter section (i.e., at driveway), type F curb and type D curb, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing curb and gutter will be made at the unit price per linear foot of curb and gutter named in the Bid Schedule, which shall constitute full compensation for removing and disposing of existing curb and gutter and complete installation including grading, rock curb pad, forming, saw cutting of pavement and cleanup of all areas disturbed by this

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construction.

1.37 FURNISH AND INSTALL CONCRETE DRIVEWAY (Item # 5-9)

- A. Measurement for payment to furnish and install concrete driveway will be based upon the actual number of square yards of such driveways constructed as shown in the drawings, all in accordance with the requirements of the Contract Documents.
- B. Payment to furnish and install concrete driveway will be made at the unit price per square yard named in the Bid Schedule which price shall constitute full compensation for completing said work, including removing all existing concrete materials, all earthwork and grading, subgrade compaction, limerock base, construction of the concrete driveway, furnishing and setting for expansion joint material, disposal of excess material, and the appurtenant items for which separate payment is not specifically included in the Bid Schedule.
- C. No payment will be made for construction of driveways outside the limits shown on the drawings or not approved by the ENGINEER. Driveway must meet all requirements of City of North Miami Beach to be eligible for payment.

1.38 FURNISH AND INSTALL STAMPED ASPHALT WITH COLOR (Item # 5-10)

- A. Measurement for payment to furnish and install stamped asphalt will be based upon the actual number of square yards of such stamped asphalt installed as shown in the drawings, all in accordance with the requirements of the Contract Documents.
- B. Payment to furnish and install stamped asphalt will be made at the unit price per square yard named in the Bid Schedule which price shall constitute full compensation for furnishing and installing said work, including removing all existing materials, all earthwork and grading, subgrade compaction, limerock base, construction of the concrete driveway, furnishing and setting for expansion joint material, disposal of excess material, and the appurtenant items for which separate payment is not specifically included in the Bid Schedule. CONTRACTOR shall coordinate with the City of North Miami Beach the color, material and texture of all proposed stamped asphalt.

1.39 FURNISH AND INSTALL 6" THICK CONCRETE SIDEWALK (Item # 5-11)

- A. Measurement and payment to furnish and install 6" thick concrete sidewalk will be based upon the actual number of square yards of such sidewalks (inclusive of ramps) constructed as shown in the drawings, all in accordance with the requirements of the Contract Documents.
- B. Payment for concrete sidewalk will be made at the unit price per square yard named in the Bid Schedule and detailed on the drawings which price shall constitute full compensation for completing said work, including all earthwork, compaction of subgrade, backfilling of sidewalk, construction of the 6 inch thick concrete sidewalk, furnishing and setting for expansion joint material, furnishing and installing 1 inch PVC sleeve for existing irrigation connections as directed by ENGINEER, disposal of excess material, restoration/replacement of sod disturbed on private property to equal condition as existing, restoration of driveways disturbed due to sidewalk forms, and the appurtenant items for which separate payment is not specifically included in the Bid Schedule. Readjusting water meter boxes that need to be raised or lowered to meet sidewalk elevation will also be included in compensation for the installation of sidewalk.

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- 1.40 FURNISH AND INSTALL DETECTABLE WARNING PAD (Item # 5-12)
- A. Measurement for payment to furnish and install detectable warning pads will be based upon the actual number of square feet of pads constructed as shown in the drawings, all in accordance with the requirements of the Contract Documents.
 - B. Payment for furnishing and installing detectable warning pads will be made at the unit price per square foot, named in the Bid Schedule which price shall constitute full compensation for the complete installation of the detectable warning surface.
- 1.41 FURNISH AND PLACE PAVEMENT MARKINGS (Items # 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8)
- A. Measurement for payment for furnishing and placing pavement markings will be based upon the number of linear feet of such markings actually constructed as determined by measurement along the centerline of the pavement markings in place, all in accordance with the requirements of the Contract Documents
 - B. Payment for furnishing and placing pavement markings will be made at the unit price per linear foot of pavement markings named in the Bid Schedule, which price shall constitute payment for all colors, widths and types. Pavement marking skip lines will be paid per the linear foot of pavement marking which will be measured as the distance from the beginning of the first painted stripe to the last stripe, including skipped intervals.
- 1.42 FURNISH AND PLACE PAVEMENT SYMBOLS (Items # 6-9, 6-10, 6-11, 6-12)
- A. Measurement for payment for furnishing and placing pavement symbols will be based upon the number, each, of such pavement symbols actually constructed as in place, all in accordance with the requirements of the Contract Documents.
 - B. Payment for furnishing and placing pavement symbols will be made at the unit price, each, of pavement symbols named in the Bid Schedule. Payment for pavement symbols shall constitute full payment for all such symbols required and shall include but not be limited to bicycle symbols, directional arrows, sharrows.
- 1.43 FURNISH AND PLACE GREEN BICYCLE LANE PAINT (Item # 6-13)
- A. Measurement for payment for furnishing and placing green bicycle lane paint will be based upon the actual number of square yards of green bicycle lane paint placed as shown in the drawings, all in accordance with the requirements of the Contract Documents.
 - B. Payment for furnishing and placing green bicycle lane paint will be made at the unit price per square yard named in the Bid Schedule. Payment for green bicycle lane paint shall constitute full payment for all such green bicycle lane paint.
- 1.44 FURNISH AND PLACE REFLECTIVE PAINT ON CURB (Item # 6-14)
- A. Measurement for payment for furnishing and placing reflective paint on curb will be based upon the number of linear feet of such paint actually placed as determined by measurement along the centerline of the paint in place, all in accordance with the requirements of the Contract Documents

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- B. Payment for furnishing and placing reflective paint on curb will be made at the unit price per linear foot of paint named in the Bid Schedule, which price shall constitute payment for all colors, widths and types.
- 1.45 FURNISH AND INSTALL REFLECTIVE PAVEMENT MARKERS (Item # 6-15)
- A. Measurement for payment for furnishing and installing reflective pavement markers (RPM) will be based upon the actual number, each, of such RPM's installed, all in accordance with requirements of the Contract Document.
- B. Payment for furnishing and installing RPM's will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the complete installation of all colors and types.
- 1.46 FURNISH AND INSTALL VEHICLE DETECTION LOOP (Item # 6-16)
- A. Measurement for payment to furnish and install single post sign will be based upon actual quantity, each, of such vehicle detection loops furnished and installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing the vehicle detection loop will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the removal of existing loop being replaced due to milling and resurfacing operations (when applicable) and the completed installation of the new vehicle detection loop to existing electrical and signalization infrastructure. Loop is considered an in-sequential cost from the actual sign installation. Vehicle detection loops damaged by the CONTRACTOR will be replaced by the CONTRACTOR at no cost to the OWNER.
- 1.47 FURNISH AND INSTALL SINGLE POST SIGN (Item # 6-17)
- A. Measurement for payment to furnish and install single post sign will be based upon actual quantity, each, of such signs furnished and installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing the single post sign will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the removal of existing sign being replaced (when applicable) and the completed installation of the new sign including sign post. Sign post is considered an in-sequential cost from the actual sign installation. Signs damaged by the CONTRACTOR will be replaced by the CONTRACTOR at no cost to the OWNER.
- 1.48 REMOVE AND RELOCATE TREE FROM MEDIAN (Item # 7-1)
- A. Measurement for payment to remove and relocate tree from median will be based upon actual quantity, each, of such trees removed and relocated, all in accordance with the requirements of the Contract Documents.
- B. Payment for removal and relocating tree from median will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the root pruning, removal, transport and relocation of existing tree as coordinated with the City, installation of root barrier, and restoration of removal and relocation areas. No additional compensations will be made for watering and maintaining trees for the duration of the contract and one year

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warranty period. Shrubs shall be provided with required support and protection in accordance with City and standards and shall include removal and disposal of supports. Contractor is responsible for any trees or shrubs damaged during execution of Contractor's work and will have to replace damaged trees and shrubs with no additional compensation. CONTRACTOR shall coordinate with the City of North Miami Beach for specific relocation place for tree within the Eastern Shores Neighborhood.

1.49 FURNISH AND INSTALL SHRUB (Items # 7-2, 7-3)

- A. Measurement for furnishing and installing shrub will be based upon the actual number, each, of such shrubs installed all in accordance with the requirements of the Contract Documents.
- B. Payment for furnishing and installing shrubs will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the plant material and complete installation. No additional compensations will be made for watering, fertilizing, staking and any other maintenance needed for the duration of the contract and one year warranty period. Shrubs shall be provided with required support and protection in accordance with City and standards and shall include removal and disposal of supports.

1.50 FURNISH AND INSTALL SOD (Item # 7-4)

- A. Measurement for payment for furnishing and installing sod will be based upon the number of square yards of sod actually installed, all in accordance with the requirements of the Contract Documents.
- B. Payment for sod will be made at the unit price per square yard of sod named in the Bid Schedule which price shall constitute full compensation for furnishing and installing sod, maintaining and watering sod for 30 days after installation as approved by OWNER or ENGINEER, including re-grading swale to match existing grades, and irrigation system restoration. No additional compensations will be made for watering and maintaining sod for 30 days after approved installation. Appropriate notifications to home owners announcing the maintenance of newly installed sod is included in this line item.

1.51 FURNISH AND INSTALL IRRIGATION SYSTEM (Item # 7-5)

- A. Measurement for payment for furnishing and installing irrigation system will be made at the lump sum price all in accordance with the requirements of the Contract Documents.
- B. Irrigation systems shall be furnished and installed with coverage of landscape area as indicated in the Contract Documents including the installation of pipe and sprinklers, necessary adapters, couplings, sleeves, connection to the water source, meter, backflow preventer, controller, testing.

1.52 INSTALL AND REMOVE INLET PROTECTION (Item # 8-1)

- A. Measurement for payment to install and remove inlet protection will be based upon the actual number, each, of such inlet protection installed all in accordance with the requirements of the Contract Documents.
- B. Payment for inlet protection will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the installation of inlet protection, maintenance of the inlet protection throughout construction, removal and disposal of inlet

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protection at the completion of the project. Any impacts due to inlet protection not in place or not maintained will be required to be remedied by the CONTRACTOR at no cost to the OWNER.

1.53 INSTALL AND REMOVE FLOATING TURBIDITY BARRIER (Item # 8-2)

- A. Measurement for payment to install and remove floating barrier will be based upon the linear feet of floating turbidity barrier protection installed all in accordance with the requirements of the Contract Documents.
- B. Payment for inlet protection will be made at the unit price per linear foot named in the Bid Schedule which price shall constitute full compensation for the installation of floating turbidity barrier, maintenance of the floating turbidity barrier throughout construction, removal and disposal of floating turbidity barrier at the completion of the project. Any impacts due to floating turbidity barrier not in place or not maintained will be required to be remedied by the CONTRACTOR at no cost to the OWNER.

1.54 FURNISH AND INSTALL 2" PVC CONDUITS (Item # 9-1)

- A. Measurement and payment for installation of PVC conduits will be based upon the number of linear feet of such conduit actually constructed as determined by measurement along the centerline in place with minimum allowable cover or more to avoid other underground utilities, all in accordance with the requirements of the Contract Documents.
- B. Payment for PVC conduit installation will be made at the unit price for linear foot of conduit complete and in place including all materials, equipment, conduit, excavation, backfill, pit restoration, and removal and disposal of all debris, fragments and slurry.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01025

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**SECTION 01031
ALTERATION PROJECT PROCEDURES**

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Coordinate work of trades and schedule elements of alterations and renovation work by procedure and methods to expedite completion of the work.
- B. In addition to demolition and that specifically shown, cut, move or remove items necessary to provide access or to allow alterations and new work to proceed. Include such items as:
 - 1. Repair or removal of hazardous or unsanitary conditions.
 - 2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.
 - 3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete, shall be removed from the site expeditiously.
 - 4. Cleaning of surfaces, and removal of surface finished as needed to install new work and finishes.
 - 5. Protection as required for existing trees to remain.
 - 6. For purposes of all existing underground utilities work, coordinate as required by use of special telephone number shown on engineering drawings. .
- C. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a professional transition to adjacent new items of construction.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 ALTERATIONS, CUTTING AND PROTECTION

- A. Assign the work of moving, removal, cutting, patching and protection to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.
- B. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.
 - 1. Cut finish surfaces such as paving, masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.
- C. Perform cutting and patching as specified in Section 01045.
- D. Protect existing finishes, equipment, and adjacent work which is scheduled to remain, from damage.

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**SECTION 01031
ALTERATION PROJECT PROCEDURES**

1. Protect existing and new work from weather and extremes of temperature.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

- A. General Requirements that work be complete:
 1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.
 - (a) Generally Contract Documents will not define products or standards of working conduct present in existing construction; CONTRACTOR shall determine products in inspection and any necessary testing by use of the existing as a sample of comparison.
 2. Presence of a product, finish, or type of construction, requires that patching, extending or matching shall be performed as necessary to make work complete and consistent to existing identical standards of quality.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Patch and extend existing work using skilled mechanics who are capable of matching existing quality. Quality of patched or extended work shall be not less than that specified for new work.

3.02 TRANSITION FROM EXISTING TO NEW WORK

- A. When new work abuts or is finished flush with existing work, make a smooth transition. Patched work shall match existing adjacent work in texture and appearance so that the patch of transition is invisible at a distance of five feet.
 1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface.

3.03 CLEANING

- A. Perform periodic and final cleaning as specified in Section 01710.
 1. Clean OWNER occupied areas daily.
 2. Clean spillage, overspray, and heavy collection of dust in OWNER occupied areas immediately.
- B. At completion of work of each trade, clean area and make surfaces ready for work of successive trades.
- C. At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use by OWNER.

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**SECTION 01031
ALTERATION PROJECT PROCEDURES**

3.04 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work in this section. Payment for work shall be included in all other work.

END OF SECTION 01031

**SECTION 01045
CUTTING AND PATCHING**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. CONTRACTOR shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:
1. Make its several parts fit together properly.
 2. Uncover portions of the work to provide for installation of ill-timed work.
 3. Remove and replace defective work.
 4. Remove and replace work not conforming to requirements of Contract Documents.
 5. Remove samples of installed work as specified for testing.
 6. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 SUBMITTALS

- A. Submit a written request to ENGINEER well in advance of executing any cutting or alteration, which affects:
1. Work of the OWNER or any separate CONTRACTOR.
 2. Structural value of integrity of any element of the project.
 3. Integrity of effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
- B. Request shall include:
1. Identification of the project.
 2. Description of the affected work.
 3. The necessity for cutting, alteration or excavation.
 4. Effect on work of OWNER or any separate CONTRACTOR, or on structural or weatherproof integrity of project.

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**SECTION 01045
CUTTING AND PATCHING**

5. Description of proposed work:
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. Trades who will execute the work.
 - c. Products proposed to be used.
 - d. Extent of refinishing to be done.
 6. Alternatives to cutting and patching.
 7. Cost proposal, when applicable.
 8. Written permission of any separate CONTRACTOR whose work will be affected.
- C. Should conditions of work or the schedule indicate a change of products from original installation, CONTRACTOR shall submit request for substitution as specified in Section 01600, paragraph 1.08.
- D. Submit written notice to ENGINEER designating the date and time the work will be uncovered.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Comply with specifications and standards for each specific product involved.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering the work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions affecting installation of products, or performance of work.

3.02 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project, which may be exposed by cutting and patching, work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. Execute cutting and demolition by methods, which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.

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**SECTION 01045
CUTTING AND PATCHING**

- B. Execute excavating and backfilling by methods, which will prevent settlement or damage to other work.
- C. Employ original Installer or Fabricator to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- D. Execute fitting and adjustment of products to provide a finished installation to comply with specified product, functions, tolerances and finishes.
- E. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
- F. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.

3.04 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the unit price bid of any item requiring cutting and patching, including pavement restoration.

END OF SECTION 01045

**SECTION 01050
FIELD ENGINEERING****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. CONTRACTOR shall provide and pay for field Engineering and Survey services, including AutoCAD 2013 (or approved equal) capabilities, required for the project except as noted below in paragraph 1.04.
- B. ENGINEER will identify existing control points and property line corner stakes indicated on the drawings, as required.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified Engineer or registered Land Surveyor, acceptable to ENGINEER and OWNER.

1.04 SURVEY REFERENCE POINTS

- A. CONTRACTOR will provide basic horizontal and vertical control points for the construction project including:
 - 1. Permanent coordinate reference points with horizontal and vertical control, located and staked as shown on the plans.
- B. Locate and protect control points prior to starting site construction work, and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to OWNER's Representative.
 - 2. Report to OWNER's Representative when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. CONTRACTOR's surveyor shall replace project control points which may be lost or destroyed at contractor's expense.
 - a. Establish replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

- A. CONTRACTOR's surveyor shall establish a minimum of two permanent benchmarks on site, referenced to data established by survey control points.
- B. CONTRACTOR shall establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 - 1. Stakes for grading and fill placement.

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**SECTION 01050
FIELD ENGINEERING**

- 2. Controlling lines and levels as required.
 - C. From time to time, verify layouts by same methods.
- 1.06 RECORDS
- A. Maintain a complete, accurate log and AutoCAD 2013 (or approved equal) electronic drawing of all control and survey work as it progresses.
 - B. On completion of construction work, prepare a certified survey showing all dimensions, locations and elevations of project.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01050

**SECTION 01060
REGULATORY REQUIREMENTS & PERMITS**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. CONTRACTOR shall comply with all building codes and federal regulations appropriate to the project, including those of:
1. National Electric Code.
 2. Florida Building Code. (Latest Revision)
 3. National Environmental Policy Act of 1969 (NEPA)
 4. National Historic Preservation Act (NHPA)
 5. Archaeological and Historic Preservation Act
 6. Environmental Justice
 7. American Iron and Steel Requirements
 8. Davis-Bacon Wage Requirement
 9. Endangered Species Act
 10. All Civil Rights Acts
 11. Clean Water Act
 12. Clean Air Act
 13. Safe Drinking Water Act
 14. Coastal Zone Management Act
 15. Protection of Wetlands
 16. Farmland Protection Policy Act
 17. Magnuson-Stevens Fishery Conservation and Management Act
 18. Wild and Scenic Rivers Act
 19. Manual on Uniform Traffic Control Devices
- B. CONTRACTOR shall comply with these codes, laws, regulations, rules, directives of all agencies, boards, districts, and governmental bodies having jurisdiction.
- C. CONTRACTOR shall obtain and pay the cost of all building permits, fees, tie-in or connection charges associated with the project.

The permits listed below have been obtained for the project by the OWNER prior to beginning construction. The CONTRACTOR is responsible for compliance with any and all permit conditions. Permits obtained are attached as Appendix A of this document, further information regarding permit conditions can be obtained from the ENGINEER'S office. In the event that the OWNER must obtain permits in addition to those listed below, the CONTRACTOR shall not have any claim for damages arising from any delay caused by the OWNER's obtaining said additional permits.

1. Florida Department of Health – Construction of Water Main Extensions for PWSs
 2. Miami-Dade County Traffic Engineering Approval
 3. Miami-Dade County Tree Removal Permit
- D. The CONTRACTOR shall obtain construction permit and applicable engineering and other permits from the city and jurisdictions within the project area, if required, as well as the following:
1. National Pollutant Discharge Elimination System (NPDES) – Notice of Intent (NOI)
 2. City of North Miami Beach – Right of Way Permit
 3. Dewatering Permit - SFWMD

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SECTION 01060
REGULATORY REQUIREMENTS & PERMITS

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 MEASUREMENT AND PAYMENT

- A. CONTRACTOR shall be not be reimbursed separately for permit fees. Permit fees shall be included in Mobilization.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01060

SECTION 01070
ABBREVIATIONS OF INSTITUTIONS

PART 1 GENERAL

1.01 GENERAL

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms or abbreviations, which may appear in these Specifications, shall have the meanings indicated herein.

1.02 ABBREVIATIONS

AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ACOE	United States Army Corps of Engineers
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute

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SECTION 01070
ABBREVIATIONS OF INSTITUTIONS

CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DERM	Department of Environmental Resources Management of Miami-Dade County
DTPW	Miami Dade County Department of Transportation and Public Works
DIPRA	Ductile Iron Pipe Research Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
EPA	Environmental Protection Agency
FBC	Florida Building Code
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FDOH	Florida Department of Health
FM	Factory Mutual System
FPL	Florida Power & Light
FS	Federal Specifications
HI	Hydraulics Institute
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MSS	Manufacturers Standardization Society
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NMB	North Miami Beach
NPDES	National Pollutant Discharge Elimination System
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
MDC	Miami-Dade County
PCA	Portland Cement Association
PPI	Plastics Pipe Institute
RCRA	Resource Conservation and Recovery Act
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association

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SECTION 01070
ABBREVIATIONS OF INSTITUTIONS

RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SB	Southern Bell
SFWMD	South Florida Water Management District
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry, Inc.
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WEF	Water Environment Federation
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01070

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**SECTION 01090
REFERENCE STANDARDS**

PART 1 GENERAL

1.01 GENERAL

- A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. References herein to "Building Code" shall mean "Florida Building Code". References to "Mechanical Code" or "International Mechanical Code," "Plumbing Code" or "International Plumbing Code," "Fire Code" or "International Fire Code," shall mean International Mechanical Code, International Plumbing Code and International Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.
- D. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced

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SECTION 01090
REFERENCE STANDARDS

codes, standards, and specifications listed herein including but not limited to NMB Water Standard Documents (latest edition) and NMB Public Works Department Standards.

- E. Applicable Standard Specifications: References in the Contract Documents to "Standard Specifications" or SSPWC shall mean the Standard Specifications for Public Works Construction, 2012 Edition.
- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

1.03 REGULATIONS RELATED TO HAZARDOUS MATERIALS

- A. The CONTRACTOR is responsible that all work included in the Contract Documents, regardless if shown or not, shall comply with all EPA, OSHA, RCRA, NFPA, and any other Federal, State, and Local Regulations governing the storage and conveyance of hazardous materials, including petroleum products.
- B. Where no specific regulations exist, all chemical, hazardous, and petroleum product piping and storage in underground locations must be installed with double containment piping and tanks, or in separate concrete trenches and vaults, or with an approved lining which cannot be penetrated by the chemicals, unless waived in writing by the OWNER.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01090

**SECTION 01152
APPLICATIONS FOR PAYMENT**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to OWNER and ENGINEER in accordance with the schedule established by Conditions of the Contract and Agreement between OWNER and CONTRACTOR.

1.02 RELATED REQUIREMENTS

- A. Contract between OWNER and CONTRACTOR: Progress Payments, Retainage and Final Payment.
- B. All applicable sections of the Specifications.

1.03 FORMAT AND DATE REQUIRED

- A. Submit AIA Application and Certificate of Payment document typed to the City of North Miami Beach.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
1. Fill in total list of all scheduled component items of work, with item number and scheduled dollar value for each item.
 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
 3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number, and description, as for an original component item of work.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the OWNER or the OWNER's Representative requires substantiating data, CONTRACTOR shall submit suitable information, with a cover letter identifying:

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**SECTION 01152
APPLICATIONS FOR PAYMENT**

1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.
- B. Submit one copy of data and cover letter for each copy of application.
- C. Red-line as-built drawings are required with each payment application showing items previous installed and items installed within this period for which payment is being requested.
- D. Updated schedule is required with each payment application.
- 1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT
- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 Contract Closeout.
- 1.07 SUBMITTAL PROCEDURE
- A. Submit Applications for Payment to OWNER's Representative at the times stipulated in the Agreement.
- B. Number: Three copies of each Application.
- C. When OWNER's Representative finds Application properly completed and correct, OWNER's Representative will transmit a copy of the certificate for payment to the CONTRACTOR.
- 1.08 PROGRESS AS-BUILTS AND PARTIAL RELEASE OF LIENS
- A. The CONTRACTOR shall submit progress as-builts (red-line documents or higher quality as defined in Section 01720) and partial release of liens along with progress payment applications.
- 1.09 OTHER PROVISIONS
- A. The CONTRACTOR shall not be permitted to invoice for quantities of work beyond those contained in the contract and all previously approved change orders.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01152

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**SECTION 01200
PROJECT MEETINGS**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. OWNER's Representative shall schedule and administer a preconstruction meeting, progress meetings at a minimum of every two weeks on a day established by the OWNER's Representative and specially called meetings throughout progress of the work.
1. Prepare agenda for meetings.
 2. Distribute written notice of each meeting five (5) days in advance of meeting date.
 3. Make physical arrangements for meetings.
 4. Preside at meetings.
 5. Record the minutes; include significant proceedings and decisions.
 6. Reproduce and distribute copies of minutes within three business days after each meeting.
 - a. To participants in the meeting.
 - b. To parties affected by decisions made at the meeting.
 - c. Furnish three copies of minutes to OWNER.
- B. Representative of CONTRACTOR, subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. ENGINEER shall attend all meetings.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 PRE-CONSTRUCTION MEETING

- A. Schedule after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties, designated by OWNER's Representative.
- C. Attendance:
1. The CONTRACTOR and its superintendent.
 2. ENGINEER and ENGINEER'S professional consultants.
 3. Resident Project Representative.
 4. Representatives of the OWNER.

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**SECTION 01200
PROJECT MEETINGS**

5. Major subcontractors.
 6. Major Suppliers.
 7. Governmental representatives as appropriate.
 8. Others as requested by CONTRACTOR, OWNER or ENGINEER.
- D. Suggested Agenda:
1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers.
 - b. Projected Construction Schedules.
 - c. Shop drawings and other submittals.
 - d. Traffic maintenance plan.
 - e. Community Public Relations.
 2. Critical work sequencing.
 3. Procurement of major equipment and materials requiring a long lead time.
 4. Project Coordination
 - a. Designation of responsible personnel.
 5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Applications for Payment
 6. Adequacy of distribution of Contract Documents.
 7. Procedures for maintaining Record Documents.
 8. Use of premises:
 - a. Office, work and storage areas.
 - b. OWNER's requirements.
 9. Construction facilities, controls and construction aids.
 10. Temporary utilities.
 11. Safety procedures.
 12. Security procedures.
 13. Housekeeping procedures.

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**SECTION 01200
PROJECT MEETINGS**

1.04 PROGRESS MEETINGS

- A. Schedule regular biweekly meetings on a day established by the OWNER's Representative as required.
- B. Hold called meetings as required by progress of the work.
- C. Location of the meetings: A central site, convenient for all parties, designated by OWNER's Representative.
- D. Attendance
 - 1. OWNER's Representative and OWNER's professional consultants as needed.
 - 2. ENGINEER.
 - 3. Subcontractors as active on the site.
 - 4. Suppliers as appropriate to the agenda.
 - 5. Governmental representatives as appropriate.
 - 6. Others, as requested by CONTRACTOR, OWNER or ENGINEER.
- E. Suggested Agenda:
 - 1. Review, approval of minutes of previous meeting.
 - 2. Review of work progress since previous meeting.
 - 3. Field observations, problems, and conflicts.
 - 4. Problems, which impeded Construction Schedule.
 - 5. Review of off-site fabrication, delivery schedules.
 - 6. Corrective measures and procedures to regain projected schedule.
 - 7. Revisions to Construction Schedule.
 - 8. Progress, schedule, during succeeding work period.
 - 9. Coordination of schedules.
 - 10. Community Public Relations.
 - 11. Review submittal schedules; expedite as required.
 - 12. Maintenance of quality standards.
 - 13. Pending changes and substitutions.

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**SECTION 01200
PROJECT MEETINGS**

14. Review proposed changes for:
 - a. Effect on Construction Schedule and on completion date.
 - b. Effect on other contracts of the Project.
15. Other business.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01200

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**SECTION 01311
SCHEDULES AND REPORTS**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. The Work under this Contract shall be planned, scheduled, executed, reported and accomplished using the Critical Path Method (hereinafter referred to as CPM), in calendar days, unless otherwise specifically provided in the Contract Documents. All project schedules must be completed using Primavera P6 by Oracle unless otherwise approved by OWNER.
- B. The primary objectives of the CPM scheduling requirements are: (1) to insure adequate planning and execution of the Work by CONTRACTOR; (2) to assist OWNER and ENGINEER in evaluating progress of the Work; (3) to provide for optimum coordination by CONTRACTOR of their trades, Subcontractors and Suppliers, and of their Work with the work or services provided by any separate Contractors; (4) to permit the timely prediction or detection of events or occurrences which may affect the timely prosecution of the Work; and (5) to provide a mechanism or tool for use by the OWNER, ENGINEER and CONTRACTOR in determining and monitoring any actions of the CONTRACTOR which may be required in order to comply with the requirements of the Contract Documents relating to the completion of the project within the specified time frame specified in the Contract Documents.
- C. CONTRACTOR is responsible for determining the sequence of activities, the time estimates of the detailed construction activities and the means, methods, techniques and procedures to be employed. The construction Schedule shall represent the CONTRACTOR's best judgment of how they will prosecute the Work in compliance with the Contract requirements. CONTRACTOR shall ensure that the Construction Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions and the Contract Documents may require.
- D. CONTRACTOR shall consult with their principal Subcontractors and Suppliers relating to the preparation of their construction plan and Construction Schedule. Principal Subcontractors shall receive copies of those portions of CONTRACTOR's Construction Schedule, which relate to their work and shall be continually advised of any updates or revisions to the Construction Schedule as the Work progresses. CONTRACTOR shall be solely responsible for ensuring that all Subcontractors and Suppliers comply with the requirements of the Construction Schedule for their portions of the Work.
- E. CONTRACTOR will provide the basic data relating to activities, durations and sequences of construction and shall develop and deliver to the OWNER and ENGINEER the draft of the Construction Schedule. This data shall reflect the CONTRACTOR's actual construction plan for the Project, and shall fully comply with all requirements of the Contract Documents.
- F. The CONTRACTOR shall be responsible for providing the services required for the basic drafting and computerization of CONTRACTOR's data for CONTRACTOR's initial Construction Schedule, in accordance with the requirements of this Contract. The CONTRACTOR shall use Primavera computer program or approved equal for development and maintenance of the schedule.
- G. It is understood and agreed that the Construction Schedule is to represent CONTRACTOR's best plan and estimate for the Work; however, CONTRACTOR acknowledges that the Construction Schedule may have to be revised from time-to-time as progress proceeds. CONTRACTOR further acknowledges and agrees that the OWNER does not guarantee that: (1) CONTRACTOR can start work activities on the "early start" or "late start" dates or complete

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**SECTION 01311
SCHEDULES AND REPORTS**

work activities on the "early finish" or "late finish" dates shown in the schedule, or as same may be updated or revised; (2) CONTRACTOR can proceed at all times in the sequence established by the utilization of only the resources and labor they initially planned for the performance of the work; (3) CONTRACTOR's Construction Schedule will not have to be modified or changed by direction of the OWNER. Any changes, modifications or adjustments made by CONTRACTOR to the Construction Schedule shall be in full compliance with all requirements of the Contract Documents.

- H. The CONTRACTOR acknowledges and agrees that their Construction Schedule must be flexible in order to accommodate and allow for their coordination with the operations of the OWNER and the work of separate contractors relating to the Project. The OWNER and ENGINEER will review the CONTRACTOR's Construction Schedule for compatibility with OWNER operations and the work of separate contractors. CONTRACTOR agrees to hold meetings with the OWNER, ENGINEER and separate contractors to resolve any conflicts between CONTRACTOR's Construction Schedule and the operations of the OWNER or work of separate contractors. CONTRACTOR agrees to fully cooperate with OWNER and separate contractors to resolve such conflicts and to revise their Construction Schedule as reasonably required.
- I. In order to maintain the orderly progress of the work performed on the Project, the OWNER shall have the right to determine, in their sole discretion, the priority between the Work performed by CONTRACTOR and the work of any separate contractors or OWNER's operations; this decision shall be final and binding upon CONTRACTOR and shall not be a cause for extra compensation or an extension of time unless explicitly approved by OWNER. Provided, however, that this right shall not be exercised by the OWNER unless: (1) the determination is necessary, in the opinion of the OWNER, because of Project conditions; and (2) CONTRACTOR and any separate contractors cannot otherwise agree upon such priority of schedule construed as relieving the CONTRACTOR of their obligation to cooperate with any separate contractors on the Project.
- J. If CONTRACTOR's Construction Schedule indicates that OWNER or a separate CONTRACTOR is to complete an activity or perform certain preceding work by a particular date, or within a certain duration, OWNER or any separate contractor shall not be bound to said date or duration unless OWNER expressly and specifically agrees in writing to same. The review and approval or acceptance by OWNER of the Construction Schedule or any other schedule or plan of construction of CONTRACTOR, does not constitute an agreement by OWNER of any start or finish date in the schedule or specific durations or sequences for activities of the OWNER or any separate contractor; provided, however, that nothing herein shall be construed as modifying or changing, or excusing the performance of CONTRACTOR of required portions of the Work by the Specific Dates as set forth in the Contract Documents.
- K. The work performed under this contract shall be completed within the time frame indicated in the contract documents. CONTRACTOR shall determine the time requirements for all such phases and shall be responsible for planning, scheduling and coordinating the Work in order to complete in accordance with contract requirements.
- L. It is understood and agreed that should the OWNER and ENGINEER provide CONTRACTOR, at CONTRACTOR's request, with any advice or counsel relating to the scheduling or coordination of the Work or any other matter that: (1) OWNER and ENGINEER shall not be liable to CONTRACTOR for any errors, omissions, negligence or deficiencies which may in any way occur because of same; (2) such advice or counsel are provided solely as aids in the development by CONTRACTOR of a representation of CONTRACTOR's actual construction

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plan and schedule in accordance with the requirements of the Contract Documents, and OWNER and ENGINEER shall not be liable to CONTRACTOR should CONTRACTOR rely on such advice or counsel to their detriment; (3) such advice or counsel shall not relieve CONTRACTOR of any responsibility under the Contract for all construction means, methods, techniques, coordinating all portions of the Work; and (4) any services provided by the OWNER and ENGINEER or the lack or alleged untimeliness thereof will not in any way take the place of or relieve the CONTRACTOR of full responsibility for compliance with all requirements of the Contract Documents, including, but not limited to the obligation to complete the Work within the specified time frame set forth in Contract Documents.

- M. Approval or acceptance by the OWNER of the CONTRACTOR's Construction Schedule, or any revisions or updates thereto, is advisory only and shall not relieve the CONTRACTOR of the responsibility for accomplishing each portion of the Work within each and every applicable Specific Date. Omissions and errors in the approved or accepted Construction Schedule, or any revisions or updates shall not excuse performance, which is not in compliance with the Contract. Approval by the OWNER in no way makes the OWNER an insurer of the reliability, accuracy or feasibility of the Construction Schedule nor liable for time or cost overruns flowing from such omissions or errors. It is understood and agreed that CONTRACTOR cannot rely upon any informal or constructive acquiescence or approval of the Construction Schedule by OWNER has any right or power to agree to any schedule commitment or obligation on the part of OWNER except as set forth expressly in the Contract Documents.
- N. Should CONTRACTOR intend or plan to complete the Work, or any portion thereof, earlier than any applicable Specific Date or the Contract Time, CONTRACTOR shall give timely and reasonable notice of this fact to OWNER and ENGINEER. OWNER shall have the sole discretion to agree to or reject such early completion plan by CONTRACTOR. OWNER shall have no duty or obligation to agree to, or to cooperate with CONTRACTOR regarding any early completion plan or proposal by CONTRACTOR and shall not be liable for any damages of CONTRACTOR because of the rejection by OWNER of said plan.
- O. Unless otherwise specifically provided in the Contract Documents, CONTRACTOR acknowledges that OWNER has contemplated in OWNER's planning and approval of the schedule, and in OWNER's budgeting for professional services, that the Work will be performed on a 5-day work week basis, utilizing a single 8-hour shift per day. OWNER shall have the sole discretion of approving or rejecting a variance in the workweek, number of shifts, or shift length. Unless otherwise agreed by OWNER, CONTRACTOR shall bear the cost of, and pay the OWNER, for additional staff and supervisory personnel, including but not limited to the services of ENGINEER necessary to support any variance in the contemplated work week, number of shifts or shift length.

1.02 POST AWARD ACTIVITIES

- A. The OWNER and ENGINEER will review: the objectives of the Schedules and Reports requirements; the procedures and requirements for the preparation of the Construction Schedule and Schedule of Values by CONTRACTOR; how the requirements of the Contract Documents will be monitored and enforced by the OWNER; long-lead items and time requirements for work by Subcontractors will be identified.

1.03 CONSTRUCTION SCHEDULE

- A. Within ten (10) days after the date of the Notice to Proceed or the Notice of Award of Contract by OWNER (whichever occurs first), (even though CONTRACTOR may not have completed

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**SECTION 01311
SCHEDULES AND REPORTS**

subcontractor negotiations and executed subcontracts) the CONTRACTOR, in consultation with the OWNER and ENGINEER, shall complete Construction Schedule. The graphic representation and computer printouts shall be carefully reviewed by the OWNER and ENGINEER and discussed at a meeting with the CONTRACTOR for the purpose of approval of final schedule. Any additions and/or deletions to these documents that are desired by the OWNER will be brought to the attention of the CONTRACTOR within three (3) days. The CONTRACTOR shall, if consistent with the requirements of the Contract Documents, incorporate the OWNER's revisions and shall deliver the completed Construction Schedule and computer reports to the OWNER and ENGINEER for review and acceptance within seven (7) days.

- B. The Construction Schedule shall represent the CONTRACTOR's best judgment and intended plan for completion of the Work in compliance with the time frame specified in the Contract Documents. The Construction Schedule shall take into account all foreseeable activities to be accomplished by any separate contractors, and interface dates with utility owners, the OWNER's operations and others. The Construction Schedule shall anticipate all necessary labor and resources to accomplish the activities within the durations set forth in the Construction Schedule. The Construction Schedule shall also include time estimates for project substantial inspection, final inspection, and final project closeout.
- C. CONTRACTOR shall submit as a part of the data submitted to the OWNER and ENGINEER a narrative report indicating anticipated allocation by CONTRACTOR of the labor and equipment resources and work shifts for each activity which they propose to be utilized on the Project:
 - 1. Whether CONTRACTOR proposes the Work to be performed on single, double or triple shifts, and whether it is to be done on a 5-, 6- or 7-day workweek basis. If the CONTRACTOR chooses any work schedule other than the 8-hour day, 5-day workweek, and approved by the OWNER, any overtime costs shall be borne by the CONTRACTOR.

1.04 SCHEDULE OF VALUES

- A. Within ten (10) days after completion of the Construction Schedule the CONTRACTOR shall submit to the OWNER and ENGINEER a Schedule of Values for review by the OWNER and ENGINEER, allocating a dollar value for the activities on the Construction Schedule. The dollar value for the activity shall be the cost of the work of the activity including labor, materials, and pro rata contribution of General Conditions requirements, overhead and profit. The sum of all activity costs shall equal the total Contract Sum. The CONTRACTOR shall revise the Schedule of Values as necessary to gain the approval of the ENGINEER and the OWNER.
- B. The activity cost for the Schedule of Values shall be coded with a cost code corresponding to the trade, subcontractor or Supplier performing the work so that subtotals for each division of the Work can be prepared.
- C. The Schedule of Values shall, in the best judgment of the CONTRACTOR, represent a fair, reasonable and equitable dollar (cost) allocation for each activity on the Construction Schedule.
- D. The CONTRACTOR will provide, within seven (7) days after approval of the Schedule of Values, a computer listing of all cost-loaded activities for OWNER and ENGINEER's review.

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**SECTION 01311
SCHEDULES AND REPORTS**

1.05 CONSTRUCTION SCHEDULE CONTENT

- A. The Construction Schedule shall consist of a time-scaled, detailed network graphic representation of all activities that are part of the CONTRACTOR's construction plan and an accompanying computerized mathematical analysis of these activities using Primavera P6 by Oracle. The graphic network shall include, but not be limited to, the following information:
1. Project Name
 2. Activities of completed work ready for use by next trade, owner, etc.
 3. Activities relating to different areas of responsibility, such as subcontracted work, which is distinctly separate from that being done by the CONTRACTOR directly;
 4. Different categories of work as distinguished by craft or crew requirements;
 5. Different categories of work as distinguished by equipment requirements;
 6. Different categories of work as distinguished by materials;
 7. Locations of work within the Project that necessitates different times or crews to perform;
 8. Outage schedules for existing utility services that will be interrupted during the performance of the Work;
 9. Acquisition and installation of equipment and materials, supplies and/or installed by the OWNER or separate contractors;
 10. Material to be sorted on site; and
 11. Specific Dates.
- B. For all major equipment and materials to be fabricated or supplied for the Project, the Construction Schedule shall show a sequence of activities including:
1. Preparation of Shop Drawings and sample submissions;
 2. A reasonable time for review of Shop Drawings and samples or such time as specified in the Contract Documents;
 3. Shop fabrication, delivery, and storage;
 4. Erection or installation; and
 5. Testing of equipment and materials.
 6. Final Inspections and project closeout.
- C. The Construction Schedule shall include late completion dates for the Work that is no later than the required time frame specified in the Contract Documents. The time-scaled graphic network shall be drawn based upon the early start dates of activities shown on the graphic.

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- D. All activity durations shall be given in calendar days.

1.06 UPDATING OF CONSTRUCTION SCHEDULE/PROGRESS REPORTS

- A. On or about the dates specified, CONTRACTOR shall arrange for CONTRACTOR's project manager and superintendent to meet at Project Site with the OWNER and ENGINEER to review CONTRACTOR's report of actual progress prepared by CONTRACTOR. Said report shall set forth up-to-date and accurate progress data, shall be based upon CONTRACTOR's best judgment and shall be prepared by CONTRACTOR in consultation with all principal Subcontractors and suppliers.
- B. The CONTRACTOR will produce a computerized update work sheet for approval by the OWNER as a part of this process.
1. As part of the updating process, the CONTRACTOR'S computer will calculate, based upon progress data provided by CONTRACTOR and agreed to by the OWNER, the value of work done for each activity based on percentage complete for each activity less the amount previously paid for past percentages completed. Summation of all values of each activity less the appropriate percent of retainage shall be the amount payable to the CONTRACTOR, provided that CONTRACTOR has complied with all requirements of the Contract Documents.
- C. CONTRACTOR shall be solely responsible for expediting the delivery of all materials and equipment to be furnished by CONTRACTOR so that the progress of construction shall be maintained according to the currently approved Construction Schedule for the Work. CONTRACTOR shall notify the OWNER and ENGINEER in writing, and in a timely and reasonable manner, whenever CONTRACTOR determines or anticipates that the delivery date of any material or equipment to be furnished by CONTRACTOR will be later than the delivery date indicated by the Construction Schedule, or required consistent with the completion requirements of this Contract, subject to schedule updates as herein provided.
- D. CONTRACTOR shall ensure that the critical path runs through on-site activities and that off-site activities do not control the critical path of the Construction Schedule.

1.07 RECOVERY SCHEDULE

- A. Should the updated Construction Schedule show at any time during CONTRACTOR's performance, in the sole opinion of the OWNER, that the CONTRACTOR is fourteen (14) or more days behind schedule for any Specific Date, the CONTRACTOR shall prepare a Recovery Schedule at no additional cost to the OWNER (unless the OWNER is solely responsible for the event or occurrence which has caused the schedule slippage) explaining and displaying how CONTRACTOR intends to reschedule the Work in order to regain compliance with the Construction Schedule during the immediate subsequent pay period.
- B. If the CONTRACTOR believes that all of the time can be recovered during the subsequent pay period the CONTRACTOR will be permitted to prepare a Recovery Schedule as set forth below. However, if the CONTRACTOR believes it will take more than thirty (30) days to recover all of the lost time, CONTRACTOR shall prepare and submit a request for revision to the Construction Schedule and comply with all of the requirements for a Schedule Revision.
1. The CONTRACTOR shall prepare and submit to the Owner and ENGINEER a one-

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SECTION 01311 SCHEDULES AND REPORTS

month maximum duration Recovery Schedule, incorporating best available information from Subcontractors and others, which will permit return to Construction Schedule at the earliest possible time. The CONTRACTOR shall prepare a Recovery Schedule to same level of detail as the Construction Schedule for a maximum duration of one month. This Recovery Schedule shall be prepared in coordination with other separate contractors on the Project.

2. Within two (2) days after submission of Recovery Schedule to the Owner and ENGINEER, CONTRACTOR shall participate in a conference with the Owner and ENGINEER to review and evaluate the Recovery Schedule. Within two (2) days of conference, the CONTRACTOR shall submit the revisions necessitated by the review for the Owner and ENGINEER's review and approval. The CONTRACTOR shall use the approved Recovery Schedule as their plan for returning to the Construction Schedule.
3. CONTRACTOR shall confer continuously with the Owner and ENGINEER to assess the effectiveness of the Recovery Schedule. As a result of this conference, the Owner will direct the CONTRACTOR as follows:
 - a. If the Owner determines the CONTRACTOR is still behind the schedule the Owner will direct the CONTRACTOR to prepare a Schedule Revision and comply with all of the requirements of a Schedule Revision as stated herein and the other requirements of the Contract Documents; provided, however, that nothing herein shall limit in any way the rights and remedies of the Owner as provided elsewhere in the Contract Documents.
 - b. If the Owner determines the CONTRACTOR has successfully complied with provisions of the Recovery Schedule, the Owner will direct the CONTRACTOR to return to the use of the approved Construction Schedule.

1.08 SCHEDULE REVISIONS

- A. Should CONTRACTOR desire to or otherwise be required under the Contract Documents to make modifications or changes in CONTRACTOR's method of operation, the sequence of Work or the durations of the activities in the Construction Schedule, CONTRACTOR shall do so in accordance with the requirements of the Contract Documents. The OWNER must approve revisions to the approved Construction Schedule in writing.
- B. CONTRACTOR shall submit requests for revisions to the Construction Schedule to the OWNER and ENGINEER, together with written rationale for revisions and description of logic for rescheduling work and maintaining the time frame to complete the work as listed in the Contract Documents. Proposed revisions acceptable to the OWNER will be incorporated into next update of Construction Schedule. CONTRACTOR shall pay the OWNER for costs incurred by the OWNER for the revisions.

1.09 FLOAT TIME

- A. Float or slack time associated with one chain of activities is defined as amount of time between earliest start date and latest start date or between earliest finish date and latest finish date for such activities, as calculated as part of the Construction Schedule. Float or slack time shown on the Construction Schedule is for exclusive use or benefit of the OWNER. Float time be used by the CONTRACTOR only following explicit permission from the OWNER as needed for the

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**SECTION 01311
SCHEDULES AND REPORTS**

CONTRACTOR to effectively use available resources and to minimize the impact of project problems, delays or changes in the Work which may arise during performance. CONTRACTOR specifically agrees that the OWNER or ENGINEER may use float time in conjunction with their review activities or to resolve for any modification of the Specific Dates or an extension of the Contract Time or a claim for additional compensation as a result of any Project problem.

- B. Float time shown on the Construction Schedule shall only be used by CONTRACTOR if approved by OWNER. Any conflict between contractors, or schedules or available and/or necessary work of Contractors, which may result in a delay on that Contractor performing work on this Project, shall be referred to the OWNER for resolution. If CONTRACTOR refuses to perform Work which is available and necessary to be performed in order to not delay any separate contractors the OWNER may, regardless of the float shown on the Construction Schedule to be available for the path of activities which encompasses said Work, terminate the CONTRACTOR for default pursuant to the General Conditions of this Contract.

1.10 CONTRACTOR'S ORGANIZATION

- A. CONTRACTOR shall maintain as part of their organization, or hire a subcontractor with, a competent staff of sufficient size who are knowledgeable in the use, application and implementation of CPM as required by the Contract Documents. It shall be the responsibility of this staff to prepare input information for the Construction Schedule, monitor progress, provide input for updating and revising logic diagrams when necessary and otherwise assist the CONTRACTOR in fulfilling their obligations hereunder.

1.11 DEFAULT

- A. Failure of the CONTRACTOR to substantially comply with the requirements of this Section shall constitute a default by CONTRACTOR of CONTRACTOR's obligations under this Contract sufficient for termination of CONTRACTOR under the General Conditions of this Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. No separate measurement and payment is provided for work covered by this Section. All work required in connection with Schedules and Reports shall be included in the bid price for all other work.

END OF SECTION 01311

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SECTION 01340
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Shop Drawings, Product Data and Samples required by the Contract Documents.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.
- C. Designate in the construction schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Shop Drawings, Product Data and Samples will be needed.

1.03 SHOP DRAWINGS

- A. Drawings shall be presented in readable and thorough condition.
1. Drawing size shall be in standard sizes 8½" X 11" through 24" X 36" as appropriate for detail.
 2. Details shall be identified by reference to Project Number, sheet, detail, specification section, equipment numbers, I.D. numbers and schedule numbers shown on Contract Drawings.

1.04 PRODUCT DATA

- A. Preparation
1. Clearly mark each copy to identify pertinent products or models.
 2. Show performance characteristics and capacities.
 3. Show dimensions and clearances required.
 4. Show wiring or piping diagrams and controls.
- B. Manufacturer's standard schematic drawings and diagrams:
1. Modify drawings and diagrams to delete information, which is not applicable to the work.
 2. Supplement standard information to provide information specifically applicable to the work.

1.05 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:

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SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1. Functional characteristics of the product with integrally related parts and attachment devices.
2. Full range of color, texture and pattern.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data and Samples prior to submission.
- B. Determine and verify:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with specifications.
- C. Coordinate each submittal with requirements of the work and of the Contract Documents.
- D. Notify the OWNER's Representative in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- E. Begin no fabrication or work, which requires submittals until return of submittals with OWNER's Representative or ENGINEER's approval.

1.07 SUBMISSION REQUIREMENTS

- A. CONTRACTOR shall furnish to the ENGINEER for review, three (3) hard copies of each shop drawing submittal. If approved by the OWNER, one (1) digital copy of each shop drawing submittal shall be distributed to the OWNER and ENGINEER. The term "Shop Drawing" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, catalog sheets, data sheets, and similar items.
- B. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ENGINEER. In any case, every separate item submitted for shop drawing approval will be uniquely numbered, between the submittal and transmittal for proper tracking.
- C. Except as may otherwise be indicated herein, the ENGINEER will return a copy of each submittal to the CONTRACTOR with its comments noted thereon, within fifteen (15) calendar days following their receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item. The OWNER reserves the right to withhold monies due the contractor to cover additional costs of the ENGINEER's review beyond the second submittal. The ENGINEER's maximum review period for each submittal, including all

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**SECTION 01340
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

resubmittals, will be 15 days per submittal. In other words, for a submittal that required two resubmittals before it is complete, the maximum review period for that submittal could be 45 days.

- D. If a submittal is returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED", formal revision and resubmission of said submittal will not be required.
- E. If a submittal is returned to the CONTRACTOR marked "REVISE AND RESUBMIT" or "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- F. If a submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT", the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- G. Fabrication of an item shall be commenced only after the ENGINEER has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the contract requirements.
- H. All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the ENGINEER of any CONTRACTOR submittals will be made for any items, which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
- I. The ENGINEER's review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.
- J. Shop Drawing Distribution: Shop drawings shall be reviewed by the ENGINEER and marked either as "NO EXCEPTIONS TAKEN, "MAKE CORRECTIONS NOTED," "AMEND - RESUBMIT", or "REJECTED-RESUBMIT." Shop drawings marked digitally shall be distributed to CONTRACTOR, OWNER, and ENGINEER. The distribution of processed hard copies of shop drawings shall be as follows if hard copies are being submitted:
 - 1. Shop drawings marked "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED".
 - 1 copy returned to CONTRACTOR
 - 1 copy transmitted to the OWNER
 - 1 copy to remain with the ENGINEER
 - 2. Shop drawings marked "AMEND-RESUBMIT" or "REJECTED-RESUBMIT"

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SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

2 copies returned to CONTRACTOR
1 copy remain with the ENGINEER

K. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and Project number.
3. Contract identification.
4. The names of:
 - a. CONTRACTOR
 - b. Supplier
 - c. Manufacturer
5. Identification of the product, with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of the work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8" x 3" blank space for CONTRACTOR and OWNER's Representative and ENGINEER's stamps.
12. CONTRACTOR's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of Contract Documents.

1.08 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by OWNER's Representative and resubmit until approved.
- B. Shop Drawings and Product Data:
 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 2. Indicate any changes which have been made other than those requested by the OWNER's Representative.
- C. Samples: Submit new samples as required for initial submittal.

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SECTION 01340
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1.09 DISTRIBUTION

- A. Distribute reproduction of Shop Drawings and copies of Product Data, which carry the OWNER's Representative or ENGINEER's stamp of approval to:
1. Job site file.
 2. Record Documents file.
 3. Other affected CONTRACTORS.
 4. Subcontractors
 5. Supplier or Fabricator.
- B. Distribute samples which carry the OWNER's Representative or ENGINEER's stamp of approval as directed by the OWNER's Representative or ENGINEER.

1.10 OWNER'S REPRESENTATIVE OR ENGINEER DUTIES

- A. Review submittals with reasonable promptness and in accord with schedule.
- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.
- C. Return submittals to CONTRACTOR for distribution, or for resubmission.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION 01340

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 DEFINITION

- A. Specific quality control requirements for the Work are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.02 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will insure the OWNER that the quality of the work is in full accord with the Contract Documents.
- B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

1.03 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
1. The CONTRACTOR will arrange for an independent firm to perform inspections, testing, and other services specified in individual specification sections and as required by the ENGINEER. The CONTRACTOR shall bear the incurred costs for these inspections, testing and other services.
 2. Reports will be submitted to the ENGINEER in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
 3. The CONTRACTOR shall cooperate with independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 4. The CONTRACTOR shall notify ENGINEER 48 hours prior to the expected time for operations requiring inspection and laboratory testing services.
 5. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. The

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**SECTION 01400
QUALITY CONTROL**

CONTRACTOR shall bear all costs from such retesting at no additional cost to the OWNER.

6. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Inspection: The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION 01400

SECTION 01410
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. CONTRACTOR will employ and pay for the services of an Independent Testing laboratory to perform certain specified testing:
- B. CONTRACTOR shall pay for all testing including bacteriological testing.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

1.03 QUALIFICATION OF LABORATORY

- A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.
- B. Meet basic requirements of ASTM E-329.
- C. Authorized to operate in the state in which the project is located.
- D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of Natural Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.
- E. Testing equipment calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

1.04 LABORATORY DUTIES

- A. Cooperate with OWNER's Representative and CONTRACTOR; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify OWNER's Representative and CONTRACTOR of observed irregularities of deficiencies of work or products.
- D. Promptly submit written report of each test and inspection; one copy each to OWNER's Representative, OWNER, CONTRACTOR, and one copy to Record Document File. Each report shall include:

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1. Date issued.
 2. Project title, number and parcel number.
 3. Testing laboratory name, address and telephone number.
 4. Name and signature of laboratory inspector.
 5. Date and time of sampling or inspection.
 6. Record of temperature and weather conditions.
 7. Date of test.
 8. Identification of fill product and specification section.
 9. Location of sample or test in the project.
 10. Type of inspection or test.
 11. Results of tests and compliance with Contract Documents.
 12. Interpretation of test results, when requested by OWNER's Representative.
- E. Perform additional tests as required by the OWNER's Representative.

1.05 LIMITATION OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on requirements of Contract documents.
 2. Approve or accept any portion of the work.
 3. Perform any duties of the CONTRACTOR.

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes, which require control by the Testing Laboratory.
- D. Furnish copies of Products test reports as required.
- E. Furnish incidental labor and facilities:
1. To provide access to work to be tested.

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SECTION 01410
TESTING LABORATORY SERVICES

2. To obtain and handle samples at the project site or at the source of the product to be tested.
 3. To facilitate inspections and tests.
 4. For storage of test samples.
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price for all other work.

END OF SECTION 01410

**SECTION 01505
MOBILIZATION**PART 1 GENERAL1.01 GENERAL

- A. Mobilization shall include the obtaining of all permits; moving onto the permitted storage area of all equipment; temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the Work. Mobilization shall include the following principal items:
1. Moving on to the storage site of all CONTRACTOR's equipment required for first month operations.
 2. Installing temporary construction power, wiring, and lighting facilities.
 3. Developing construction water supply.
 4. Providing all on-site communication facilities, including telephones and radio pagers.
 5. Providing on-site sanitary facilities and potable water facilities.
 6. Arranging for and erection of CONTRACTOR's work, site access, and storage.
 7. Obtaining all required permits (including NOI and SWPPP permits as needed).
 8. Having all OSHA required notices and establishment of safety programs.
 9. Having the CONTRACTOR's superintendent at the job site full time.
 10. Submitting initial submittals.
 11. Audio-Visual preconstruction record as described in Section 01010.
 12. Project identification and signs.

PART 2 - PRODUCTS (Not Applicable)PART 3 - EXECUTION

3.01 PAYMENT FOR MOBILIZATION

- A. The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof will be approved for payment under the Contract until all mobilization items listed in Paragraph 1.01.A. above have been completed as specified.

END OF SECTION 01505

**SECTION 01510
TEMPORARY UTILITIES**

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. The types of utility services required for general temporary use at the project site include the following:
1. Water service (potable for certain uses)
 2. Storm sewer
 3. Sanitary sewer
 4. Electric power service
 5. Telephone service
- B. It shall be the CONTRACTOR's responsibility to provide equipment that is adequate for the performance of the Work under this Contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safely and efficiently performing the required Work, and shall be subject to inspection and approval by the OWNER's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction.

1.02 JOB CONDITIONS

- A. The CONTRACTOR shall, in conjunction with establishment of job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility; at earliest feasible time, and when acceptable to OWNER and ENGINEER change over from use of temporary utility service to permanent service.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 INSTALLATION OF POWER DISTRIBUTION SYSTEM

- A. The CONTRACTOR shall provide all necessary power required for its operations under the Contract and shall provide and maintain all temporary power lines required to perform the Work in a safe and satisfactory manner.

3.02 INSTALLATION OF LIGHTING

- A. All Work conducted at night or under conditions of deficient daylight shall be suitably lighted to insure proper Work and to afford adequate facilities for inspection and safe working conditions.

3.03 WATER SUPPLY

- A. General: The OWNER will furnish reasonable quantities of water required by the CONTRACTOR in performance of the WORK under the Contract; however, the CONTRACTOR shall provide all facilities necessary to convey the water from the OWNER-designated source to the points of use in accordance with the requirements of the Contract

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**SECTION 01510
TEMPORARY UTILITIES**

Document. The CONTRACTOR shall pay all permit and water charges.

- B. Potable Water: All drinking water on the site during construction shall be furnished by the CONTRACTOR and shall be bottled water or water furnished in acceptable metal dispensers. Notices shall be posted conspicuously throughout the site warning the CONTRACTOR's personnel that piped water may be contaminated.
- C. Water Connections: The CONTRACTOR shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the CONTRACTOR shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. The CONTRACTOR shall pay all permit and water charges.
- D. Removal of Water Connections: Before final acceptance of the Work on the project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the ENGINEER and to the agency owning the affected utility.

3.04 INSTALLATION OF SANITARY FACILITIES

- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wasted from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.

3.05 INSTALLATION OF FIRE PROTECTION

- A. The construction of the Work shall be connected with the CONTRACTOR's water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the Work, and responsible persons shall be designated and instructed in the operation of such fire apparatus so as to prevent or minimize the hazard of fire. The CONTRACTOR's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction.

3.06 INSTALLATION OF COMMUNICATIONS

- A. The CONTRACTOR shall provide and maintain at all times during the progress of the Work not less than one telephone in good working order, at its own field construction office, at or near the site of the Work included in the Contract. Each such telephone shall be connected to an established exchange for toll service and with all other telephones utilized by the CONTRACTOR.
- B. The CONTRACTOR shall permit the ENGINEER, the OWNER, or their authorized

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representatives or employees free and unlimited use of said telephone facilities for all calls that do not involve extended long distance charges.

3.07 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization.

END OF SECTION 01510

**SECTION 01530
PROTECTION OF EXISTING FACILITIES**

PART 1 - GENERAL

1.01 GENERAL

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. The CONTRACTOR shall verify the exact locations and depths of all utilities shown and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's work. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the ENGINEER.
- C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.02 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the ENGINEER that the OWNER has secured authority from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in the General Conditions of the Contract.

1.03 PROTECTION OF STREET OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey markers or points disturbed by the CONTRACTOR shall be accurately restored after all street or roadway resurfacing has been completed.

1.04 RESTORATION OF PAVEMENT

- A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have

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been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement OWNER. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

- B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements. Temporary resurfacing activities, materials, and removal of temporary asphalt shall be included under Maintenance of Traffic and no additional payment shall be made.
- C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Properties: Wherever sidewalks or private properties and driveways have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or driveways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or driveways until the final restoration thereof has been made. The CONTRACTOR shall restore all private properties within thirty (30) days after a complaint is received by the OWNER.

1.05 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The CONTRACTOR shall protect all underground utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Utilities to be Moved: In the case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the ENGINEER and the OWNER of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or

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PROTECTION OF EXISTING FACILITIES**

improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

- D. **OWNER's Right of Access:** The right is reserved to the OWNER and to the OWNERS of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.
- E. **Underground Utilities Indicated:** Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR at no cost to the OWNER.
- F. **Underground Utilities Not Indicated:** In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in these Contract Documents.
- G. **Additional Work:** All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the work which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of the Contract Documents.
- H. **Approval of Repairs:** All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement OWNER and the ENGINEER before being concealed by backfill or other work.
- I. **Maintaining in Service:** All oil and gasoline pipelines;, power, telephone, or the communication cable ducts; gas and water mains; irrigation lines; sewer lines; storm drain lines; poles, and overhead power and communication wires encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.
- J. **Existing Water Services and Water Meters:** CONTRACTOR shall protect and provide temporary support for existing water services and water meters. Any water service or water meter, including components of the water meter as part of City's responsibility, damaged by the CONTRACTOR, shall be replaced at the CONTRACTOR's expense, with a new water service and/or water meter complete with new water main tap.

1.06 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. **General:** The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project

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limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

- B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material. There shall be no additional compensation for tree that require trimming due to damage by the CONTRACTOR's operation.
- C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at CONTRACTOR's own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the CONTRACTOR shall pay to the OWNER of said tree a compensatory payment acceptable to the tree OWNER, subject to the approval of the jurisdictional agency or OWNER. The size of the trees shall comply with local ordinances.

1.07 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the respective authorities representing the OWNERS or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said OWNERS or agencies can be present during such work if they so desire. The CONTRACTOR shall also notify the Sunshine State One Call Center 1-800-432-4770 at least 2 days, but no more than 14 days, prior to such excavation.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 BARRIERS

- A. Materials to CONTRACTOR's option, as appropriate to serve required purpose.

PART 3 - EXECUTION

3.01 GENERAL

- A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.

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- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by progress of construction.

3.02 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants adjacent to work areas.
- B. Consult with OWNER's Representative and remove agreed-on roots and branches which interfere with work.
- C. Employ qualified tree trimming technician to remove branches, and to treat cuts.
- D. Protect root zones of trees and plants with the following measures:
 - 1. Do not allow vehicular traffic and parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
 - 5. Provide temporary tree protection in accordance with City/County requirements.
- D. Carefully supervise all work to prevent damage.
- E. Replace trees and plants which are damaged or destroyed due to work operations under this contract.

3.03 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by OWNER's Representative.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

3.04 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION 01530

**SECTION 01550
SITE ACCESS AND STORAGE**

PART 1 - GENERAL

1.01 HIGHWAY LIMITATIONS:

- A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.02 TEMPORARY CROSSINGS:

- A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 300 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time.
- B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the ENGINEER prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- C. Street Use: Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- D. Traffic Control: For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of Miami-Dade County and the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).

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The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of the Florida Department of Transportation.

The CONTRACTOR shall submit 3 copies of a traffic control plan to the ENGINEER for approval a minimum of 2 weeks prior to construction. The ENGINEER reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.

The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.

- E. Temporary Driveway Closure: The CONTRACTOR shall notify the OWNER or occupant (if not OWNER - occupied) of the closure of the driveways to be closed more than one eight-hour work day at least 3 working days prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the OWNER/occupant how long the work will take and when closure is to start. Total closure time shall not exceed 5 days.

1.03 CONTRACTOR'S WORK AND STORAGE AREA:

- A. The CONTRACTOR may elect to negotiate with OWNER to arrange for the use of a portion of a City of North Miami Beach owned property, adjacent to the WORK for its use during the term of the Contract as a storage and shop area for its construction operations relative to this Contract. The OWNER does not guarantee that a property or space will be made available to the CONTRACTOR.
- B. The CONTRACTOR shall make its own arrangements for off-site storage or shop areas necessary for the proper execution of the WORK. The CONTRACTOR shall not be allowed to store materials or equipment on the project site outside of working hours.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK meeting the following conditions:
1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
 2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.

**SECTION 01550
SITE ACCESS AND STORAGE**

3. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.
4. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.
5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.04 PARKING:

A. The CONTRACTOR shall:

1. Provide temporary parking areas in storage area as follows:
 - 1 space for the ENGINEER
 - 1 space designated for the handicapped
2. When space on the storage site is not available, the CONTRACTOR shall make 2 additional spaces available for the OWNER'S use.
3. The CONTRACTOR shall direct its employees to park in designated areas secured by the CONTRACTOR.
4. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of Mobilization and of all other work.

END OF SECTION 01550

**SECTION 01560
TEMPORARY CONTROLS**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction, as necessary, to provide controls over environmental conditions at the construction site and related area under CONTRACTOR's control; remove physical evidence of temporary facilities at completion of work.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 NOISE CONTROL

- A. Provide all necessary requirements for noise control during the construction period.
 - 1. Noise procedures shall conform to all applicable OSHA requirements and local ordinances having jurisdiction on the work.
 - 2. Noise levels during nighttime hours shall not exceed 55 db or local ordinance level whichever is more restrictive, when measured at the property line of a residence.

1.04 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.05 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the project, the site, or adjoining properties. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff.
- B. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface runoff and water.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

1.06 PEST CONTROL

- A. Provide pest control as necessary to prevent infestation of construction or storage area.
 - 1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

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**SECTION 01560
TEMPORARY CONTROLS**

2. Should the use of pesticides be considered necessary, submit an informational copy of the proposed program to OWNER with a copy to OWNER's Representative. Clearly indicate:
 - a. The area or areas to be treated.
 - b. The pesticide to be used, with a copy of the manufacturer's printed instructions.
 - c. The pollution preventative measures to be employed.
- B. The use of any pesticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.07 RODENT CONTROL

- A. Provide rodent control as necessary to prevent infestation of construction or storage area.
 1. Employ methods and use materials, which will not adversely affect conditions at the site or on adjoining properties
 2. Should the use of rodenticide be considered necessary, submit an informational copy of the proposed program to OWNER with a copy to OWNER's Representative. Clearly indicate:
 - a. The area or areas to be treated.
 - b. The rodenticide to be used, with a copy of the manufacturer's printed instructions.
 - c. The pollution preventative measures to be employed.
- B. The use of any rodenticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.08 DEBRIS CONTROL

- A. Maintain all areas under CONTRACTOR's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking area, or along access roads and haul routes.
 1. Provide containers for deposit of debris as specified in Section 01710 - Cleaning.
 2. Prohibit overloading of trucks to prevent spillage on access and haul routes.
 3. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collections and disposal of debris as specified in Section 01710 - Cleaning.
- D. Provide additional collections and disposal of debris whenever the periodic schedule is inadequate to prevent accumulation.

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SECTION 01560
TEMPORARY CONTROLS

1.09 POLLUTION CONTROL

- A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids. Excavate and dispose of any contaminated earth off-site and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
- D. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams or in sanitary or storm sewers.
- E. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.10 EROSION CONTROL

- A. Plan and execute construction and earthwork, by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas to prevent erosion and sedimentation.
 - 1. Hold the areas of bare soil exposed at one time to a minimum.
 - 2. Provide temporary control measures such as berms, dikes and drains.
 - 3. Provide silt screens as required preventing surface water contamination.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays, which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.
- D. All erosion control procedures must comply with the National Pollutant Discharge Elimination System (NPDES). The CONTRACTOR shall develop and implement a Stormwater Pollution Prevention Plan as outlined by NPDES and obtain all applicable regulatory permits and approvals..

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01560

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**SECTION 01570
TRAFFIC REGULATIONS****PART 1 - GENERAL****1.01 REQUIREMENTS INCLUDED**

- A. Provide, operate and maintain equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at site entrances, on-site access roads, and parking areas following all requirements and stipulations of the FDOT Standard Plans for Road Construction Section 102, Latest Edition.
- B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or specified conditions.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals or signs required to direct and maintain an orderly flow of traffic in all areas under CONTRACTOR's control, or affected by CONTRACTOR's operations.

1.04 FLAGPERSON

- A. Provide qualified and suitably equipped flag-person when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.05 FLARES AND LIGHTS

- A. Provide flares and lights during periods of low visibility:
 - 1. To clearly delineate traffic lanes and to guide traffic.
 - 2. For use of flag-person in directing traffic.
- B. Provide illumination of critical traffic and parking areas.
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.06 HAUL ROUTES

- A. Consult with OWNER and governing authorities, establish public thoroughfares which will be used as haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to expedite traffic flow, to minimize interference with normal public traffic.

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**SECTION 01570
TRAFFIC REGULATIONS**

1.07 TEMPORARY RESURFACING

- A. Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements. All temporary pavement shall conform to the requirements of the affected pavement OWNER. Temporary resurfacing activities, including labor, equipment, materials, and removal of temporary asphalt shall be paid under Maintenance of Traffic and no additional payment shall be made.

1.08 EMERGENCY ACCESS

- A. In order to provide protection to the workers and residents, the CONTRACTOR shall maintain emergency access to all adjacent properties at all times during construction. If a road is required to be closed to vehicular traffic and the distance of the closure exceeds 150 feet between stabilized surfaces, or prevents access to properties for a distance that exceeds 150 feet, the CONTRACTOR shall provide a 10 foot wide stabilized access way on one side of the trench capable of supporting a Fire Truck. CONTRACTOR shall also provide stabilized access ways across the trench or unstabilized area a minimum of 6 feet in width at a spacing not to exceed 100 feet capable of supporting foot traffic. These access ways shall be protected and delineated with lighted barricades or other such devices as approved by the regulatory agency. Both ends of the emergency access way shall be blocked in accordance with the MOT permit approved by Miami-Dade County with signage indicating that this access way is to be used by emergency vehicles only.
- B. No trenches or holes shall be left open after working hours. In the event a trench must be left open after hours, it shall be done so only with the express written permission from the ENGINEER, and it shall be the CONTRACTOR's responsibility to provide proper protection of the open trench or hole as required by the regulatory agency. In addition the CONTRACTOR shall provide a security guard at the site whenever the CONTRACTOR's personnel are not present, 24 hours per day/ 7 days per week. It shall be the Security Guard's responsibility to protect the open trench or hole from trespassers and to direct emergency personnel on site. The Security Guard shall not have any other responsibilities such as operation pumps or equipment but shall be dedicated to protecting the trench or open hole. The Security Guard shall be equipped with a wireless telephone capable of calling 911 to report an emergency and shall keep that telephone on their person at all times. In addition to this provision the contractor shall maintain trench safety and comply with current OSHA regulations and the Trench Safety Act. The CONTRACTOR shall maintain and keep all safety barricades, signage, flashers, and detours, in operation condition. A copy of the approved MOT plans, and details, shall be on site at all times.
- C. Measurement and payment for security guard services shall be included in the utility pipe installation unit price. Measurement for temporary emergency access ways will be paid for under the specified line item at the unit price described in the bid schedule.

PART 2 - PRODUCTS (Not Applicable)

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**SECTION 01570
TRAFFIC REGULATIONS**

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement and payment for work under the section; it shall be included in the lump sum price bid for Maintenance of Traffic.

END OF SECTION 01570

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SECTION 01590
STORAGE FACILITIES AND SHEDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain storage facilities and work sheds needed for construction.
- B. At completion of work, remove field storage facilities, sheds and contents.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 OTHER REQUIREMENTS

- A. Prior to installation of sheds, consult the OWNER's Representative on location, access and related facilities.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with requirements of applicable Federal, State, and Local codes and regulations.

1.05 REQUIREMENTS FOR FACILITIES

- A. Construction:
 - 1. Structurally sound, weather tight, with floors raised above ground.
 - 2. Temperature transmission resistance: Compatible with occupancy and storage requirements.
- B. Storage Sheds:
 - 1. To requirements of various trades.
 - 2. Dimensions: Adequate for storage and handling of products.
 - 3. Ventilation: Comply with specified and code requirements for products stored.
 - 4. Heating and Cooling: Adequate to maintain temperatures specified in respective sections for the products stored.

1.06 USE OF EXISTING FACILITIES

- A. Existing facilities at the site shall not be used for field offices or for storage.

1.07 USE OF PERMANENT FACILITIES

- A. Permanent facilities shall not be used for field offices or for storage.

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SECTION 01590
STORAGE FACILITIES AND SHEDS

PART 2 - PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

- A. May be new or used, but must be serviceable, adequate for required purpose, and must not violate applicable codes or regulations.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Obtain all required site, electrical and any other related permits.
- B. Fill and grade sites for temporary structures to provide surface drainage.

3.02 INSTALLATION

- A. Construct temporary storage sheds on proper foundations, provide connections for utility services.
- B. Secure portable or mobile buildings when used.
- C. Provide steps and landings at entrance doors.
- D. Mount thermometer at convenient outside location, not in direct sunlight.

3.03 MAINTENANCE AND CLEANING

- A. Provide periodic maintenance and weekly cleaning for temporary structures, furnishings, equipment and services.

3.04 REMOVAL

- A. Remove storage sheds when no longer needed.
- B. Remove foundations and debris.
- C. Grade site to required elevations and clean the areas.

3.05 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization.

END OF SECTION 01590

**SECTION 01600
MATERIAL AND EQUIPMENT**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into the work:
1. Conform to applicable specifications and standards.
 2. Comply with size, make, type and quality specified, or as specifically approved in writing by the OWNER's Representative.
 3. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufactured like parts of duplicate units to standard sizes and gauges to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to OWNER's Representative. Maintain one set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with OWNER's Representative for further instructions.
 2. Do not proceed with work without clear instructions.

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**SECTION 01600
MATERIAL AND EQUIPMENT**

- C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site. Products shall be delivered to the job site on an "as needed" basis and in undamaged condition, in manufacturers' original containers or packaging, with identifying labels intact with legible markings.
- B. Pipe and materials shall not be strung out along installation routes for longer than what will be completed in the day of work unless otherwise approved by the OWNER.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.
- D. Coordinate deliveries to avoid conflict with:
1. Work.
 2. Conditions at site.
 3. Work of other contractors or OWNER.
 4. Limitations of storage space.
 5. Availability of equipment and personnel for handling products.
 6. OWNER's use of premises.
- E. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.
- F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
- G. Immediately on delivery, inspect shipment to assure:
1. Product complies with requirements of Contract Documents and reviewed submittals.
 2. Quantities are correct.
 3. Containers and packages are intact, labels are legible.
 4. Products are properly protected and undamaged.
- H. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- I. Handle products by methods to prevent bending or overstressing.
- J. Lift heavy components only at designated lifting points.

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**SECTION 01600
MATERIAL AND EQUIPMENT**

1.05 STORAGE

- A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
1. Store products subject to damage by the elements in weather-tight enclosures.
 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 3. Store unpacked products on shelves, in bins or in neat piles, accessible for inspection.
- B. Exterior Storage
1. Provide substantial platforms, blocking or skids to support fabricating products above ground, prevent soiling or staining.
 2. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
 3. Store loose granular materials on solid surface such as paved areas or provide plywood or sheet materials to prevent mixing with foreign matter.
 4. Provide surface drainage to prevent flow or ponding of rainwater.
 5. Prevent mixing of refuse or chemically injurious materials or liquids.

1.06 MAINTENANCE OF STORAGE

- A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:
1. State of storage facilities is adequate to provide required conditions.
 2. Required environmental conditions are maintained on continuing basis.
 3. Surfaces of products exposed to elements are not adversely affected.
 - a. Any weathering of products, coatings and finishes is not acceptable under requirements of Contract Documents.
- B. Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.

1.07 PROTECTION AFTER INSTALLATION

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.

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**SECTION 01600
MATERIAL AND EQUIPMENT**

- C. Provide coverings to protect finished surfaces from damage.
1. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.
 2. Protect finished floors and stairs from dirt and damage.
 - a. In areas subject to foot traffic, secure heavy paper, sheet goods, or other materials in place.
 - b. For movement of heavy products, lay planking or similar materials in place.
 - c. Cover wall and floor surfaces in the vicinity of construction personnel activities and all finished surfaces used by construction personnel.
- D. Waterproofed surfaces
1. Prohibit use of surfaces for traffic of any kind, and for storage of any products.
 2. When some activity must take place in order to carry out the Contract, obtain recommendations of installer for protection of surface.
 - a. Install recommended protection; remove on completion of that activity.
 - b. Restrict use of adjacent unprotected areas.
- E. Lawns and landscaping
1. Prohibit traffic of any kind across planted lawn and landscaped areas.
- F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

1.08 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Limitations on substitutions.
1. During bidding period, instructions to Bidders govern times for submitting requests for substitutions under requirements specified in this section.
 2. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by Subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.
 3. Substitute products shall not be ordered or installed without written acceptance.
 4. Only one (1) request for substitution for each product will be considered. When substitution is not accepted, provide specified product.

**SECTION 01600
MATERIAL AND EQUIPMENT**

B. Products List

1. Within 15 days after Contract Date, submit to ENGINEER a complete list of major products proposed to be used, with the name of the manufacturer and the installing Subcontractor.

C. CONTRACTOR's Options

1. For products specified only by reference standard, select any product meeting that standard.
2. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named or approved equal, which complies with the Specifications.
3. For products specified by naming one or more products or manufacturers and "or approved equal," CONTRACTOR must submit a request as for substitutions for any product or manufacturer not specifically named.

D. Substitutions

1. For a period of 15 days after Contract Date, ENGINEER will consider written request from CONTRACTOR for substitution of products.
2. Identify product by Specification Section and Article Numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.
3. List similar projects using product, dates of installation, and names of ENGINEER and OWNER.
4. List availability of maintenance services and replacement materials.
5. Submit a separate request for each product, supported with complete data, with drawings and samples as appropriate, including:
 - a. Comparison of the qualities and performance of the proposed substitution with that specified.
 - b. Changes required in other elements of the work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the product specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance services, and source of replacement materials.
6. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.

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MATERIAL AND EQUIPMENT**

7. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
 8. The ENGINEER may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute.
 9. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
 10. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
 11. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR work, the work of its Subcontractors and of other Contractors, and shall effect such changes without cost to the OWNER.
- E. CONTRACTOR's Representation:
1. A request for a substitution constitutes a representation that CONTRACTOR:
 - a. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
 - b. Will provide the same guarantees or bonds for the substitution as for the product specified.
 - c. Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
 - d. Waives all claims for additional costs, under CONTRACTOR'S responsibility, which may subsequently become apparent.
- F. Submittal Procedures
1. Submit three (3) copies of request for substitution.
 2. ENGINEER will review requests for substitutions with reasonable promptness, and notify CONTRACTOR, in writing, of the decision to accept or reject the requested substitution.
 3. During the bidding period, ENGINEER will record acceptable substitutions in Addenda.
 4. After award of Contract, ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject requested substitutions in Addenda.

**SECTION 01600
MATERIAL AND EQUIPMENT**

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01600

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**SECTION 01700
CONTRACT CLOSEOUT**

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the work.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
B. Conditions of the Contract.

1.03 SUBSTANTIAL COMPLETION

- A. When CONTRACTOR considers the work is substantially complete, CONTRACTOR shall submit to OWNER's Representative:
1. A written notice that the work is substantially complete.
 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, OWNER's Representative and ENGINEER will make an inspection to determine the status of completion.
- C. Should OWNER's Representative or ENGINEER determine that the work is not substantially complete:
1. OWNER's Representative will promptly notify the CONTRACTOR in writing, giving the reasons therefore.
 2. CONTRACTOR shall remedy the deficiencies in the work, and send a second written notice of substantial completion to the OWNER's Representative.
 3. OWNER's Representative and ENGINEER will re-inspect the work.
- D. When OWNER's Representative and ENGINEER concur that the work is substantially complete, OWNER's Representative will:
1. Prepare a Certificate of Substantial Completion accompanied by CONTRACTOR's list of items to be completed or corrected, as verified and amended by the OWNER's Representative.
- A. Submit the Certificate to the OWNER and the CONTRACTOR for their written acceptance of the responsibilities assigned to them in the Certificate.

1.04 FINAL INSPECTION

- A. CONTRACTOR shall address all deficient items noted during substantial completion per the latest version of the Construction Schedule. Failure to maintain construction schedule shall result in the assessment of liquidated damages penalties to contract value by OWNER as stipulated by OWNER during pre-Bid meeting.

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**SECTION 01700
CONTRACT CLOSEOUT**

- B. When CONTRACTOR considers the work is complete, CONTRACTOR shall submit written certification that:
1. Contract Documents have been reviewed.
 2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in the presence of the OWNER's Representative and are operational.
 5. Work is completed and ready for final inspection.
- B. OWNER's Representative and ENGINEER will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should OWNER's Representative and ENGINEER consider that the work is incomplete and defective:
1. OWNER's Representative will promptly notify the CONTRACTOR, in writing, listing the incomplete or defective work.
 2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send a second written certification to OWNER's Representative that the work is complete.
 3. OWNER's Representative and ENGINEER will re-inspect the work.
- D. When the OWNER's Representative finds that the work is acceptable under the Contract Documents, OWNER's Representative shall request the CONTRACTOR to make closeout submittals.

1.05 REINSPECTION FEES

- A. Should OWNER's Representative perform re-inspections due to failure of the work to comply with the claims of status of completion made by the CONTRACTOR:
1. OWNER will compensate OWNER's Representative and ENGINEER for such additional services.
 2. OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.06 CONTRACTOR'S CLOSEOUT SUBMITTAL TO OWNER

- A. Evidence of compliance with requirements of governing authorities.
1. Certificates of Inspection.
 2. Permit closeouts/certification letters

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**SECTION 01700
CONTRACT CLOSEOUT**

- B. Project Record Documents: To requirements of Section 01720.
 - C. Operation and Maintenance manuals for installed equipment.
 - D. Final copies of all ENGINEER approved shop drawing submittals and testing reports.
 - E. Guarantees and Bonds: To requirements of Section 01740.
 - F. Evidence of Payment and Release of Liens: To requirements of General and Supplementary General Conditions.
 - G. Certificate of Insurance for Products and Completed Operations.
 - H. Evidence of CONTRACTOR training OWNER's staff on use of installed equipment.
 - I. Evidence of CONTRACTOR performing final cleaning to the requirements of Section 01710.
- 1.07 FINAL ADJUSTMENT OF ACCOUNTS
- A. Submit a final statement of accounting to OWNER.
 - B. Statement shall reflect all adjustments to the Contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected work.
 - e. Penalties and Bonuses.
 - f. Deductions for liquidated damages.
 - g. Deductions for re-inspection payments.
 - h. Other adjustments.
 - 3. Total Contract Sum, as required.
 - 4. Previous payments.
 - 5. Sum remaining due.
 - C. OWNER's Representative will prepare a final Change Order, reflecting approved adjustments to the Contract Sum, which were not previously made by Change Orders.

1.08 FINAL APPLICATION FOR PAYMENT

- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.
- B. OWNER may elect to withhold final payment to CONTRACTOR until all closeout documents have been submitted to and approved by OWNER and ENGINEER. Failure to uphold

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**SECTION 01700
CONTRACT CLOSEOUT**

Construction Schedule inclusive of inspection and closeout activities will result in the assessment of liquidated damages penalties to contract value by OWNER as stipulated by OWNER during pre-Bid meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01700

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**SECTION 01710
CLEANING**PART 1 - GENERAL1.01 REQUIREMENTS INCLUDED

- A. Execute cleaning, during progress of the Work, and at completion of the Work, as required by the General Conditions.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 - PRODUCTS2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health, property, or the environment and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by cleaning material manufacturer.

PART 3 - EXECUTION3.01 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste material, rubbish and windblown debris, resulting from Construction Work.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.
- D. The OWNER's Representative reserves the right to direct the CONTRACTOR to remove waste materials, after which waste shall be removed within 24 hours.
- E. CONTRACTOR shall maintain on site a mechanical sweeping device for removing debris from existing, temporary and permanent pavement.

3.02 DUST CONTROL

- A. Perform operations so that dust and other contaminants resulting from Construction Work operations will not cause any damages or maintenance problems to adjacent properties.

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**SECTION 01710
CLEANING**

- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.03 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Polish glossy surfaces to a clear shine.
- D. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- E. Prior to final completion, or OWNER occupancy, CONTRACTOR shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify the entire work is clean.
- F. All storage and staging areas shall be cleaned and returned to prior conditions or better as per requirements of this section.

3.04 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01710

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site of the OWNER a record copy of:
1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Approved Shop Drawings, Product Data, Operation Manuals and Samples.
 6. Field Test Records.
 7. Red-line as-builts.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR's field office apart from documents used for construction.
1. Provide files and racks for storage of documents.
 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by OWNER's Representative.

1.04 MARKING DEVICES

- A. Provide felt tip-marking pens for recording information in the color code designated by OWNER's Representative.

1.05 RECORDING

- A. Label each document, "PROJECT RECORD" in neat, large printed letters, or by rubber stamp.

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**SECTION 01720
PROJECT RECORD DOCUMENTS**

- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction: (in AutoCAD 2013 format or approved equal)
 - 1. Horizontal (NAD 83/2011) and vertical (NGVD 29) locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by Field Order or by Change Order.
 - 5. Details not on original Contract Drawings.
- D. Specifications and Addenda; legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each produce and item of equipment actually installed.
 - 2. Changes made by field order or by Change Order.

1.06 AS-BUILT PLANS (AS-BUILT DRAWINGS)

- A. The CONTRACTOR shall maintain a full size (24"X36") field drawings and electronically in AutoCAD 2013 format (or approved equal) to reflect the "as-built" items of work as the work progresses. Upon completion of the work, the CONTRACTOR shall prepare a record set of "as-built" drawings on full-size, reproducible material. One set of full size design drawings on reproducible material will be furnished to the CONTRACTOR by the design ENGINEER at the current square foot price. No separate payment will be made for those "as-built" drawings.
- B. The cost of maintaining record changes, and preparation of the As-Built Drawings shall be included in the unit prices bid for the affected items. Upon completion of the work, the CONTRACTOR shall furnish the ENGINEER the reproducible "as-built" drawings. The completed As-Built Drawings shall be prepared by a licensed Professional Land Surveyor registered in the State of Florida and shall be signed, sealed, and dated by said Professional Land Surveyor prior to being delivered to the ENGINEER for review at least 48 hours prior to final inspection of the work. The Final Inspection will not be conducted unless the As-Built Drawings are in the possession of and determined to be satisfactory by the ENGINEER.
- C. The completed (or final) As-Built Drawings shall be certified by a licensed Professional Land Surveyor registered in the State of Florida at the expense of the Contractor. This certification shall consist of the surveyor's embossed seal bearing registration number, the surveyor's signature and date on each sheet of the drawing set for all printed copies of the final As-Built Drawings. Certification shall consist of a digital signature certified by a trusted third party provider and the Professional Land Surveyor's registration number on each sheet of the drawing set for electronic copies of the final As-Built Drawings. In addition, the key sheet, cover sheet or first sheet of the plans set shall list the business address and telephone number of the surveyor.

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**SECTION 01720
PROJECT RECORD DOCUMENTS**

- D. CONTRACTOR shall provide 6 printed sets of final As-Built Drawings (24"x36"), one set electronic set as a PDF and one electronic set in AutoCAD. The AutoCAD files shall be spatially accurate according to the design drawing datum. Hardcopies and PDFs shall be digitally signed and sealed by the licensed Professional Land Surveyor who completed the documents.
- E. Representative items of work that should be shown on the As-Built Drawings and Red-Lines as verified, changed or added are shown below:
1. Paving, Grading, and Drainage Plans:
 - a. Edge of new curb and sidewalk ramps installed if different from plans.
 - b. Accurate representation of site grading and flow patterns.
 - c. Accurate representation of drainage system.
 2. Pavement Marking and Signing Plans:
 - a. Sign location where installed if different from plans.
 - b. Accurate representation of striping and other roadway markings.
 3. Water Main Plans:
 - a. Location (NAD 83/2011 horizontal) of all pipe lines, fittings, valves and appurtenances shown in plan view with labeled reference to horizontal control points.
 - b. Elevations (NGVD 29 vertical) of all fittings, valves, appurtenances, and along the water main at a maximum interval of 100 linear feet with corresponding finished surface elevation shown in profile view.
- F. As-built drawings shall include the following criteria at a minimum.
1. As-Built of water main lines shall include the following information:
 - a. Top of pipe elevations and horizontal location every 100 LF.
 - b. Locations and elevations of all fittings include bends, tees, gate valves, double detector check valves, fire hydrants, service saddles, automatic blow-off changes in alignment, automatic blow-offs, etc.
 - c. All tie-ins to existing lines shall be as-built.
 - d. The ends of all water services at the buildings, homes, property lines, and meters shall be as-built or where the water service terminates.
 - e. Limits of abandoned water mains, including caps and hatching of abandoned and/or grouted lines.

**SECTION 01720
PROJECT RECORD DOCUMENTS**

- f. Top of pipe where line crosses all other facilities (drainage, telephone, cable, electrical, etc.) and clearance from facility.
2. As-Builts for the edge of pavement, curb and sidewalk locations shall include horizontal locations and shall indicate all deviations from the design plans.
3. As-Builts for the grading shall include sufficient spot elevations to confirm accessibility and compliance of all sidewalks and roadway crossings within the project area with the Americans with Disabilities Act.
4. All rock As-Builts for roadways and swale areas shall consist of the following:
 - a. Rock elevations at all high and low points, and at enough intermediate points to confirm slope consistency and every 50' of roadways.
 - b. Rock As-Builts shall be taken at all locations where there is a finish grade elevation shown on the design plans.
 - c. All catch basin and maintenance access structure (manhole) rim elevations shall be shown.
 - d. Elevations around island areas will also be required.
 - e. As-Builts shall be taken on all paved and unpaved swales prior to placement of asphalt and/or topsoil/sod, at enough intermediate points to confirm slope consistency and conformance to the plan details.

Note: Rock As-Builts are required prior to paving. ENGINEER shall review rock As-Builts within five days of receipt.

- F. As-built drawings shall be signed and sealed by a Professional Surveyor and Mapper licensed in Florida prior to final submittal to ENGINEER and OWNER, or to regulatory agencies for permit closeouts/certifications.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION 01720

**SECTION 01740
GUARANTEES AND BONDS**PART 1 - GENERAL1.01 REQUIREMENTS INCLUDED

- A. Compile specified guarantees and bonds.
- B. Compile specified services and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to OWNER's Representative for review and transmittal to OWNER.

1.02 RELATED REQUIREMENTS

- A. All applicable sections of the Specifications.
- B. Conditions of the Contract.

1.03 SUBMITTAL REQUIREMENTS

- A. Assemble guarantees, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and Subcontractors.
- B. Number of original signed copies required: Three each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning warranty, bond or service and maintenance contract.
 - 5. Duration of warranty, bond or service maintenance contract.
 - 6. Provide information for OWNER's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances, which might affect the validity of warranty or bond.
 - 7. CONTRACTOR, name of responsible principal, address and telephone number.

1.04 FORM OF SUBMITTALS

- A. Prepare in triplicate packets.

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**SECTION 01740
GUARANTEES AND BONDS**

B. Format:

1. Size 8-1/2 in. x 11 in., punch sheets for standard 3-ring binder. Fold larger sheets to fit into binders.
2. Cover: Identify each packet with typed or printed title "GUARANTEES AND BONDS". List:
 - a. Title of Project.
 - b. Name of CONTRACTOR.

C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.05 TIME OF SUBMITTALS

- A. Make submittals within ten days after Date of Substantial Completion, prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of guarantee period.

1.06 SUBMITTALS REQUIRED

- A. Submit guarantees, bonds, and service and maintenance contracts for periods other than one year as specified in respective specific sections of the Specifications, (if applicable).
- B. The General CONTRACTOR shall submit on the entire Project the one-year guarantee as per AIA, Document A-201 General Conditions, (except for certain portions of the work, where longer periods of time are specified in the specific applicable sections of the Specifications).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 01740

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SECTION 02010
SUB-SURFACE INVESTIGATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

- A. If exploratory sub-surface test holes investigation is provided in the drawings, they are provided as a reference only. Provide all labor, materials, necessary equipment and services to complete the exploratory sub-surface test hole investigation work for existing underground utilities, as indicated on the drawings, as specified herein or both.
- B. The exploratory sub-surface investigation for conditions of the project site is the sole responsibility of the CONTRACTOR. In preparing the Bid, the CONTRACTOR shall make all exploratory sub-surface or surface investigations necessary to provide proper background and knowledge to determine the nature and extent of work required. Should the CONTRACTOR find actual conditions that differ from exploration findings, the CONTRACTOR will not be entitled to additional payments.
- C. Soil boring information will be provided. CONTRACTOR must be aware that soil conditions may vary throughout the project. The CONTRACTOR is responsible for investigation and satisfying themselves as to the nature and extent of soil and (underground) water conditions on the project sites.
- D. OWNER or OWNER's Representative makes no warranties or guarantees concerning the nature of materials to be encountered on the site.

1.03 RELATED WORK

- A. Section 02110 - Clearing.
- B. Section 02200 - Earthwork.
- C. Section 02609 – Water Distribution System.
- D. All applicable sections under Divisions 1, 2, 3, and 4.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION 02010

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**SECTION 02050
DEMOLITION****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, necessary equipment and services to complete the site demolition work, as indicated on the drawings, as specified herein or both.

1.03 RELATED WORK

- A. Section 02200 - Earthwork.
- B. All applicable Sections under Divisions 1, 2, and 3.

1.04 QUALITY ASSURANCE

- A. CONTRACTOR Qualifications: Minimum of five years of experience in demolition of comparable nature.
- B. Requirements of All Applicable Regulatory Agencies:
 - 1. All applicable Building Codes and other Public Agencies having jurisdiction upon the work.

1.05 SUBMITTALS

- A. Permits and notices authorizing demolition.
- B. Certificates of severance of utility services.
- C. Permit for transport and disposal of debris.
- D. Demolition procedures and operational sequence for review and acceptance by ENGINEER.

1.06 JOB CONDITIONS

- A. Existing Conditions
 - 1. The demolition work shall be done as indicated on the construction plans.
 - 2. Remove all demolition debris from the site the same day the work is performed. Leave no deposits of demolished material on site overnight.
 - 3. Structural demolition, excavation, backfill and compaction as indicated in drawings.
- B. Protection:
 - 1. Erect barriers, fences, guardrails, enclosures, and shoring to protect personnel,

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**SECTION 02050
DEMOLITION**

structures, and utilities remaining intact.

2. Protect designated trees and plants from damages.
3. Use all means necessary to protect existing objects and vegetation designated to remain, and, in the event of damage, immediately make all repairs, replacements and dressings to damaged plants necessary, to the approval of the ENGINEER at no additional cost to the OWNER.

C. Maintaining Traffic:

1. Ensure minimum interference with roads, streets, driveways, sidewalks, and adjacent facilities.
2. Do not close or obstruct streets and sidewalks without written approval from the ENGINEER, OWNER, and other regulating agencies with jurisdiction in the Project area.
3. If required by governing authorities, provide alternate routes around closed or obstructed traffic ways.

D. Dust Control:

1. Use all means necessary for preventing dust from demolition operations from being a nuisance to adjacent property owners. Methods used for dust control are subject to approval by the ENGINEER prior to use.

E. Burning:

1. On-site burning will not be permitted.

1.07 GENERAL ITEMS

- A. Scope of work shall comprise all labor, materials, necessary equipment and services to complete the demolition and clearing work, as indicated on the contract plans, and as specified herein.
- B. The CONTRACTOR shall provide references to the OWNER to demonstrate that they are well versed in demolition of a comparable nature. Current occupational licenses held by CONTRACTOR shall be submitted to OWNER.
- C. The CONTRACTOR shall be responsible for adherence to all applicable codes of all regulatory agencies having jurisdiction upon the works.

1.08 PRE-DEMOLITION MEETING

- A. A meeting shall be held with the OWNER or OWNER's representative at the jobsite to describe intended demolition and cleaning procedures and schedules. This shall include identifying access routes for bringing necessary equipment in, removing debris from site, and designation of any trees, drives or other items to remain.

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**SECTION 02050
DEMOLITION****1.09 EXISTING CONDITIONS**

- A. The CONTRACTOR shall become thoroughly familiar with the site, and of existing utilities and their connections, and note all conditions, which may influence the work.
- B. By submitting a bid, the CONTRACTOR affirms that CONTRACTOR has carefully examined the site and all conditions affecting work. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

PART 2 - PRODUCTS (Not Applicable)**PART 3 - EXECUTION****3.01 INSPECTION**

- A. CONTRACTOR shall verify that structures to be demolished are discontinued in use and ready for removal.
- B. CONTRACTOR shall not commence work until all conditions and requirements of all applicable public agencies are complied with.

3.02 PREPARATION

- A. Arrange for, and verify termination of utility services to include removing meters and capping lines.
- B. Notification:
 - 1. Notify the OWNER at least three full working days prior to commencing the work of this Section.

3.03 CLARIFICATION

- A. The drawings do not purport to show all objects existing on the site.
- B. Before commencing the work of this Section, verify with the OWNER all objects to be removed and all objects to be preserved.

3.04 SCHEDULING

- A. Schedule all work in a careful manner with all necessary consideration for the public and the OWNER.
- B. Avoid interference with the use of, and passage to and from, adjacent facilities.

3.05 DISCONNECTION OF UTILITIES

- A. Before starting site operations, disconnect or arrange for the disconnection of all affected utility service.
 - 1. Arrange and pay for disconnecting, removing, capping, and plugging utility services. Disconnect and stub off. Notify affected utility company in advance and obtain approval before starting this work.

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**SECTION 02050
DEMOLITION**

2. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction.
3. Place markers to indicate location of disconnected services.

3.06 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. Maintain existing offsite utilities, keep in service, and protect against damage during demolition operations.
- B. Prevent movement or settlement of adjacent structures. Provide and place bracing or shoring and be responsible for safety and support of structures. Assume liability for such movement, settlement, damage, or injury.
- C. Cease operations and notify OWNER immediately if safety of adjacent structures appears to be endangered. Take precautions to properly support structures. Do not resume operations until safety is restored.
- D. Prevent movement, settlement, damage, or collapse of adjacent services, sidewalks, driveways and trees. Assume liability for such movement, settlement, or collapse. Promptly repair damage at no cost to the OWNER.
- E. Ensure safe passage of persons around areas of demolition.

3.07 MAINTAINING TRAFFIC

- A. Do not interfere with use of adjacent buildings and facilities. Maintain free and safe passage to and from. Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed travel ways if required by governing authorities.

3.08 POLLUTION CONTROLS

- A. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
- B. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations as directed by the OWNER or their representative or governing authorities. Return adjacent areas to condition existing prior to start of work.

3.09 DEMOLITION

- A. Pull out any existing utility lines designated for abandonment, irrigation, electrical lines, pull boxes and splice boxes, MAS and catch basins to be removed and all other objects designated to be removed or interfering with the work. Contact the utility company or agency involved for their requirements for performing this work. All removed equipment and materials shall be removed from the work area the same day as removed.

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**SECTION 02050
DEMOLITION**

- B. Remove all debris from the site and leave the site in a neat, orderly condition to the full acceptance of the ENGINEER and the OWNER. No debris shall be left on the site overnight.
- C. Clear and Grub and dispose of all trees, shrubs and other organic matter not otherwise addressed on tree removal and relocation plans and specifications.

3.11 DEMOLITION OF SITE STRUCTURES

- A. Demolish all site structure items designated to be removed or which are required to be removed to perform the work. This item does not include buildings.

3.12 REMOVAL OF DEBRIS AND DISPOSAL OF MATERIAL

- A. Material resulting from demolition and not scheduled for salvaging shall become the property of the CONTRACTOR and shall be removed from site and legally disposed of off-site. Disposal shall be timely, performed as promptly as possible and not left until the final cleanup. Material shall not be left on the job site for more than 60 days.
- B. Remove from site contaminated, vermin infested, or dangerous materials encountered and disposed of by safe means (as regulated by governing agencies with jurisdiction in the Project area) so as not to endanger health of workers and public.
- C. Burning of removed materials from demolished structures will not be permitted on-site.

3.13 COMPLETION OF WORK

- A. Leave the site in a neat, orderly condition to the full acceptance of the OWNER.
- B. Dirt remaining after demolition shall be graded level and compacted, in preparation for filling operations to follow demolition. Trenches shall be filled in layers of 12" maximum thickness and compacted in accordance with the technical specifications applicable to backfilling of trenches.

3.14 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section. It shall be included in the lump sum price bid for items associated with the demolition.

END OF SECTION 02050

**SECTION 02060
UTILITY PIPE REMOVAL**

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Attention is directed to the fact that Asbestos Containing Material (ACM) pipe is present on this project. Known ACM pipe locations are shown on the plans with notations for removal, connections, or abandonment in place by pressure grouting. Interpret references and notations in the plans as to AC or ACM pipe to mean Asbestos Containing Material (ACM) pipe. Take special precaution for any disturbance of the asbestos contained in these ACM pipes and any other ACM pipes that may be identified during construction.
- B. To protect the health and safety of the traveling public, FDOT employees, contractors and consultants, this Technical Special Provision (TSP) directs to protect and/or remove and dispose as applicable those sections of ACM pipe disturbed during the excavation of the project and are not identified to remain as active utility lines.
- C. Follow Federal, State and local laws, rules and regulations, including the following:
1. Florida Department of Transportation Procedure No. 425-000-005-b: Asbestos Management Program
 2. US DOT Title 49, Sub-Chapter C – Hazardous Material Regulations, Parts 171 and 172
 3. Occupation and Safety and Health Administration (OSHA) OSHA Title 29, Parts 1910 and 1926 (General Industry and Construction Standards)
 4. State of Florida Statutes 469 and 255.551 to 25.565
 5. United States Environmental Protection Agency, US EPA 40 CFR, Part 61, Subpart M “NESHAP” (National Emission Standards for Hazardous Air Pollutants)
 6. Florida Administrative Code, Chapters 62-257 and 62-701.520, FAC
 7. FDLES Rules 38140.001-38140.019
 8. Florida Department of Business and Professional Regulation (FDPR) regarding the licensing and regulation of Asbestos Consultants and Contractors.
 9. General industry guidelines.
 10. Any other applicable Federal, State and Local government agency.

PART 2 - PRODUCTS

2.01 GENERAL

- A. A utility survey was completed and water pipe lines (Asbestos Containing Material, ACM) are present on this project. Known ACM pipe locations are shown on the plans which may be removed during construction. Some lines will require connection of the new utility pipes to existing ACM pipe.

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SECTION 02060
UTILITY PIPE REMOVAL

PART 3 - EXECUTION

3.01 GENERAL

- A. In conformance with the above stated procedures, laws, rules and regulations, the services of both a Florida Licensed Asbestos Consultant and a Florida Licensed Asbestos Abatement Contractor shall be required.
- B. Duties include, but are not limited to the following:
1. Make all required agency notifications, secure permits, prepare work plans, plans and specifications for Asbestos removal, handling and disposal of ACM pipe, monitoring the abatement (including clearance sampling when determined to be necessary by the Consultant and/or as required by regulation), following the required specifications for the operation and maintenance (O&M) plan for any asbestos remaining in place following completion of removal of the sections of utility lines identified for removal, approval of pre-job and post-job submittals, project monitoring, keeping daily logs, air monitoring and final clearance samples, preparation of the final report, etc.
 2. Submit required agency notifications.
 3. Approval of Abatement Contractor's pre-job and post-job submittals.

3.02 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the working under this section. All demolition shall be included in the bid price of the relevant item in the Bid Schedule.

END OF SECTION 02060

**SECTION 02110
CLEARING**PART 1 - GENERAL1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, necessary equipment and services to complete the clearing work, as indicated on the drawings, as specified herein or both.
- B. Under this section, the CONTRACTOR shall do all clearing, grubbing, root-raking, and necessary clean-up operations in connection with the construction of the work and its related site work.
- C. The work shall consist of the removal and disposal of trees, stumps, roots, limbs, brush, fences, asphalt, etc. from all project areas as designated on the drawings as specified herein, and as directed by the ENGINEER on the site.
- D. The CONTRACTOR shall remove all refuse, asphalt pavement, concrete pavement, glass, metal, stone, plaster, lumber, paper materials, and any and all trash found in clearing and adjacent areas as directed by the ENGINEER.
- E. The CONTRACTOR shall furnish all services, labor, transportation, materials, and equipment necessary for the performance of these operations. All clearing and cleanup operations shall be accomplished to the complete satisfaction of the ENGINEER.

1.03 RELATED WORK

- A. Section 02010 – Sub-surface Investigation
- B. Section 02200 - Earthwork.

PART 2 - PRODUCTS (Not Applicable)PART 3 - EXECUTION3.01 TREE REMOVAL AND TREE PRESERVATION

- A. No trees shall be removed if located outside of the right-of-way and dedicated easement.
- B. Within the rights-of-way and easements, no trees shall be removed without the approval of the OWNER and approved tree permit. Trees shall be evaluated on an individual basis in accordance with following:
 - a. Type and size of tree.
 - b. Proximity to proposed and/or existing utility lines.
 - c. Proximity to proposed sidewalk.

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**SECTION 02110
CLEARING**

- d. Proximity to proposed edge of roadway.
- e. Living condition of the tree.
- C. If trees are determined to remain, Biobarrier, or approved equal, root barrier shall be installed as directed by the ENGINEER.

3.02 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section. It shall be included in the appropriate unit price bid.

END OF SECTION 02110

**SECTION 02140
DEWATERING**PART 1 - GENERAL1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, necessary equipment and services to complete the dewatering work, as indicated on the drawings, as specified herein or both.

1.03 RELATED WORK

- A. Section 02200 – Earthwork
- B. Section 02221 - Excavation and Backfilling for Utilities
- C. Section 02609 – Water Distribution System
- D. Section 02610 - Piping, General Section

PART 2 - PRODUCTS2.01 EQUIPMENT

- A. Dewatering, where required, may include the use of temporary reservoirs and diking, well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment must be maintained on the job site and operate within any local noise ordinance limits. All safety requirements, fencing, etc. shall be installed and maintained by the CONTRACTOR.

PART 3 - EXECUTION3.01 GENERAL REQUIREMENTS

- A. The CONTRACTOR shall provide all equipment necessary for dewatering. It shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workmen for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to ensure efficient dewatering and maintenance of dewatering operation during power failure.
- B. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.
- C. At all times, site grading shall promote drainage. Surface runoff shall be diverted from excavations, Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.
- D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed

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**SECTION 02140
DEWATERING**

bearing capacity of the subgrade soils at proposed bottom of excavation.

- E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with pea rock at no additional cost to the OWNER.
- F. The CONTRACTOR shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.
- G. The CONTRACTOR shall prevent flotation by maintaining a positive and continuous removal of water. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.
- H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand-packed and/or other means used to prevent pumping of fine sands or silts from the sub-surface. A continual check by the CONTRACTOR shall be maintained to ensure that the sub-surface soil is not being removed by the dewatering operation.
- I. The CONTRACTOR shall dispose of water from the WORK in a suitable manner without damage to adjacent property. CONTRACTOR shall be responsible for obtaining any permits that may be necessary to dispose of water. No water shall be drained into work built or under construction without prior consent of the ENGINEER. Water shall be filtered using a silt box or another approved method to remove sand and fine-sized soil particles before disposal into any drainage system. The ENGINEER shall approve dewatering disposal points prior to being used. Storm drains used by the CONTRACTOR for dewatering shall be cleaned by a jet vac, or other method approved by the ENGINEER after dewatering is complete.
- J. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.
- K. Dewatering of trenches and other excavations shall be considered, as incidental to the construction of the WORK and all costs thereof shall be included in the various contract prices in the Bid Forms, unless a separate bid item has been established for dewatering.
- L. The CONTRACTOR shall submit a dewatering plan to the ENGINEER for review. The CONTRACTOR is advised that the Miami Dade County Department of Environmental Resource Management (DERM) and/or SFWMD may require that a dewatering plan, prepared by a State of Florida licensed Professional Engineer or Registered Professional Geologist, be submitted and approved prior to issuance of a dewatering permit.

3.02 QUALITY CONTROL

- A. It shall be the sole responsibility of the CONTRACTOR to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the CONTRACTOR.
- C. Where critical structures or facilities exist immediately adjacent to areas of proposed

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DEWATERING**

dewatering, reference points shall be established and observed at frequent intervals to detect any settlement, which may develop. The responsibility for conducting the dewatering operation in a manner, which will protect adjacent structures and facilities, rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.

3.03 CONTRACTOR SUBMITTALS

- A. Prior to commencement of excavation, the CONTRACTOR shall submit a detailed plan and operation schedule for dewatering of excavations. The CONTRACTOR may be required to demonstrate the system proposed and to verify that adequate equipment, personnel, and materials are provided to dewater the excavations at all locations and times. The CONTRACTOR's dewatering plan is subject to review by the ENGINEER and regulatory agencies. The CONTRACTOR shall obtain all required permits from applicable regulatory agencies and provide a copy of all obtained permits to the ENGINEER.

3.04 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section. It shall be included in the appropriate unit price bid.

END OF SECTION 02140

**SECTION 02200
EARTHWORK**PART 1 - GENERAL1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, necessary equipment and services to complete the Earthwork, as indicated on the drawings, as specified herein or both.
- B. Including but not necessarily limited to the following:
1. Excavation and demucking.
 2. Backfilling.
 3. Filling.
 4. Grading, general site and building pads.
 5. Compaction.
- C. There shall be no classification of excavation for measurement of payment regardless of materials encountered.
- D. The work of this Section includes all earthwork required for construction of the WORK. Such earthwork shall include, but not be limited to, the loosening, removing, loading, transporting, depositing, and compacting in its final location of all materials wet and dry, as required for the purposes of completing the work specified in the Contract Documents, which shall include, but not be limited to, the furnishing, placing, and removing of sheeting and bracing necessary to safely support the sides of all excavation; all pumping, ditching, draining, and other required measures for the removal or exclusion of water from the excavation; the supporting of structures above and below the ground; all backfilling around structures and all backfilling of trenches and pits; the disposal of excess excavated materials; borrow of materials to makeup deficiencies for fills; and all other incidental earthwork, all in accordance with the requirement of the Contract Documents.

1.03 RELATED WORK

- A. Section 02210 - Site Grading.
- B. All applicable sections of Division 1, 2, 3, and 4.

1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Codes: All codes, as referenced herein, are specified in Section 01090, "Reference Standards".
- B. All work shall be in accordance with NMB Water Standard Documents (latest edition) and NMB Public Works Standards

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**SECTION 02200
EARTHWORK**

B. Commercial Standards:

ASTM D 422	Method for Particle-Size Analysis of Soils.
ASTM D 698	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-in (304.8-mm) Drop.
ASTM D 1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM D 1557	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in (457-mm) Drop.
ASTM D 1633	Test Method for Compressive Strength of Molded Soil-Cement Cylinders.
ASTM D 2419	Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
ASTM D 2487	Classification of Soils for Engineering Purposes.
ASTM D 2901	Test Method for Cement Content of Freshly-Mixed Soil-Cement.
ASTM D 2922	Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
ASTM D 4253	Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
ASTM D 4254	Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.

1.05 SUBSURFACE SOIL INFORMATION

- A. Geotechnical information will be provided as part of this project. It is the responsibility of the CONTRACTOR to make themselves familiar with the soil conditions prior to commencement of construction. The CONTRACTOR may elect to perform additional subsurface investigations at no additional cost to the OWNER. The OWNER will not be held liable for any delays caused by a difference between what is stated in the provided geotechnical report and what the CONTRACTOR observes in the field.

1.06 SITE INSPECTION

- A. CONTRACTOR shall visit the site and acquaint with all existing conditions. CONTRACTOR shall investigate the site and sub-surface conditions with no cost to the OWNER if CONTRACTOR chooses to. Such sub-surface investigations shall be performed only under time schedules and arrangements approved in advance by the OWNER's Representative and ENGINEER.

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**SECTION 02200
EARTHWORK****1.07 TOPOGRAPHIC INFORMATION**

- A. The existing grades shown on the drawings are approximate only and no representation is made as to their accuracy or consistency. The CONTRACTOR shall verify all existing grades to the extent necessary to ensure completion of the job to the proposed grades indicated on the drawings.

1.08 DISPOSAL OF SURPLUS OR UNSUITABLE MATERIAL

- A. Unsuitable material encountered during the course of construction shall be removed from the construction site at the expense of the CONTRACTOR. Unsuitable material shall not be stockpiled on-site. All suitable material shall be stockpiled on-site at areas approved by the ENGINEER.

1.09 BENCH MARKS AND MONUMENTS

- A. CONTRACTOR shall employ a registered Professional Surveyor and Mapper to lay out lines and grades as indicated. A surveyor registered in the State of Florida shall establish benchmarks. Benchmarks shall be permanent and easily accessible and maintained and replaced if disturbed or destroyed. All benchmarks shall be NGVD 29.

1.10 UTILITIES

- A. Before starting site operations, disconnect or arrange for the disconnection of all utility services designated to be removed.
- B. Locate all existing active utility lines traversing the site and determine the requirements for their protection. Preserve in operating condition all active utilities adjacent to or traversing the site and/or designated to remain.
- C. Observe rules and regulations governing respective utilities in working under requirements of this section. Adequately protect utilities from damage, remove or replace as indicated, specified or required. Remove, plug or cap inactive or abandoned utilities encountered in excavation. Record the location of all utilities.

1.11 QUALITY ASSURANCE

- A. A SOILS ENGINEER may be retained by the OWNER to observe performance of work in connection with excavating, filling, grading, and compaction. The CONTRACTOR shall re-adjust all work performed that does not meet technical or design requirements but make no deviations from the Contract documents without specific and written acceptance of the ENGINEER.
- B. Where soil material is required to be compacted to a percentage of maximum density, the maximum density at optimum moisture content will be determined in accordance with ASTM D 1557. Where cohesionless, free draining soil material is required to be compacted to a percentage of relative density, the calculation of relative density will be determined in accordance with ASTM D 4253 and D 4254. Field density in-place tests will be performed in

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**SECTION 02200
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accordance with ASTM D 1556, ASTM D 2922, or by such other means acceptable to the ENGINEER.

- C. In case the tests of the fill or backfill show non-compliance with the required density, the CONTRACTOR shall accomplish such remedy as may be required to ensure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the OWNER and shall be at the CONTRACTOR's expense.
- D. Particle size analysis of soils and aggregates will be performed using ASTM D 422.
- E. Determination of sand equivalent value will be performed using ASTM D 2419.
- F. References in these specifications to soil classification types and standards are set forth in ASTM D 2487. The CONTRACTOR shall be bound by all applicable provisions of said ASTM D 2487 in the interpretation of soil classifications.
- G. Requirements of all applicable building codes and other public agencies having jurisdiction upon the work.

PART 2 - PRODUCTS**2.01 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENTS**

- A. Fill, backfill, and embankment materials shall be suitable selected or processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation.
- B. Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 3 inches.
- C. Soils not classified as unsuitable as defined in Paragraph entitled, "Unsuitable Material" herein, are defined as suitable materials and may be used in fills, backfilling, and embankment construction subject to the specified limitations. In addition, when acceptable to the ENGINEER, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a stable composite.
- D. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required to meet the requirements of this Section or to meet the quantity requirements of the project the CONTRACTOR shall provide the imported materials at no additional expense to the OWNER, unless a unit price item is included for imported materials in the bidding schedule.
- E. The following types of suitable materials are designated and defined as follows:
 - 1. Type A (one inch minus granular backfill): Crushed rock, gravel, or sand with 100 percent passing a 1-inch sieve and a sand equivalent value not less than 50.
 - 2. Type B (one half inch minus granular backfill): Crushed rock, gravel, or sand with 100 percent passing a 1/2-inch sieve and a sand equivalent value not less than 50.
 - 3. Type C (sand backfill): Sand with 100 percent passing a 3/8-inch sieve, at least 90 percent passing a number 4 sieve, and a sand equivalent value not less than 30.

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- 4. Type D (coarse rock backfill): Crushed rock or gravel with 100 percent passing a 1-inch sieve and not more than 10 percent passing a Number 4 sieve.
- 5. Type E (pea gravel backfill): Crushed rock or gravel with 100 percent passing a 1/2-inch sieve and not more than 10 percent passing a Number 4 sieve.
- 6. Type F (coarse drainrock): Crushed rock or gravel meeting the following gradation requirements:

<u>Sieve Size</u>	<u>Percentage Passing</u>
2-inch	100
1-1/2-inch	90-100
1-inch	20-55
3/4-inch	0-15
No. 200	0-3

- 7. Type G (aggregate base): Crushed rock aggregate base material of such nature that it can be compacted readily by watering and rolling to form a firm, stable base for pavements. At the option of the CONTRACTOR, the grading for either the 1-1/2-inch maximum size or 3/4-inch maximum size shall be used. The sand equivalent value shall be not less than 22, and the material shall meet the following gradation requirements.

<u>Sieve Size</u>	<u>Percentage Passing</u>	
	<u>1-1/2 inch Max.</u>	<u>3/4-inch Max.</u>
2-inch	100	-
1-1/2 inch	90-100	-
1-inch	-	100
3/4-inch	50-85	90-100
No. 4	25-45	35-55
No. 30	10-25	10-30
No. 200	2-9	2-9

- 8. Type H (graded drainrock): Drainrock shall be crushed rock or gravel, durable and free from slaking or decomposition under the action of alternate wetting or drying. The material shall be uniformly graded and shall meet the following gradation requirements.

<u>Sieve Size</u>	<u>Percentage Passing</u>
1-inch	100
3/4-inch	90-100
3/8-inch	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

**SECTION 02200
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The drainrock shall have a sand equivalent value not less than 75. The finish-graded surface of the drainrock immediately beneath hydraulic structures shall be stabilized to provide a firm, smooth surface upon which to construct reinforced concrete floor slabs. The CONTRACTOR shall use, at its option, one of the asphalt types listed below:

	<u>Type 1</u>	<u>Type 2</u>	<u>Type 3</u>
Designation	SC-70	SC-250RS-1	
Spray Temperature (°F)	135-175	165-200	70-120
Coverage (gal/ sq yd)	0.50	0.50	0.50

If the surface remains tacky, sufficient sand shall be applied to absorb the excess asphalt.

9. Type I: Any other suitable material as defined herein.
10. Type J (cement-treated backfill): Material which consists of Type H material, or any mixture of Types B, C, G and H materials which has been cement-treated so that the cement content of the material is not less than 5 percent by weight when tested in accordance with ASTM D 2901. The ultimate compressive strength at 28 days shall be not less than 400 psi when tested in accordance with ASTM D 1633.
11. Type K (topsoil): Stockpiled topsoil materials, which have been obtained at the site by removing soil to a depth not exceeding 2 feet. Removal of the topsoil shall be done after the area has been stripped of vegetation and debris as specified.
12. Type L (Class I crushed stone): Manufactured angular, granular crushed stone, rock, or slag, with 100 percent passing a 1-inch sieve and less than 5 percent passing a Number 4 sieve.
13. Type M (aggregate subbase): Crushed rock aggregate subbase material that can be compacted readily by watering and rolling to form a firm stable base. The sand equivalent value shall be not less than 18 and shall meet the following gradation requirements.

<u>Sieve Size</u>	<u>Percentage Passing</u>
3-inch	100
2-1/2 inch	87-100
No. 4	35-95
No. 200	0-29

14. Type N (trench plug): Low permeable fill material, a nondispersible clay material having a minimum plasticity index of 10.

2.02 UNSUITABLE MATERIAL

- A. Unsuitable soils for fill material shall include soils which, when classified under ASTM D 2487, fall in the classifications of Pt, OH, CH, MH or OL.
- B. In addition, any soil which cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use shall be classed as unsuitable material.

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- A. The CONTRACTOR shall use the types of materials as designated herein for all required fill, backfill, and embankment construction hereunder.
- B. Where these Specifications conflict with the requirements of any local agency having jurisdiction, or with the requirements of a material manufacture, the ENGINEER shall be immediately notified. In case of conflict therewith, the CONTRACTOR shall use the most stringent requirement, as determined by the ENGINEER.
- C. Fill and backfill types shall be used in accordance with the following provisions:
1. Embankment fills shall be constructed of Type I material, as defined herein, or any mixture of Type I and Type A through Type H materials.
 2. Pipe zone backfill, as defined under "Pipe and Utility Trench Backfill" herein, shall consist of the following materials for each pipe material listed below. Where pipelines are installed on grades exceeding 4 percent, and where backfill materials are graded such that there is less than 10 percent passing a Number 4 sieve, trench plugs of Type J or N material shall be provided at maximum intervals of 200 feet or as shown on the Drawings.
 - a. Mortar coated pipe, concrete pipe, and uncoated ductile iron pipe shall be provided Type A, B, C, D, E, or L pipe zone backfill material.
 - b. Coal tar enamel coated pipe, polyethylene encased pipe, tape wrapped pipe, and other non-mortar coated pipe shall be backfilled with Type C pipe zone backfill material.
 - c. Plastic pipe and vitrified clay pipe shall be backfilled with Type L pipe zone backfill material.
 3. Trench zone backfill for pipelines as defined under "Pipe and Utility Trench Backfill" shall be Type I backfill material or any of Types A through H backfill materials or any mixture thereof, except that Type K material may be used for trench zone backfill in agricultural areas unless otherwise shown or specified.
 4. Final backfill material for pipelines under paved area, as defined under "Pipe and Utility Trench Backfill" shall be Type G backfill material. Final backfill under areas not paved shall be the same material as that used for trench backfill, except that Type K material shall be used for final backfill in agricultural areas unless otherwise shown or specified.
 5. Trench backfill and final backfill for pipelines under structures shall be the same material as used in the pipe zone, except where concrete encasement is required by the Contract Documents.
 6. Aggregate base materials under pavements shall be Type G material constructed to the thickness shown or specified. Where specified or shown, aggregate subbase shall be Type M Material.

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- 7. Backfill around structures shall be Type I material, or Types A through Type H materials, or any mixture thereof.
- 8. Backfill materials beneath structures shall be as follows:
 - a. Drainrock materials under hydraulic structures or other water retaining structure with underdrain systems shall be Type H material.
 - b. Under concrete hydraulic structures or other water retaining structures without underdrain systems, Types G or H materials shall be used.
 - c. Under structures where groundwater must be removed to allow placement of concrete, Type F material shall be used.
 - d. Under all other structures, Type D, E, G, or H material shall be used.
- 9. Backfill used to replace pipeline trench over-excavation shall be a layer of Type F material with a 6-inch top filter layer of Type E material or filter fabric to prevent migration of fines for wet trench conditions or the same material as used for the pipe zone backfill if the trench conditions are not wet. Filter fabric shall be Mirafi 140 N, Mirafi 700X, or equal.
- 10. The top 6 inches of fill on reservoir roofs, embankment fills around hydraulic structures, and all other embankment fills shall consist of Type K material, topsoil.

2.04 EMBANKMENT

- A. The maximum sizes of rock, which will be permitted in the completed fill areas, are as follows:

<u>Depth Below Finish Grade</u>	<u>Maximum Allowable Diameter</u>
Top 4 inches	1 inch
4 inches to 12 inches	3-1/2 inches
12 inches to 2 feet	6 inches
2 feet to 4 feet	12 inches
4 feet to 8 feet	24 inches
Below 8 feet	36 inches

- B. Embankments shall be constructed of material containing no muck, stumps, roots, brush, vegetable matter, rubbish or other material that will not compact into a suitable and enduring roadbed. Material designated as undesirable shall be removed from the site. Where embankments are constructed adjacent to bridge end bents or abutments, rock larger than 3-1/2 inches in diameter shall not be placed within three feet of the location of any abutment.
- C. Fill material containing debris, sod, and biodegradable materials shall not be used as fill in construction areas.
- D. Fill material required for the building pads and for pavement subgrade shall be granular fill, free of organic material.

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- E. Fill material required for pervious and sodded areas shall have a maximum organic component of 10%. CONTRACTOR shall provide, at CONTRACTOR'S cost, organic content test results for approval by the ENGINEER.

PART 3 - EXECUTION**3.01 JOB CONDITIONS**

- A. Use all means necessary to protect existing objects and vegetation. In the event of damage, immediately make all repairs, and replacements necessary to the acceptance of the OWNER's Representative and ENGINEER at no cost to the OWNER.

3.02 BACKFILL, FILLING & GRADING

A. Grades:

1. Cut, backfill, fill and grade to proper grade levels indicated. The proposed grades shown on the drawings are for establishing a finished grade over the site.

B. Filling:

1. Fill material shall be placed in horizontal layers and spread to obtain a uniform thickness.
2. After compaction, layers of fill are not to exceed twelve (12) inches for cohesive soils or eight (8) inches for noncohesive soils.

3.03 STRUCTURE, ROADWAY, AND EMBANKMENT EXCAVATION

- A. General: Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the work. The removal of said materials shall conform to the lines and grades shown or ordered. Unless otherwise provided, the entire construction site shall be stripped of all vegetation and debris, and such material shall be removed from the site prior to performing any excavation or placing any fill. The CONTRACTOR shall furnish, place, and maintain all supports and shoring that may be required for the sides of the excavations, and all pumping, ditching, or other measure for the removal or exclusion of water, including taking care of storm water, groundwater, and wastewater reaching the site of the work from any source so as to prevent damage to the work or adjoining property. Excavations shall be sloped or otherwise supported in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926).

- B. Excavation Beneath Structures and Embankments: Except where otherwise specified for a particular structure or ordered by the ENGINEER, excavation shall be carried to the grade of the bottom of the footing or slab. Where shown or ordered, areas beneath structures or fills shall be over-excavated. The subgrade areas beneath embankments shall be excavated to remove not less than the top [6 inches] of native material and where such subgrade is sloped, the native material shall be benched. When such over excavation is shown, the CONTRACTOR shall perform both over-excavation and subsequent backfill to the required grade. When such over-excavation is not shown but is ordered by the ENGINEER, such over-excavation and any resulting backfill will be paid for under a separate unit price bid item if such

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bid item has been established; otherwise payment will be made in accordance with a negotiated price. After the required excavation or over-excavation has been completed, the exposed surface shall be scarified to a depth of 6 inches, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain density as specified in Paragraph 3.14.I.

- C. **Excavation Beneath Paved Areas:** Excavation under areas to be paved shall extend to the bottom of the aggregate base or subbase, if such base is called for; otherwise it shall extend to the paving thickness. After the required excavation has been completed, the top 12 inches of exposed surface shall be scarified, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain density as specified in Paragraph 3.14.I. The finished subgrade shall be even, self-draining, and in conformance with the slope of the finished pavement. Areas that could accumulate standing water shall be regraded to provide a self-draining subgrade.
- D. **Notification of ENGINEER:** The CONTRACTOR shall notify the ENGINEER at least 3 days in advance of completion of any structure excavation and shall allow the ENGINEER a review period of at least one day before the exposed foundation is scarified and compacted or is covered with backfill or with any construction materials.

3.04 PIPELINE AND UTILITY TRENCH EXCAVATION

- A. **General:** Unless otherwise shown or ordered, excavation for pipelines and utilities shall be open-cut trenches. Trench widths shall be kept as narrow as is practical for the method of pipe zone densification selected by the CONTRACTOR, but shall have a minimum width at the bottom of the trench equal to the outside diameter of the pipe plus 24 inches for mechanical compaction methods and 18 inches for water consolidation methods. The maximum width at the top of the pipe shall be equal to the outside diameter of the pipe plus 36 inches for pipe diameters 18 inches and larger and to the outside diameter of the pipe plus 24 inches for pipe diameters less than 18 inches, or as shown on the Drawings.
- B. **Trench Bottom:** Except when pipe bedding is required, the bottom of the trench shall be excavated uniformly to the grade of the bottom of the pipe. The trench bottom shall be given a final trim, using a string line for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe. Rounding out the trench to form a cradle for the pipe will not be required. Excavations for pipe bells and welding shall be made as required.
- C. **Open Trench:** The maximum amount of open trench permitted in any one location shall be 300 feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each day. The above requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights meeting OSHA requirements shall be provided and maintained.
- D. **Trench Over-Excavation:** Where the Drawings indicate that trenches shall be over-excavated, they shall be excavated to the depth shown, and then backfilled to the grade of the bottom of the pipe.
- E. **Over-Excavation:** When ordered by the ENGINEER, whether indicated on the Drawings or not, trenches shall be over-excavated beyond the depth shown. Such over-excavation shall be to

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the depth ordered. The trench shall then be backfilled to the grade of the bottom of the pipe. All work specified in this Section shall be performed by the CONTRACTOR when the over-excavation ordered by the ENGINEER is 6 inches or less below the limits shown. When the over-excavation ordered by the ENGINEER is greater than 6 inches below the limits shown, additional payment will be made to the CONTRACTOR for that portion of the work which is located below said 6-inch distance. Said additional payment will be made under separate unit price bid items for over-excavation and bedding if such bid items have been established; otherwise payment will be made in accordance with a negotiated price.

- F. Where pipelines are to be installed in embankment or structure fills, the fill shall be constructed to a level at least one foot above the top of the pipe before the trench is excavated.

3.05 OVER-EXCAVATION NOT ORDERED, SPECIFIED, OR SHOWN

- A. Any over-excavation carried below the grade ordered, specified, or shown, shall be backfilled to the required grade with the specified material and compaction. The CONTRACTOR at its own expense shall perform such work.

3.06 EXCAVATION IN LAWN AREAS

- A. Where excavation occurs in lawn areas, the sod shall be carefully removed, kept damp, and stockpiled to preserve it for replacement. Excavated material may be placed on the lawn; provided that a drop cloth or other suitable method is employed to protect the lawn from damage. The lawn shall not remain covered for more than 72 hours. Immediately after completion of backfilling and testing of the pipeline, the sod shall be replaced and lightly rolled in a manner so as to restore the lawn as near as possible to its original condition. CONTRACTOR shall provide new sod if stockpiled sod has not been replaced within 72 hours.

3.07 EXCAVATION IN VICINITY OF TREES

- A. Except where trees are shown to be removed, trees shall be protected from injury during construction operations. No tree roots over 2 inches in diameter shall be cut without express permission of the ENGINEER. Trees shall be supported during excavation by any means previously reviewed and approved by the ENGINEER.

3.08 ROCK EXCAVATION

- A. Rock is defined as follows:
1. Rock shall be classified as material having a blow count in excess of 30 blows per foot from a Standard Penetration Test (ASTM D-1586) and exceeding 1000 psi from an Unconfined Compression Strength Test (ASTM D-2938); and,
 2. General Excavation - Any material that cannot be excavated with a single-toothed ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 71,000 lbs. (Caterpillar D9N or equivalent), and occupying an original volume of at least 2 cubic yards or more; and,
 3. Trench Excavation - Any material that cannot be excavated with a backhoe having a break out force rated at not less than 44,000 lbs. (Caterpillar 235D or equivalent), and occupying an original volume of at least 2 cubic yards.

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- B. Rock excavation shall include removal and disposal of the following: (1) all boulders measuring 1/3 of a cubic yard or more in volume; (2) all rock material in ledges, bedding deposits, and unstratified masses which cannot be removed without systematic drilling and blasting; (3) concrete or masonry structures which have been abandoned; and (4) conglomerate deposits which are so firmly cemented that they possess the characteristics of rock as described in Paragraph 3.09(A).
- C. Additional compensation for excavation in hard rock will only be granted for rock as defined in this section, 3.08 (A) and with an N-value larger than 50. Compensation will not be provided for rock that does not meet the criteria established under this paragraph. The following outlines the methodology for the standard penetration tests that must be followed if additional compensation for excavation in hard rock is requested.
1. Location of Standard Penetration Tests shall be approved by the OWNER and within an undisturbed area or immediately adjacent to the trench line. Additional testing is necessary if hard rock soil conditions cease along the trench.
 2. Standard Penetration Tests shall be considered representative of soil conditions for a maximum length of twenty-five (25) feet in each direction of test location along the trench length unless provisions are followed as per paragraph 3 below. Soil tests must be provided to the ENGINEER for approval.
 3. Standard Penetration Tests may be considered representative of soil conditions for lengths no greater than seventy-five (75) feet in each direction of test location along the trench length if OWNER's representative is present to observe excavation production rates. Additional standard penetration tests can be requested at the discretion of the OWNER if OWNER's representative cannot observe excavation production rates or if discrepancies between CONTRACTOR and OWNER arise due to excavation production rates no longer reflecting hard rock conditions.
- D. Explosives and Blasting: Blasting will not be permitted, except by express permission of the ENGINEER on a case-by-case basis. The use of explosives will be subject to the approval and regulations of all agencies having jurisdiction. If blasting is utilized at the site of the WORK, the CONTRACTOR shall take all precautions and provide all protective measures necessary to prevent damage to property and structures or injury to person. Prior to blasting, the CONTRACTOR shall secure all permits required by law for blasting operations and shall provide any additional hazard insurance required by the OWNER. The CONTRACTOR shall have a fully qualified and experienced blasting foreman in charge of all blasting operations.
- E. The CONTRACTOR will be held responsible for all and shall make good any damage caused by blasting or resulting from its possession or use of explosives on the WORK.
- F. All operations involving the handling, storage, and use of explosives shall be conducted in accordance with the requirements of the OSHA Standards for Construction, and in accordance with all local laws and regulations.
- 3.09 DISPOSAL OF EXCESS EXCAVATED MATERIAL
- A. The CONTRACTOR shall remove and dispose of all excess excavated material at a site selected by the CONTRACTOR and reviewed by the ENGINEER.

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**SECTION 02200
EARTHWORK****3.10 DISPOSAL OF UNSUITABLE EXCAVATED MATERIAL**

- A. The CONTRACTOR shall remove and dispose of all unsuitable excavated material. This shall include muck, tree roots, rocks, garbage, debris, or any other material designated as unsuitable by Paragraph 2 of this Section. Disposal shall be at a site selected by the CONTRACTOR that is designated as an approved disposal site for the unsuitable material.

3.11 BACKFILL - GENERAL

- A. Backfill shall not be dropped directly upon any structure or pipe. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed. Backfill around water retaining structures shall not be placed until the structures have been tested, and the structures shall be full of water while backfill is being placed.
- B. Except for drainrock materials being placed in over-excavated areas or trenches, backfill shall be placed after all water is removed from the excavation.

3.12 PLACING AND SPREADING OF BACKFILL MATERIALS

- A. Backfill materials shall be placed and spread evenly in layers. When compaction is achieved using mechanical equipment the layers shall be evenly spread so that when compacted each layer shall not exceed 6 inches in thickness.
- B. During spreading each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer. Pipe zone backfill materials shall be manually spread around the pipe so that when compacted the pipe zone backfill will provide uniform bearing and side support.
- C. Where the backfill material moisture content is below the optimum moisture content water shall be added before or during spreading until the proper moisture content is achieved.
- D. Where the backfill material moisture content is too high to permit the specified degree of compaction the material shall be dried until the moisture content is satisfactory.

3.13 COMPACTION - GENERAL

- A. Compact each layer of fill in designated areas with approved equipment to achieve a maximum density at optimum moisture, AASHTO T 180 - latest edition.
 - 1. Refer to Sections 02513 Asphaltic Concrete Paving - General and 02515 Portland Cement Concrete Paving for compaction requirements in the affected areas.
 - 2. Under landscaped area, compaction shall be to density as specified in Paragraph 3.14.I., unless otherwise shown on the Drawings.
- B. No backfill shall be placed against any masonry or other exposed building surface until permission has been given by the OWNER's Representative, and in no case until the masonry has been in place seven days.
- C. Heavy construction equipment will not be permitted within ten (10) feet of any masonry or other exposed building surface.

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- D. Compaction in limited areas shall be obtained by the use of mechanical tampers or approved hand tampers. When hand tampers are used, the materials shall be deposited in layers not more than four inches thick. The hand tampers used shall be suitable for this purpose and shall have a face area of not more than 100 square inches. Special precautions shall be taken to prevent any wedging action against masonry, or other exposed building surfaces.

3.14 COMPACTION OF FILL, BACKFILL, AND EMBANKMENT MATERIALS

- A. Each layer of Types, A, B, C, G, H, I, and K backfill materials as defined herein, where the material is graded such that at least 10 percent passes a No. 4 sieve, shall be mechanically compacted to the specified percentage of maximum density. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content.
- B. Each layer of Type D, E, F, and J backfill materials shall be compacted by means of at least 2 passes from a flat plate vibratory compactor. When such materials are used for pipe zone backfill, vibratory compaction shall be used at the top of the pipe zone or at vertical intervals of 24 inches, whichever is the least distance from the subgrade.
- C. Type L material requires mechanical spreading and placement to fill voids but does not require mechanical compaction or vibration.
- D. Fill on reservoir and structure roofs shall be deposited at least 30 days after the concrete roof slab has been placed. Equipment weighing more than 10,000 pounds when loaded shall not be used on a roof. A roller weighing not more than 8,000 pounds shall be used to compact fill on a roof.
- E. Flooding, ponding, or jetting shall not be used for fill on roofs, backfill around structures, backfill around reservoir walls, for final backfill materials, or aggregate base materials.
- F. Pipe zone backfill materials that are granular may be compacted by a combination of flooding and vibration using concrete vibrators or by jetting, when acceptable to the ENGINEER.
- G. Pipeline trench zone backfill materials, containing 5 percent or less of material passing a No. 200 sieve, may be compacted using flooding and jetting or vibration if the CONTRACTOR uses effective procedures that yield the specified compaction test results. Flooding and jetting shall not be done in such a manner that the pipe or nearby utilities are damaged, in areas of poorly draining or expansive soils, or where the use of the procedure is prohibited by any agency having jurisdiction over the street or right-of-way. Approved jet pipes or immersible vibrators shall be used so that each backfill layer is saturated and consolidated to its full depth before the next layer is placed. Jet pipes shall be kept at least 6 inches away from the pipe where the backfills being consolidated and 2 feet away from other pipes or utilities.
- H. Equipment weighing more than 10,000 pounds shall not be used closer to walls than a horizontal distance equal to the fill at that time. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.
- I. Compaction Requirements: The following compaction test requirements shall be in accordance with AASHTO T-180. Where agency or utility company requirements govern, the highest compaction standards shall apply.

Percentage of

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<u>Location or Use of Fill</u>	<u>Maximum Density</u>
Pipe zone backfill portion above bedding for flexible pipe.	98
Pipe zone backfill bedding and over-excavated zones under bedding/pipe for flexible pipe, including trench plugs.	98
Pipe zone backfill portion above bedding for rigid pipe.	98
Pipe zone backfill bedding and over-excavated zones under bedding/pipe for rigid pipe.	98
Final backfill, beneath paved areas or structures	98
Final backfill, not beneath paved areas or structures	95
Trench zone backfill, not beneath paved areas or structures, including trench plugs	98
Embankments	98
Embankments, beneath paved areas or structures	98
Backfill beneath structures, hydraulic structures	98
Backfill around structures	98

<u>Location or Use of Fill</u>	<u>Percentage of Maximum Density</u>
Topsoil (Type K material)	80
Aggregate base or subbase Type G or M material)	98

- J. The pipe has been structurally designed based upon the trench configuration specified herein.
- K. The CONTRACTOR shall maintain the indicated trench cross section up to a horizontal plane lying 6 inches above the top of the pipe.
- L. If, at any location under said horizontal plane, the CONTRACTOR slopes the trench walls or exceeds the maximum trench widths indicated in the Contract Documents, the pipe zone backfill shall be “improved” or the pipe class increased as specified herein, at no additional

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cost to the OWNER. "Improved" backfill shall mean sand-cement backfill or other equivalent materials acceptable to the ENGINEER.

- M. If the allowable deflection specified for the pipe is exceeded, the CONTRACTOR shall expose and regrade or replace the pipe, repair all damaged lining and coating, and reinstall the pipe zone material and trench backfill as specified at no additional expense to the OWNER.

3.15 PIPE AND UTILITY TRENCH BACKFILL

- A. Pipe zone Backfill: The pipe zone is defined as that portion of the vertical trench cross-section lying between a plane 6 inches below the bottom surface of the pipe, i.e., the trench subgrade, and a plane at a point 6 inches above the top surface of the pipe. The bedding for flexible pipe is defined as that portion of pipe zone backfill material between the trench subgrade and the bottom of the pipe. The bedding for rigid pipe is defined as that portion of the pipe zone backfill material between the trench subgrade and a level line which varies from the bottom of the pipe to the springline as shown.
- B. Bedding shall be provided for all potable water pipes, sewers, drainage pipelines, and other gravity flow pipelines. Unless otherwise specified or shown, for other pipelines the bedding may be omitted if all the following conditions exist.
1. The pipe bears on firm, undisturbed native soil, which contains only particles that will pass a one-inch sieve.
 2. The trench excavation is not through rock or stones.
 3. The trench subgrade soils are classified as suitable fill and backfill materials per Paragraph 2.01.
 4. The trench subgrade soils have, as a maximum, a moisture content that allows compaction.
- C. Where bedding is required after compacting, the CONTRACTOR shall perform a final trim using a stringline for establishing grade, such that each pipe section when first laid will be continually in contact with the bedding along the extreme bottom of the pipe. Excavation for pipe bells and welding shall be made as required.
- D. The pipe zone shall be backfilled with the specified backfill material. The CONTRACTOR shall exercise care to prevent damage to the pipeline coating, cathodic bonds, or the pipe itself during the installation and backfill operations.
- E. Trench Zone Backfill: After the pipe zone backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the trench zone may proceed. The trench zone is defined as that portion of the vertical trench cross-section lying between a plane 6 inches above the top surface of the pipe and a plane at a point 18 inches below the finished surface grade, or if the trench is under pavement, 18 inches below the roadway subgrade. If flooding, ponding, or jetting is used the pipe shall be filled with water to prevent flotation.
- F. Final Backfill: Final backfill is all backfill in the trench cross-sectional area within 18 inches of finished grade, or if the trench is under pavement, all backfill within 18 inches of the roadway subgrade.

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**SECTION 02200
EARTHWORK****3.16 EMBANKMENT CONSTRUCTION**

- A. The area where an embankment is to be constructed shall be cleared of all vegetation, roots and foreign material. Following this, the surface shall be moistened, scarified to a depth of 6 inches, and rolled or otherwise mechanically compacted as specified in Paragraph 3.14.I. Embankment fill material shall be placed and spread evenly in approximately horizontal layers. Each layer shall be moistened or aerated, as necessary. Unless otherwise approved by the ENGINEER, each layer shall not exceed 6 inches of compacted thickness. The embankment fill and the scarified layer of underlying ground shall be compacted to 95 percent of maximum density under structures and paved areas, and 90 percent of maximum density elsewhere.
- B. When an embankment fill is to be made and compacted against hillsides or fill slopes steeper than 4:1, the slopes of hillsides or fills shall be horizontally benched to key the embankment fill to the underlying ground. A minimum of 12 inches normal to the slope of the hillside or fill shall be removed and recompacted as the embankment fill is brought up in layers. Material thus cut shall be recompacted along with the new fill material at the CONTRACTOR'S expense. Hillside of fill slopes 4:1 or flatter shall be prepared in accordance with Paragraph A, above.
- C. Where embankment or structure fills are constructed over pipelines, the first 4 feet of fill over the pipe shall be constructed using light placement and compaction equipment that does not damage the pipe. Heavy construction equipment shall maintain a minimum distance from the edge of the trench equal to the depth of the trench until at least 4 feet of fill over the pipe has been completed.

3.17 CORRECTION OF GRADE

- A. Bring to required grade levels areas where settlement, erosion or other grade changes occur.

3.18 MAINTENANCE AND PROTECTION OF WORK

- A. While construction is in progress adequate drainage for the roadbed shall be maintained at all times.

The CONTRACTOR shall maintain all earthwork construction throughout the life of the contract, unless otherwise provided, and shall take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. CONTRACTOR shall repair at CONTRACTOR'S expense, except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work.

All channels excavated as a part of the contract work shall be maintained against natural shoaling or other encroachments to the lines, grades, and cross sections shown on the plans, until final acceptance of the project.

3.19 AS-BUILT SURVEY

- A. At the completion of the work and prior to final inspection of the area, the CONTRACTOR shall provide the ENGINEER with an as-built topographic survey made by a registered Surveyor, of the State of Florida.

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- B. The surveyor is to certify on the survey whether or not the as-built conditions conform to the elevations shown on the Drawings to within plus or minus two-hundredth (0.02) of a foot.

3.20 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the unit price per square yard bid for compaction of subgrade when constructing new roads and shall be included in the cost of all other work called out in the Bid Schedule requiring earth work.

END OF SECTION 02200

**SECTION 02210
SITE GRADING****PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

- A. The work covered by this section shall include all labor, equipment, services and materials necessary for bringing the entire site to elevations shown in the plans. The work included in this section shall include all necessary excavations for streets, ditches and swales. It shall include the construction of embankments and fills by the loading, movement, deposition and compaction of suitable fill materials resulting from above listed excavations. It shall include stockpiling of any excess material to an on-site location as specified by the OWNER.
- B. It shall include rough grading within the roadways, driveways, swales and parking lots to the elevations or cross-section details shown on the drawings.
- C. It shall include the erection and maintenance of any barricades that are required for accident prevention and property protection.
- D. It shall include removal and legal disposal of muck, rock boulders or any foreign material interfering with construction.

1.03 RELATED WORK

- A. Section 02110 - Clearing
- B. Section 02200 - Earthwork

PART 2 - PRODUCTS (Not Applicable)**PART 3 - EXECUTION****3.01 GENERAL**

- A. The CONTRACTOR shall be familiar with all work to be performed as specified and shown on the Drawings. CONTRACTOR shall ascertain where all excavation will be required and shall be solely responsible for all excavating to complete the Contract.

3.02 PAYMENT

- A. No extra payment will be allowed for type or classification of material in excavation.

3.03 MATCHING EXISTING GRADES

- A. Where existing roadbed surfaces are not at the elevation required prior to subgrade compaction, the CONTRACTOR shall perform any such excavation, filling, earthmoving and grading as may be necessary to attain the proper compacted subgrade elevation before proceeding with base course construction.

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**SECTION 02210
SITE GRADING****3.04 UNSUITABLE MATERIAL**

- A. All muck, large rocks and boulders encountered during the work under this Contract shall be removed and legally disposed of in a manner approved by the OWNER's Representative.

3.05 EXCAVATION

- A. All excavation shall be unclassified regardless of material encountered.
- B. The CONTRACTOR shall make probings or sounding for sub-surface rock to ascertain its location and depth.
- C. It shall be the CONTRACTOR's responsibility to be familiar with soil conditions on the site. Borings, in addition to those provided by others, if any, shall be acquired by the CONTRACTOR, at the CONTRACTOR's expense.
- D. Any wet excavated materials shall be drained before hauling or moving.

3.06 EMBANKMENT (FILL)

- A. Embankment shall be constructed from suitable materials resulting from roadway or site excavation or approved materials furnished from off-site borrow areas.
- B. Embankments shall be placed in successive layers of not more than eight inches in thickness, measured loose, for the full width of the embankment.
- C. Each layer of the material used in the formation of roadbed embankments shall be compacted at optimum moisture content to a density as specified in Section 02200, Paragraph 3.14.I.
- D. The existing material on the site may vary as to stability. The CONTRACTOR shall be familiar with the soil characteristics by site inspection borings, probings, etc., prior to bidding, as to the sub-surface character of the material.
- D. All unstable soil shall be removed and shall be replaced by material approved by the ENGINEER.

3.07 GRADING VIA ASPHALT LEVELING COURSE

- A. In areas called in the contract documents to be milled and reconstructed, leveling course shall be applied by the contractor to create an evenly sloped surface as measured across the width of the roadway (including the fill of localized dips and ditches) upon which to place asphaltic concrete surface courses. Placement of leveling course shall be performed by the contractor such that the finished elevation of asphaltic concrete surface shall match existing edge of curb and lip of gutter elevations with a uniform slope along the cross-section of the roadway. At intersections, placement of leveling course shall be performed by the contractor such that the finished elevation of asphaltic concrete surface shall match the existing elevation of the crown of road and edge of outside travel lane along NE 35th Avenue with a uniform slope along the cross-section of the roadway.
- B. Placement of asphalt leveling course by contractor shall not result in a change to the average longitudinal slope of the travel lanes of NE 35th Avenue as compared to the existing condition of NE 35th Avenue.

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**SECTION 02210
SITE GRADING**

- C. The contractor shall notify the ENGINEER in writing if the installed uniform cross-slope of asphalt pavement to be milled and reconstructed along NE 35th Avenue is less than 1.0% anywhere within the project limits.

3.08 GRADING

- A. The material excavated shall be transported and spread over the entire work site and shall be graded so that the finished grade shall be within ± 0.1 feet of the grades indicated by the grade stakes and control point elevations shown on the plans and by the cross-sections. Due to the minimal slope of the roadways, swale grades shall be within ± 0.05 feet of the grades indicated on the plans.
- B. The disposal of large rocks in excess of 8", within roadways and parking areas is prohibited. Where allowable, the disposal of large rocks by burial in areas designated by the ENGINEER shall have a minimum 30 inches of cover below finished grade elevation.

3.09 FINISH GRADING

- A. Following completion of the paving work, all swales, etc., adjacent to the roadway shall be shaped and graded to the elevations and cross-sections shown on the drawings. The finished surface shall be maintained until seeding and mulching work is completed.

3.10 SURVEYS

- A. All initial surveys, including detail construction stakes, will be furnished by the CONTRACTOR.
- B. The CONTRACTOR will carefully maintain bench marks, monuments, stakes and other reference points, and if disturbed or destroyed, be replaced as directed at the CONTRACTOR's expense.

3.11 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section. It shall be included in the appropriate unit price bid.

END OF SECTION 02210

**SECTION 02212
MILLING OF EXISTING ASPHALT PAVEMENT**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 – General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

- A. 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.
- B. When milling to improve rideability, the plans will specify an average depth of cut.
- C. CONTRACTOR to take ownership of milled material.

PART 2 – PRODUCT

2.01 EQUIPMENT

- A. Provide a milling machine capable of maintaining a depth of cut and cross slope that will achieve the results specified in the Contract Documents. 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.
- B. 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.
- C. To start the project, the 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, the ENGINEER will reject the milling machine for further use.
- D. The 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.
- E. Equip the milling machine with means to effectively limit the amount of dust escaping during the removal operation.
- F. For complete pavement removal, the ENGINEER may approve the use of alternate removal and crushing equipment in lieu of the equipment specified above.

PART 3 – EXECUTION

3.01 MILLING

- A. Remove the existing raised reflective pavement markers prior to milling. Include the cost of removing existing pavement markers in the price for milling.

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**SECTION 02212
MILLING OF EXISTING ASPHALT PAVEMENT**

- B. When milling to improve rideability or cross slope, remove the existing pavement to the average depth specified in the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The 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 the 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. Multiple cuts may be made to achieve the required pavement configuration or depth of cut. Include in the Quality Control Plan a system to control the cross slope of the milling surface with a minimum frequency of one cross slope measurement every 250 feet during milling operations in order to ensure that the slopes are uniform and in compliance with the designed milling slope. When the difference between the measured cross slope and the designed cross slope exceeds $\pm 0.2\%$ for travel lanes (including turn lanes) and $\pm 0.5\%$ for shoulders, make all corrections immediately to bring the cross slope into an acceptable range. The ENGINEER will periodically verify the Contractor's measurements at the job site.
- E. The ENGINEER may randomly take ten measurements of the cross slope per day for the first two days of milling operation. If the average cross slope of the ten random measurements per day varies more than the required tolerance (0.2% for travel lanes including turn lanes and 0.5% for shoulders), the milling operation shall be stopped until appropriate corrective actions are made to bring the cross slope into an acceptable range. Approval of the ENGINEER will be required prior to resuming the milling operation.
- F. A recheck of ten random measurements will be made after corrective actions are taken. If the recheck indicates that the cross slope is out of control, the deficient section(s) shall be corrected to bring the cross slope into an acceptable range. During milling operations, the ENGINEER reserves the right to take ten cross slope measurements per day. If the average cross slope of the ten measurements varies more than the permissible tolerance, the milling operation will be stopped until appropriate corrective actions are made to bring the cross slope into an acceptable range and the deficient sections shall be corrected accordingly.
- G. The ENGINEER may waive the corrections specified above if an engineering determination indicates that the deficiencies are sufficiently separated so as not to significantly affect the final cross slope.
- H. For intersections, tapers, crossovers, transitions at the beginning and end of the project and in other similar areas, the cross slope will be adjusted as directed by the ENGINEER to match the actual site conditions.
- I. Operate the milling machine to minimize the amount of dust being emitted. The ENGINEER may require prewetting of the pavement.
- J. 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.

**SECTION 02212
MILLING OF EXISTING ASPHALT PAVEMENT**

- K. 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. The CONTRACTOR will control the traveling speed of the milling machine to produce a texture that will provide an acceptable riding surface.
- L. 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.
- M. Sweep the milled surface with a power broom prior to placing asphalt concrete.
- N. In urban and other sensitive areas, use a street sweeper or other equipment capable of removing excess milled materials and controlling dust. Obtain the ENGINEER's approval of such equipment, contingent upon its demonstrated ability to do the work.
- O. Perform the sweeping operation immediately after the milling operations or as directed by the ENGINEER.

3.02 MILLED SURFACE

- A. 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.
- B. Ensure that the variation of the longitudinal joint between multiple cut areas does not exceed 1/4 inch. The ENGINEER may accept areas varying from a true surface in excess of the above stated tolerance without correction if the ENGINEER determines that they were caused by a pre-existing condition which could not have reasonably been corrected by the milling operations.
- C. Correct any unsuitable texture or profile, as determined by the ENGINEER, at no additional expense to the Department.
- D. The ENGINEER may require re-milling of any area where a surface lamination causes a non-uniform texture to occur.

3.03 MEASUREMENT AND PAYMENT

- A. There shall be no special measurement or payment for the work under this section, it shall be included in the unit price per square yard bid for asphalt concrete pavement restoration when listed separately in the Bid Schedule and shall be included in the cost of all other work called out in the Bid Schedule requiring milling of pavement including hauling off and stockpiling or otherwise disposing of the milled material.

END OF SECTION 02212

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SECTION 02221
EXCAVATION AND BACKFILLING UTILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

- A. The work shall consist of furnishing all materials, labor and equipment for excavation, trenching and backfilling for utilities. "Utilities" shall include storm water drains, culverts, water mains, gravity sewers, sewage force mains and appurtenant structures.

1.03 RELATED WORK

- A. 02200 - Earthwork
B. 02210 - Site Grading

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 EXCAVATION

- A. General: This work shall consist of the excavation of whatever substances shall be encountered to the depths as shown on the plans. Excavated materials not required for fill or backfill shall be removed from the work site as directed by the ENGINEER and shall be considered to be a part of the bid price of the utility pipe for which excavation and backfill is required.
- B. Excavation for structures and other accessories shall have a minimum clearance of twelve inches and a maximum clearance of twenty-four inches on all sides.
- C. Excavation shall not be carried below the required depths as indicated by the plans. Excess excavation below the required level shall be backfilled at the CONTRACTOR's expense with sharp sand, gravel or other suitable material thoroughly compacted and approved by the ENGINEER.
- D. Any unstable soil shall be removed and shall be replaced by material acceptable to the ENGINEER. The removal and replacement of such unstable soil shall be considered to be part of the bid price of the pipe for which excavation and backfill is required.
- E. Water shall not be permitted to accumulate in the excavated area. It shall be removed by pumping or other means as approved by the ENGINEER. The removal of water shall be considered to be a part of the bid price of the pipe for which excavation and backfill is required.

Well points, pumps or other approved means shall be used to keep the ground water sufficiently low in the opinion of the ENGINEER to permit the placing of concrete, masonry or pipe in first class condition, and sufficiently long thereafter to protect the concrete, masonry or joints against washing or damage.

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**SECTION 02221
EXCAVATION AND BACKFILLING UTILITIES**

The CONTRACTOR shall also use such other means as may be necessary to keep the excavation in satisfactory condition for the construction of the work, and the use of well points, or other approved method, will not relieve the CONTRACTOR of CONTRACTOR'S responsibility to make structures water tight.

- F. Banks and trenches shall be vertical unless shown otherwise on plans. The width of the trench shall be no less than 9" and no more than twelve inches, or as approved by the ENGINEER, on each side of the pipe bell for pipe up to 16" diameter. Bell holes shall be accurately excavated by hand.
- G. If the bottom of the trench is rock, the excavation shall be carried six inches below the invert of the pipe and backfilled with thoroughly compacted sharp sand, gravel or other suitable material approved by the ENGINEER.
- H. Rock excavation shall include any rock encountered as defined in Section 02200 – 3.08. Rock excavation shall be incidental to construction of all piping systems and no separate payment will be made, unless noted in Section 01025. The CONTRACTOR must have local knowledge and experience working with limestone formation excavations for this project.
- I. Whenever it is necessary, in the interest of safety, to brace or shore the sides of the trench, such bracing or shoring shall be considered to be part of the bid price of the pipe for which excavation and backfill is required.

The CONTRACTOR shall furnish, put in place and maintain such sheeting, bracing, as may be required to support the side of the excavation, and to prevent any movement which can in any way damage the work or endanger adjacent structures. If the ENGINEER is of the opinion that supports are insufficient, the ENGINEER may order additional supports. The compliance with such order shall not release the CONTRACTOR from CONTRACTOR'S responsibility for the sufficiency of the sheeting. The CONTRACTOR shall leave all sheeting in place. The ENGINEER may require sheeting to be cut off at any specified elevation, but in no case will any sheeting be left closer than two (2) feet below the natural surface, nor cut off below the elevation of the top of the pipe.

3.02 BACKFILLING

- A. After pipes, structures and other appurtenances have been installed, the trench or opening shall be backfilled with material free from large stones or clods of a quality acceptable to the ENGINEER.
- B. Backfill around the pipe and to a point twelve inches above the top of the pipe shall be placed in six inch layers compacted with 20 pound hand tampers or mechanical tampers suitable for this purpose. Backfilling shall follow lying closely, and shall not be more than one hundred (100) feet behind completed lying. Backfill over pipe shall be carefully placed by experienced labor and thoroughly consolidated without shock to the pipe, and carried up uniformly on both sides of the pipe. No backfilling with bulldozers will be permitted adjacent to pipe line.
- C. Within roadway right-of-ways, or within areas where pavements are to be constructed over the pipe, the remainder of the trench shall be placed in six-inch layers (compacted thickness) and shall be compacted to that as noted in Section 02200. CONTRACTOR will be responsible for correcting settlement in all backfilled areas whether under the pavement or otherwise.
- D. In areas where no pavement is to be constructed, the backfill above the twelve inch line above

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SECTION 02221
EXCAVATION AND BACKFILLING UTILITIES

the pipe shall be compacted to firmness approximately equal to that of the soil adjacent to the pipe trench or to that as noted in Section 02200. Backfill below the 12-inch line shall be compacted in 6-inch layers (compacted thickness) and shall be compacted to 98% of maximum density as determined by AASHTO T-180.

3.03 EXPLOSIVES

- A. The use of explosives will not be permitted.

3.04 PAYMENT AND MEASUREMENT

- A. No separate payment is provided for work covered by this Section. All costs in connection with Excavation and Backfilling, including testing, shall be included in the bid price of any item for which excavation and backfilling is required.

END OF SECTION 02221

**SECTION 02400
STORM DRAINAGE FACILITIES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1-General Requirements shall govern the WORK under this section.

1.02 WORK INCLUDED

- A. Provide all labor, materials, necessary equipment and services to complete the Storm Drainage Facilities work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

1.03 RELATED WORK

- A. Section 02110 - Clearing
B. Section 02200 - Earthwork
C. Section 02601 - Subterranean Structures

1.04 CLEARING

- A. Clearing or installation of pipe and all drainage structures shall be confined within the working limits of the trenches. Trees, utility poles, survey monuments, underground and overhead utilities shall be suitably protected and preserved.

1.05 EXISTING UTILITIES

- A. Furnish temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, cables, etc., and other obstructions encountered in the progress of the work.
- B. When the grade of alignment of the pipe is obstructed by existing utility structures, such as conduits, ducts, pipes, branch connections to water or sewer mains, and other obstructions, the obstructions shall be permanently supported, relocated, removed or reconstructed by the CONTRACTOR in cooperation with the owners of such structures. The ENGINEER shall make no deviation from the required line or grade except as directed in writing.
- C. It shall be the responsibility of the CONTRACTOR to notify the owners of existing utilities in the area of construction a minimum of 48 hours prior to any excavation adjacent of such utilities, so that field locations of said utilities may be established.
- D. It shall be the responsibility of the contractor to maintain positive drainage on the surface and to ensure that the existing under ground drainage system continues to function as intended during the construction of the new drainage system. The contractor shall submit a plan to maintain the existing drainage patterns and under ground system for the approval of the ENGINEER prior to beginning any work on the existing or new drainage systems.

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**SECTION 02400
STORM DRAINAGE FACILITIES**

PART 2 - PRODUCTS

2.01 PIPE

A. REINFORCED CONCRETE CULVERT PIPE:

1. A reputable manufacturer, engaged in the full time business of manufacturing concrete pipe, shall produce the concrete pipe. Pipe manufacturer shall produce the pipe from an approved, permanent plant acceptable to the ENGINEER.
2. All concrete pipe shall be reinforced and shall conform to the requirements of A.S.T.M. C-76. Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe." Pipe shall be Class III. Pipe shall have an interior surface, which is smooth, uniform and free from rough spots, irregularities and projections. Nominal pipe lengths shall be 8 feet unless authorized otherwise by the OWNER'S Representative. Lifting holes will not be permitted.
3. Concrete pipe shall be either bell or spigot, unless approved by ENGINEER.
4. Internal rubber gasket joints will be used at CONTRACTOR'S option. The internal rubber gasket joint shall be supplied by the pipe manufacturer and shall be completely compatible in every respect with the pipe furnished. The pipe manufacturer shall install the rubber gasket on the inside of the bell or groove on the pipe at the plant. All materials and accessories for the rubber gasket joint and the methods of jointing shall be in strict conformance with the pipe manufacturer's direction and recommendation. Joint must be completely watertight.
5. Cement grout joints shall be completely water tight and acceptable to the OWNER'S Representative. A full bed of mortar shall be placed in the bell and/or groove and on the tongue and/or spigot. The annular space in the pipe joint shall be wiped with cement mortar to insure the joint is filled and to present a smooth surface. The complete exterior periphery of the joint shall have a standard cement grout diaper joint. Diaper shall be installed within the aid of an approved cloth ring. Cement mortar joints shall be made in the dry. Mortar and grout shall be one part Portland Cement to two parts by weight of sand. Mortar shall have enough water to make a stiff mixture that can be molded and worked. Cement mortar joints shall not be covered until inspected and approved by the OWNER'S Representative.

B. HIGH DENSITY POLYETHYLENE (HDPE) PIPE:

1. HDPE must meet current Florida Department of Transportation (FDOT) specifications. The installation of HDPE must be in accordance with the manufacturer's recommendations, FDOT's Standard Specifications for Road and Bridge Construction, Section 430, Pipe Culverts and Storm Sewers, and meet ASTM F2306 requirements. The pipe joints must have water stop gaskets, meeting the requirements of ASTM F-477 and be wrapped with filter fabric. HDPE must be manufactured and certified as meeting the most current AASHTO M-294 material standard.

2.02 SUBMITTALS.

- A. Submit copies of product and material information and data.

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**SECTION 02400
STORM DRAINAGE FACILITIES**

PART 3 - EXECUTION

3.01 EXCAVATIONS

- A. Trenches shall be kept as nearly vertical as possible and, if required, shall be properly sheeted and braced. Where, in the opinion of the ENGINEER, damage could result from withdrawing sheeting, the sheeting shall be left in place. Not more than 100 feet of trench shall be opened at any one time or in advance of pipe laying unless permitted by the ENGINEER.
1. Except in rock, water-bearing earth or where a granular or concrete base is to be used, mechanical excavation of trenches shall be stopped above the final grade elevation so that the pipe may be laid on a firm, undisturbed native earth bed. If over digging occurs, all loosened earth shall be removed and the trench bottom brought back to grade with granular material.
 2. Excavations and trenches in rock shall be carried to a depth of not less than 12 inches below the pipe bottom. This space shall be filled with granular material or washed rock.
 3. Width of trenches shall be such as to provide adequate space for placing and jointing pipe properly, but in every case the trench shall be kept to a minimum width.
 4. Any unstable soil encountered shall be removed and replaced with gravel, crushed rock or rock and sand suitably compacted.

3.02 PREPARATION TO TRENCH BOTTOM

- A. Water shall not be allowed in the trenches while the trench bottom is being prepared or while pipe is being installed, unless directed by the ENGINEER.
- B. A continuous trough shall be shaped to receive the bottom quadrant of the pipe barrel. Bell holes shall be excavated so that after placement, only the barrel of the pipe receives bearing pressure from the trench bottom.
- C. Preparation of the trench bottom and placement of the pipe shall be placed in the trench bottom a minimum of 8 inches below the bottom of the pipe, and a trough as described above shall be formed to uniformly support the bottom quadrant of the pipe barrel.

3.03 INSTALLATION OF DRAINAGE PIPE

- A. Pipe shall be protected during handling against impact shocks and free falls. Pipe shall be kept clean at all times and no pipe shall be used that does not conform to the Specifications.
- B. The laying of the pipe shall be commenced at the lowest point with spigot ends pointing in the direction of flow. All pipes shall be laid with ends abutting and true to line and grade. They shall be laid in accordance with manufacturer's requirements as approved by the ENGINEER.
- C. Pipe shall be laid accurately to the line and grade as designated on the plans. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed or of the factory made jointing material shall be clean and dry. Lubricant, primers, adhesive, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or

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**SECTION 02400
STORM DRAINAGE FACILITIES**

factory-fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain a water tight line. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of pipe off line and grade.

- D. The exposed ends of all pipes shall be suitably plugged to prevent earth, water, or other substances from entering the pipe when construction is not in progress.

3.04 BACKFILLING TRENCHES

- A. No trenches or excavations shall be backfilled until the trench and installation has been inspected and written approval given by the OWNER'S Representative. Under no circumstances shall water be permitted to rise in unbackfilled trenches after pipe has been placed. Trenches shall be backfilled with approved material, free of large clods, stones or rocks and carefully deposited in layers not to exceed 6 inches until enough fill has been placed to provide a cover of not less than 1 foot above the pipe. Each layer shall be placed, then carefully and uniformly tamped, so as to eliminate the possibility of pipe displacement. The remainder of backfill materials shall then be placed, moistened and compacted in 6 inch layers to density as specified in Section 02200, Paragraph 3.14.I.
- B. Whenever the trenches have been improperly filled or if settlement occurs, they shall be refilled, compacted, smoothed off and made to conform to grade. Unless otherwise directed or shown on the plans, backfill in trenches in or through roadways shall be made as specified above, except that the entire fill above 1 foot over the pipe shall be deposited in layers not to exceed 8 inches in thickness, moistened, and compacted to density equal to or greater than that of adjacent material so that pavement can be placed immediately.

3.05 CONCRETE ENCASEMENT OF DRAINAGE PIPE

- A. Trenches in which encasement for pipe are to be placed, may be excavated completely with mechanical equipment. Prior to formation of the encasement, temporary supports consisting of timber wedges or masonry shall be used to support the pipe in place. Temporary supports shall have minimum dimensions and shall support the pipe at no more than two places, one at the bottom of the barrel of the pipe adjacent to the shoulder of the socket and the other near the spigot end.

3.06 DRAINAGE STRUCTURES

- A. All structures shall be built to the line and grade shown on drawings. All reinforced concrete work shall be in strict conformance with the concrete specifications contained herein. After erection of the forms and placing of the steel, the CONTRACTOR must have inspection and approval from the ENGINEER before placing any concrete. After removal of the forms, the CONTRACTOR shall backfill around each structure with approved granular fill. The fill shall be placed in layers not exceeding 8 inches in depth measured loose and compacted to density as specified in Section 02200, Paragraph 3.14.I. No defects of any kind in the pipe section will be accepted. All pipe stubs shall be made of the same type of pipe. Pipe stubs shall be sealed with a concrete plug, water tight. The ends of the pipes, which enter masonry, shall be neatly cut to fit the inner face of the masonry. Cutting shall be done before the pipes are built in.

SECTION 02400
STORM DRAINAGE FACILITIES

3.07 INSPECTION

- A. All storm sewers shall be lapped and physically inspected by the ENGINEER prior to acceptance of the work. Repairs or misalignment shown necessary by the tests shall be corrected at the CONTRACTOR'S expense. All sewers shall be thoroughly cleaned before being placed into use and shall be kept clean until final acceptance by the ENGINEER.

3.08 RESTORATION OF SURFACES AND/OR STRUCTURES

- A. The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, fences and survey points, or any other disturbed surfaces or structures to a condition equal to that before the work was begun and to the satisfaction of the ENGINEER. Relative to restoration of surfaces and/or structures, the CONTRACTOR shall comply with all requirements of governing agencies including CITY, COUNTY and STATE.

3.09 ABANDONMENT OF PIPELINE IN PLACE

- A. All drainage pipelines or structures shown on the drawings to be abandoned in place shall be properly cut and plugged after new mains and provisions for proper drainage are installed. The pipeline shall be filled with concrete one foot from end of pipe as specified in Division 3 - Concrete, and section 03010. Excavation, backfill, and restoration shall be executed in accordance with requirements for removing existing and installing new pipelines.

3.10 MEASUREMENT AND PAYMENT

- A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION 02400

**SECTION 02410
INSTALLATION OF PIPE BY DIRECTIONAL DRILL TECHNIQUE**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1-General Requirements shall govern the WORK under this section.

1.02 WORK INCLUDED

- A. The CONTRACTOR shall furnish all labor, materials, equipment and incidentals required to install pipe by the technique of inserting the pipe directly into a directional drilled opening; at the locations shown on the Drawings and as specified herein.
- B. All directional drill operations shall be performed in accordance with all requirements of the permitting agency and other agencies having jurisdiction over the work area.

1.03 RELATED WORK

- A. Division 2 as applicable
- B. Section 02200 Earthwork
- C. Section 02221 Excavation and Backfilling for Utilities
- D. Section 02610 Piping, General
- E. Section 02641 Valves, General
- F. Commercial Standards:
- ASTM F 1962 Maxi-Horizontal Directional Drilling
- ASTM F 2620 Heat Fusion Joining of Polyethylene Pipe and Fittings

1.04 GENERAL REQUIREMENTS

- A. Directional drilling and pipe installation shall be done only by an experienced, licensed contractor specializing in directional drilling technique and whose key personnel have at least five (5) years of experience in this work. Furthermore, the said contractor shall have had experience in directional drilling under Florida waterways and major roadways. Acceptable directional drilling contractors must meet these minimum qualifications presented in documentation of compliance with minimum standards in Section 1.05 .A.2.
- B. Prior to beginning work, the CONTRACTOR must submit to OWNER and ENGINEER a work plan detailing the procedure and schedule to be used to execute the project including, but not limited to the following:
1. A work plan should include a description of all equipment to be used, down-hole tools, a list of personnel and their qualifications and experience (including back-up personnel in the event that an individual is unavailable), list of subcontractors, a schedule of work activity, a safety plan (including MSDS of any potentially hazardous substances to be

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used), traffic control plan (if applicable), an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project.

2. Specifications on directional drilling equipment. Equipment shall include but not limited to: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system, and rig safety systems. Calibration records for guidance equipment shall be included. Specifications for any drilling fluid additives that Contractor intends to use or might use shall be submitted.
 3. Specifications on materials to be used. Materials shall include the pipe, fittings and any other item which is to be an installed component of the project.
 4. Copies of site surface and subsurface (soil borings) examination data prior to starting work.
 5. The Contractor shall perform directional drilling in accordance with an approved drilling method. The drilling method and sequencing of the drill shall be submitted by the Contractor at least 10 working days before the scheduled pre-construction meeting. The Contractor shall also submit, for approval, the proposed layout drawings, drilling method, along with his proposed crossing(s) configuration, including entry and exit angles, radius of curvature, and entry and exit points.
 6. The CONTRACTOR shall visit the site and determine the proximity of structures on either side of the crossings. The CONTRACTOR shall provide the OWNER with a drilling plan outlining procedures to prevent drilling fluid or the drilling process from adversely affecting these structures.
 7. Prior to pre-construction meeting CONTRACTOR is to submit "Frac-Out Plan" per State Water Quality Standards, pursuant to Rule 62-302, with details of the non-toxic florescent tracking dyes that the CONTRACTOR will be using with the drilling lubricant as a monitoring method with the bentonite. In addition CONTRACTOR shall identify an environmental scientist/biologist with experience in water quality monitoring and habitat protection to be used in the event of a frac-out.
- C. Three workdays written notice prior to start of the actual work shall be given to the OWNER and ENGINEER.
- D. The CONTRACTOR shall install, maintain, and leave in place any sheeting, underpinning, cribbing, and other related items (other than that required for the boring and receiving pits) to support any structure or facility affected by the boring operations. The ENGINEER, depending upon existing conditions, may require that additional sheeting for the excavation be left in place.
- E. The CONTRACTOR shall assume all responsibility for the methods and means of construction, the stability and accuracy of the drilled and reamed hole and constructed pits, and all cost responsible for the safety of the pits and related structures, and personnel engaged in construction throughout the duration of work.
- F. All work under this specification affecting the right-of-way, or municipal facilities shall be carried out to the full satisfaction of the authorized representative. It is the CONTRACTOR's responsibility to be fully informed of all requirements, and permit conditions as it pertains to

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the specific project and shall conduct all work accordingly.

- G. All equipment used by the CONTRACTOR on OWNER's property and rights-of-way may be inspected by the OWNER or the OWNER's Representatives.
- H. The CONTRACTOR shall be fully responsible for all damages arising from the failure of the CONTRACTOR or Subcontractors to comply with the regulations and the requirements of these Specifications.
- I. The CONTRACTOR's methods and schedule shall comply with the overall project requirements. The CONTRACTOR shall be familiar with the work within the local subsurface conditions. The CONTRACTOR's selection of inadequate, inappropriate, or inefficient equipment and methods will not be cause for adjustments to the Contract price or Contract time.
- J. The CONTRACTOR shall be responsible for all clean up of project site, debris, materials and equipment and shall clear the site of and dispose of them in accordance with Contract Documents.
- K. All work performed within the right-of-way of Florida Department of Transportation (FDOT), South Florida Water Management District, railroad company or other governing agencies' rights-of-way shall comply with all requirements and conditions of the governing authority, permit requirements and all requirements and conditions of these specifications.

1.05 SUBMITTALS

- A. The CONTRACTOR shall submit for the OWNER's and ENGINEER's approval the qualifications of the directional drilling specialty provider indicating compliance with the following minimum experience criteria:
 - 1. Descriptions of successfully completed similar projects using the guided directional drill technique, which shall include a listing of the following information:
 - a. Project name and location
 - b. Year of Project
 - c. Owner/Client
 - d. Client contact information
 - e. Diameter and material of pipe
 - f. Length of direction drilling installation
 - g. Other information relevant to the successful completion of the project
 - 2. Documentation of compliance with the following minimum standards:
 - a. The directional drilling specialty provider shall be an experienced, licensed contractor specializing in guided directional drilling and whose key personnel assigned to this work shall have a minimum of five (5) years of related

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directional drilling experience.

- b. The directional drilling specialty provider shall have installed utilities under major roadways and waterways via directional drill technique.
- B. Two (2) weeks prior to the start of the directional drilling work, the CONTRACTOR shall submit the directional drilling work plan for the OWNER's and ENGINEER's review. The work plan shall include the following information.
1. A plan showing details of the proposed method of construction, sequence of operations to be performed, number and size of construction crew, hours to be worked, pilot hole drilling procedure, reaming procedure, pullback procedure, method of monitoring the drilling head and method of verifying pipe location for as-built drawings.
 2. A drilling fluid plan which details types of drilling fluids, including the of non-toxic fluorescent tracking dyes, cleaning and recycling equipment, estimated flow rates, and procedures for minimizing drilling fluid escape.
 3. A plan in the event of drilling fluid escape including, but not limited to, stoppage of work, notification of applicable permitting authorities whose right-of-way is impacted by the escape of drilling fluid, procedure to confine drilling fluids/muds, and procedure for repair/plugging of fissures. See Dewatering Permit for requirements that will need to be met, at no additional cost to the OWNER, should fluid escape.
 4. A plan and profile drawing showing the CONTRACTOR's proposed pilot bore hole routing and location of other underground utilities. The plan drawing shall be at a 1 inch = 20 foot scale and the profile drawing at a 1 inch = 20 foot scale horizontal and 1 inch = 2 foot scale vertical.
 5. A 1 inch = 20 foot scale drawing of the proposed setup of major equipment at the entry point and the proposed layout at the exit point.
- C. The CONTRACTOR shall furnish shop drawings showing all fabrication and construction details for the directional drilled crossings.
- D. The CONTRACTOR will be responsible for maintaining drilling logs that provide drill bit locations at least 30 feet along the drill path. In addition, logs will be kept that record the following on an hourly basis throughout each drill pass, backream pass or pipe installation pass:
1. Drill fluid pressure
 2. Drilling fluid flow rate
 3. Drill thrust pressure
 4. Drill pullback pressure
 5. Drill head torque
 6. Horizontal distance of drill head from entry point

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- E. Upon completion of the pilot hole phase of the operation, a complete set of as-built records showing the actual horizontal and vertical alignment of the pilot bore at intervals not exceeding 30 feet shall be submitted in duplicate to the ENGINEER along with one electronic AutoCad as-built drawing file. These records shall include copies of the plan drawing at a 1 inch = 20 foot scale, and a profile drawing at a 1 inch = 20 foot scale horizontal and a 1 inch = 2 foot scale vertical, as well as directional survey reports as recorded during the drilling operation.

1.06 SAFETY

- A. The CONTRACTOR shall, at all times, conform to all applicable State and Federal regulations.
- B. CONTRACTOR is to adhere to requirements of all permits. See Permit Conditions for permit requirements.
- C. Guided Directional Drilling Equipment machine safety requirements will include a common grounding system to prevent electrical shock in the event of high voltage underground cable strike. The grounding system will connect all pieces of interconnecting machinery: the drill, mud mixing system, drill power unit, drill rod trailer, operator's booth, worker grounding mats and any other interconnected equipment to a common ground. The drill will be equipped with an "electrical strike" audible and visual warning system that will notify the system operators of an electrical strike.
- D. Operators of the drill will wear electrical shock protection equipment and operate from common grounded mats as required.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Pipe and Fittings – High Density Polyethylene (HDPE)
1. HDPE pipe 3-inch larger shall comply or exceed AWWA C906, ASTM D2513, D3035, D3350, and D1248 latest revisions. For potable water applications, all HDPE shall have NSF 14 certification and shall be a member of Plastic Pipe Institute. Each manufacturer shall supply a letter of certification stating compliance to all the above standards and requirements prior to shipping any material to project site. All HDPE piping system components shall be the products of one manufacturer and shall be ENDOT INDUSTRIES or approved equal. The HDPE material shall have required ultraviolet inhibitors to resist degradation by direct and prolong sunlight. The design of all HDPE materials shall be based on the HDB (hydrostatic design basis) of 1600 psi at 73.4-deg. F. The cell classification shall be or exceed 345465C for all HDPE 3-inch and larger and shall be manufactured with 4710 resins only. The pipe shall be SDR 11 Ductile Iron pipe OD with a pressure rating of 200 psi, except the 3-inch pipe shall be SDR 11 IPS OD with a pressure rating of 200 psi. All HDPE fittings shall comply with the same cell classification and pressure rating utilizing 4710 resins only.

All HDPE, 3-inch and larger, shall have 3 blue or green strips (1/4 –inch wide) located at the 12, 4, and 8 o'clock positions with permanent ink along the entire length of the pipe with the wording size of pipe, SDR rating and pressure rating, manufacturer's name, water pipe, ASTM Standard F174, PE 4710, NSF, AWWA C906, and manufacturing date and location. This shall be at least 1/4-inch tall lettering and shall run the entire length of the pipe.

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2. As a part of the shop drawing submittals, the Contractor shall furnish, signed by a Florida Registered Engineer, all calculations to determine, the pipe thickness, SDR rating, allowable stresses, in accordance with ASME B31.8, Table A842.22 and recommended coating, as required by the manufacturer.
 4. The Contractor will hydrostatically test the pipe after pullback to ensure its integrity. A calibrated pressure recorder shall be used to record the pressure during the test period. This record shall be presented to the Engineer of Record and made available to NMB Water. The Contractor shall provide as-built drawings reflecting actual installation.
- B. The carrier pipe shall conform to Section 02610; Piping, General.
- C. Equipment (graders, shovels, etc.) and materials (such as groundsheets, hay bales, booms, and absorbent pads) for cleanup and contingencies shall be provided in sufficient quantities by CONTRACTOR and maintained at all sites for use in the event of inadvertent leaks, seeps or spills.
- D. Technical criteria for bentonite shall be as given in API Spec. 13A, Specification for Oil Well Drilling Fluids Material for fresh water drilling fluids. Any modification to the basis drilling fluid involving additives must describe the type of material to be used and be included in CONTRACTOR's drilling plan presented to OWNER. The OWNER retains the right to sample and monitor the waste drilling mud, cuttings and water.

2.02 HDPE PIPELINE IDENTIFICATION

- A. All polyethylene pipe shall be black, and shall contain a continuous colored stripe, 2 inches wide, at three separate locations along the length of the pipe. Stripe color shall be:
1. Potable Water Mains - blue stripe
 2. Reclaimed Water Mains - purple stripe
 3. Force Mains - brown stripes
 4. Sanitary Sewer - green stripe
 5. Storm Sewer - no stripes required

PART 3 - EXECUTION

3.01 DIRECTIONAL DRILLING OPERATION

- A. The CONTRACTOR shall provide all material, equipment, and facilities required for directional drilling. Proper alignment and elevation of the opening shall be consistently maintained throughout the directional drilling operation. Entrance and exit angles for the drill are at the CONTRACTOR's discretion such that the elevation profile maintains adequate ground cover to reasonably precaution against hydraulic fractures with the drilling fluid and maintain the minimum cover shown in the Drawings and specified herein.
- B. The position of the drill string shall be monitored by the CONTRACTOR with the downhole survey instruments. The CONTRACTOR shall compute the position in the X, every 30 feet. Serious deviations between the design position which may affect the installation of the pipeline and are beyond the control of the CONTRACTOR to correct shall be documented and immediately brought to the attention of the OWNER for discussion and/or approval. The profile and alignment defined on the construction drawings for the bores define the minimum depth

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and radius of curvature. At no point in the drilled profile shall the radius of curvature of the bore be less than the minimum defined by the pipe manufacturer with a 10% factor of safety. The CONTRACTOR shall maintain and provide to the OWNER, upon request, the data generated by the downhole survey tools in a form suitable for independent calculation of the pilot hole profile.

- C. The use of a separate steering system employing a ground survey grid system, such as "TRU-TRACKER" or equal should be used, at the CONTRACTOR's discretion, to ensure proper monitoring of the drill string.
- D. Boring pits shall be shored with sheeting or such other materials as required. Sheeting shall be driven to a sufficient depth below the invert of the carrier pipe to resist any pressure developed by the soil outside the boring pit. Sheeting when used shall terminate not less than 3 feet 6 inches above existing grade.
- E. At the completion of the direction drilling operations, the CONTRACTOR will be required to remove all sheeting in place. If steel sheeting is used, it may be removed after installation of the carrier pipe in the bore hole, but prior to installation of the joining carrier pipe. However, should damage to the roadway, pipeline or any other adjacent structure occur, the CONTRACTOR shall leave all remaining sheeting in place and redrive and leave in place any sheeting which is required to stabilize the site and prevent additional damage from occurring. The top of all sheeting left in place shall be cut off 36 inches below finished grade.
- F. Bentonite or other stabilizing gels shall be used to prevent caving of the unsupported bore hole.
- G. The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the crossing, a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be re-used, a guidance system to accurately guide boring operations, a vacuum truck of sufficient capacity to handle the drilling fluid volume, trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.
- H. Mud Motors (if required) shall be adequate power to turn the required drilling tools.
- I. Drill pipes shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.
- J. Drilling fluid shall be composed of clean water and appropriate clay additives. Water shall be from an authorized source with a pH of 8.5-10. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No potentially hazardous material may be used in drilling fluid.

3.02 DRILLING FLUIDS AND CUTTINGS

- A. To the extent practical, the CONTRACTOR shall maintain a closed loop drilling fluid system and utilize drilling tools and procedures which will minimize the discharge of any drilling fluids.
- B. CONTRACTOR shall have divers present during the drilling operations in order to respond to

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potential frac-out release.

- C. The Guided Horizontal Direction Drilling operation is to be operated in a manner to eliminate the discharge of water, drilling mud and cuttings to the canal or land areas involved during the construction process. The CONTRACTOR shall provide equipment and procedures to maximize the recirculation or reuse of drilling mud to minimize waste. All excavated pits used in the drilling operation shall be lined by CONTRACTOR with heavy duty plastic sheeting with sealed joints to prevent the migration of drilling fluids and/or ground water.
- D. Pits constructed at the entry or exit point area shall be so constructed to completely contain the drill fluid and prevent its escape to the surrounding land or canal.
- E. Waste cuttings and drilling mud shall be processed through a solids control plant comprised as a minimum of stumps, pumps, tanks, distiller/desander, centrifuges, material handlers, and haulers all in a quantity sufficient to perform the cleaning/separating operation without interference with the drilling program. The cuttings and excess drilling fluids shall be dewatered and dried by CONTRACTOR to the extent necessary for disposal, and disposal in offsite landfills at the CONTRACTOR's expense. Water from the dewatering process shall be treated by CONTRACTOR to meet permit requirements and disposed of locally. The cuttings and water for disposal are subject to being sampled and tested. The construction site and adjacent areas will be checked frequently for signs of unplanned leaks or seeps.
- F. All drilling mud shall be removed from the entry and exit area soils such that water will percolate. All disturbed areas shall be restored to original conditions.

3.03 INSTALLING PIPE

- A. The pipe installed within the boring shall be in full conformity with these Specifications and as shown on the Drawings. The pipe shall be installed, as to a reasonable directional drilling ability, to the exact lines grades required after having been satisfactorily approved by the ENGINEER from the directional drillers expected drill path plan and profile sheets provided in Section 1.5.
- B. The type and size of the pilot string cutting head shall be at the CONTRACTOR's discretion. The type and outside diameter of the drill pipe to be used in the pilot string shall also be at the CONTRACTOR's discretion.
- C. Lateral positioning at exit shall be no further than 5 feet left or right of planned centerline, and horizontal positioning shall be no further than 5 feet short or long of proposed exit location. Entry and exit locations, as well as intermediate centerline stationing, shall be staked by the CONTRACTOR.
- D. Upon approval of the pilot hole location by the ENGINEER, the hole opening or enlarging phase of the installation shall begin. The type of hole opener or back reamer to be utilized in this phase shall be determined by the types of subsurface soil conditions that have been encountered during the pilot hole drilling operation. The reamer type shall be at the CONTRACTOR's discretion.
- E. The open borehole may be stabilized by means of bentonite drilling slurry being pumped through the inside diameter of the drill pipe and through opening in the reamer. The slurry will also serve as an agent to carry the loose cutting to the surface through the annulus of the borehole. These cuttings and bentonite slurry are to be contained at the exit or entry side of

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the directional bore in pits or holding tanks. The slurry may be recycled at this time for reuse in the hole opening operation, or it shall be hauled by the CONTRACTOR to an approved dump site and properly disposed.

- F. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining.
- G. A complete list of all drilling fluid additives and mixtures to be used in the directional operation will be submitted to the ENGINEER, along with their respective Material Safety Data Sheets. All drilling fluids and loose cuttings shall be contained in pits or holding tanks for recycling or disposal, no fluids shall be allowed to enter any unapproved areas or natural waterways. Upon completion of the directional drill project, drilling fluid shall be disposed of by the CONTRACTOR at an approved dump site.
- H. A "weak-link or breakaway device shall be used at the leading end of the pipe to protect the pipe from excessive pulling loads. The breakaway strength of this device shall be set at or below the allowable tensile load of the pipe.
- I. High Density Polyethene (HDPE) pipe shall not be placed in direct sunlight immediately prior to installation.
- J. HDPE pipe shall have the beads removed from the interior of the fused joints.
- K. A sufficient length of HDPE pipe shall be pulled past the exit point and left before the entry point to allow for relaxation.
- L. HDPE pipe shall have mechanical joint adapters to connect to the pipe on either side of the directional drills. Mechanical joint adapter used is to match HDPE pipe manufacturer requirements for connection to ductile iron pipe.
- M. HDPE shall have sufficient time for relaxation before connecting to the pipe on either side of the direction drill.

3.04 EXISTING UTILITIES

- A. The Drawings show existing buried utilities that are believed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that other utilities may be present. It is the CONTRACTOR's responsibility to locate all utilities or other subsurface obstructions that may interfere with the work.
- B. Utility lines and structures indicated on the Drawings which are to remain in service shall be protected by the CONTRACTOR from any damage as a result of the operations. Where utility lines or structures not shown on the drawings are encountered, the CONTRACTOR shall report them to the OWNER before proceeding with the Work. The CONTRACTOR shall bear the cost of repair or replacement of any utility lines or structures which are broken or damaged by the CONTRACTOR's operations.
- C. All utilities in close proximity to the drill pilot bore, back ream or carrier pipe installation must be exposed through a "pot-hole" or other opening, in accordance with state utility locate laws and regulations, to ensure, through visual inspection, that the drill, reamer or pipe has caused no damage to the utility and maintains adequate clearance.

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3.05 TESTING

A. CONTRACTOR is required to perform a pressure test prior to installation of pipe. A leakage test in accordance with Contract Documents shall also be performed post pulling. All leakage tests shall be completed and approved prior to placing of permanent resurfacing. When leakage exceeds the amount allowed by the Specifications, the CONTRACTOR, at its expense, shall locate the leaks and make the necessary repairs or replacements in accordance with the Specifications to reduce the leakage to the specified limits. Any individually detectable leaks shall be repaired, regardless of the results of the tests.

B. Leakage Tests: The leakage testing shall be as follows:

1. Gravity sewers greater than 24 inches in diameter; air pressure test, or as approved.
2. All pressure test (force mains): pressure mains shall be hydrostatically pressure tested for a period of not less than 2 hours at 150 PSI with an allowable leakage not to exceed the formula:

$$L = \frac{SD (P)^{1/2}}{148,000}$$

L = Allowable leakage in gallons per hour
 S = Length of pipe in feet
 D = Nominal diameter of pipe in inches
 P = average test pressure during test in pounds per square inch.

All testing is to be in accordance with AWWA C605.

C. Water Pressure Test: The CONTRACTOR shall perform preparatory testing prior to installation of directional drilled pipe. Preparatory to testing, the section of the pipeline to be tested shall be filled with water and placed under a slight pressure for at least 48 hours. The pipeline shall then be brought up to the test pressure specified and maintained on the section under test for a period of not less than four (4) hours. Accurate means shall be provided for measuring the quantity of water required to maintain full pressure on the line for the test period, which volume shall not exceed:

$$L = \frac{CND (P)^{1/2} H}{1850}$$

Where:

L = Maximum allowable leakage in gallons for the section of pipeline tested
 N = Number of joints in length tested
 D = Diameter of pipe in inches
 P = Test pressure in psi = 150 psi
 H = Number of hours the pipe is tested
 C = 1.0 for reinforced concrete pressure pipe with rubber ring joints, cylinder type
 C = 3.0 for reinforced concrete pressure pipe with rubber joints, noncylinder type

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C = 0.50 for cast iron pipe with mechanical or rubber gasket joints and asbestos cement pipe

C = 1.0 for other type of cast iron joints (calked) and other types of pipe

- D. Post installation CCTV inspection must be conducted with the camera at the approximate center of the pipeline, while traveling no faster than 30 feet/minute with adequate lighting, no water and 360 degree views.

3.06 COMPLETION OF DIRECTIONAL DRILLING

- A. Completion and successful testing of the approved pipe will entitle the CONTRACTOR to full payment of the applicable amounts in the Contract.
- B. In the event of failure to install the directional drilled pipelines, the CONTRACTOR shall retain possession of any CONTRACTOR-supplied pipe and remove it from the site. The bore holes shall be completely filled with grout to prevent future problems. If the pipe cannot be removed from the bore hole, it shall be cut off five feet below ground and the pipe and annular space shall be grouted.

3.07 MEASUREMENT AND PAYMENT

- A. Measurement and payment will be based on the quantities as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION 02410

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INSTALLATION OF PIPE BY PIPE BURSTING TECHNIQUE**

1.01 RELATED DOCUMENTS

- A. All applicable provisions of the Bidding and Contract Requirements, and Division 1-General Requirements shall govern the WORK under this section.

1.02 WORK INCLUDED

- A. The CONTRACTOR shall furnish all labor, materials, equipment and incidentals required to install pipe by the technique of pipe bursting and providing temporary water main bypasses as required to maintain service to properties adjacent to the project; at the locations shown on the Drawings and as specified herein.
- B. All pipe bursting operations shall be performed in accordance with all requirements of the permitting agency and other agencies having jurisdiction over the work area.

1.03 RELATED WORK

- A. Division 2 as applicable
- B. Section 02200 Earthwork
- C. Section 02221 Excavation and Backfilling for Utilities
- D. Section 02610 Piping, General
- E. Section 02641 Valves, General

1.04 GENERAL REQUIREMENTS

- A. Pipe bursting pipe installation shall be done only by an experienced, licensed contractor specializing in pipe bursting technique. The CONTRACTOR shall provide documented evidence of:
1. Being actively engaged in the installation of pipe using the static pipe bursting method for a minimum of seven (7) years.
 2. Performing 100,000 feet or more of water main replacement using the process of pre-chlorinated pipe bursting in the United States of America over the past 24 month period.
 5. The work experience must have been performed under the company name.
 6. Experience must be with the use of a static pipe bursting system with evidence of 2", 4", 6", 8", 10" and 12" projects.
 7. Submit a project reference sheet listing five (5) similar projects successfully completed within the last two years. To be counted, each project reference must encompass: replacing potable water main, using the static pipe bursting method, using the pre-chlorination method and all projects must be from the state of Florida.
- B. The CONTRACTOR shall provide documented evidence of the following certifications:

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1. Certificate of training endorsed by the manufacturer of the pipe bursting equipment.
 2. Certificate of training endorsed by the manufacturer of thermal fusion equipment in butt fusing of HDPE pipe, in lieu of certificate, evidence of training may be substituted.
 3. Certificate of training endorsed by the supplier or manufacturer of HDPE electro-fusion fusion couplers to be used in the method. In lieu of certificate, evidence of training may be substituted.
- C. Hygiene a competency statement by contractor that all employees are medically cleared to work on restricted operations and have been trained in hygienic procedures.
- D. Personnel overseeing Pre-chlorination process shall be trained and qualified in process.

1.05 SUBMITTALS

- A. The CONTRACTOR shall submit a plan to the OWNER and ENGINEER on a marked up copy of the Project Drawings showing the CONTRACTOR's construction phasing and plans at the Pre-Construction Meeting. Plan details should include:
1. Pit locations for pipe insertion and bust machine location.
 2. Pit locations for service re-connects.
 3. Schedule of when various sections are to be rehabilitated.
 4. Distances of each pull.
 5. Isolating points used to seal the system during the pipe burst.
 6. Chlorination/De-chlorination logs for each pipe section.
 7. Temporary water main bypasses.
- B. The Project Construction drawings provided by the OWNER shall be marked by the CONTRACTOR to show actual locations of services, fittings, fire hydrants and other reconnects. These markups shall be done the day of the actual placement. A set of marked up plans shall be returned to the OWNER within 15 days of substantial completion of job.
- C. Chlorination Submission Documents, pipes Pre-Chlorinated with intent to install under this specification must have a log sheet placed in a sealed waterproof envelope attached to the pipe at the start of the Chlorination process. This sheet makes up the Chlorination Submission Documents and shall be delivered to the OWNER at the same time as the marked up construction drawing. Information on the log sheet shall at a minimum include:
1. Date of Swabbing
 2. Date of Chlorinating and amount of chlorine used
 3. Date of samplings
 4. Results of Sample tests

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5. Date of pipe installation
6. Date of Pressure Test
7. Makeup water details (if any)
8. End test pressure
9. Final pressure test results
10. Location of installation

PART 2 - PRODUCTS

2.01 MATERIALS

A Pipe Specification:

1. High Density Polyethylene Pipe shall be AWWA C906 (HDPE) and per City Specifications.
2. Pipe must conform to ASTM F714 and NSF 61.
3. HDPE resin shall be PE4710 characterized by ASTM D3350.
4. All pipe shall be made of virgin material, no rework except that obtained from manufacturers own production.
5. Pipe shall be a minimum of SDR 11 wall thickness or as directed by the Authority.
8. Cuts or gouges, per ASTM F585 are acceptable up to 10% of wall thickness. Beyond 10% of wall, damage must be removed by cutting the damaged section from the pipe string and butt fusing the ends.
9. Stripe along the length of the pipe shall be blue in color to identify the pipe as potable water.

B. Other Product Specification:

1. Fittings for pressure systems shall be ductile iron and comply with AWWA C110. The minimum pressure rating shall be 150 PSI and meet all city standard specifications.
2. Stiffener inserts per ASTM 240 shall be used for all fittings and connections to HDPE pipe. Stiffeners shall be 304 stainless steel and be of wedge type design.
3. Service Connection Fittings shall be HDPE electro-fusion type and/or mechanical saddles with a minimum working pressure of 150 PSI and per City specification.
4. Pipe Connection Fittings shall meet AWWA C906 and meet or exceed the pressure requirements of the HDPE Pipe.

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5. Temporary bypass water main lines shall meet or exceed all requirements set forth by NMB Water and the applicable codes and standards for potable water mains.
- C. Product Compliance:
1. Certificate of compliance shall be supplied to the City that the Product Pipe is per specification 2.01 and as specified in the General Requirements Section.
 2. All materials (in excess of those specified above) used with the coupling or connecting HDPE water main must be submitted and approved by the City.
- D. Product Handling
1. Pipe transport and handling shall be per manufacturer's recommendation.
 2. Product other than pipe must be stored and handled per manufacturer's recommendations.

PART 3 - EXECUTION

3.01 NOTIFICATION OF REGULATORY AUTHORITY

- A. Prior to commencement of construction, the OWNER and the CONTRACTOR shall notify the local regulatory agency (DEP) for their project review and oversight. Specifications for the construction processes and/or plans shall be provided to the agency as they require.

3.02 INTERRUPTION OF SERVICE TO END USERS

- A. Interruption of service to end users shall be minimized through the efforts of the contractor and use of the method outlined within. Outages shall be limited to 8:00 AM to 6:00 PM Monday through Friday. No interruption shall be permitted between 6:00 PM and 8:00 AM or on Saturday, Sunday or legal holidays without the approval of the OWNER.
- B. Contractor shall be responsible for providing temporary bypasses of existing potable water mains to be pipe bursted as proposed in the Contract Documents as needed to maintain potable water service to all properties adjacent to the project.
- C. Only one (1) line segment may be shut down for rehabilitation at any one moment.
- D. End users shall be notified in writing (door hanger, flier, etc.) by the CONTRACTOR in a manner approved by the City. General notice shall be provided (7) days in advance if possible. Detailed Notice shall be provided at minimum permissible advance of 48 hours prior to service interruption.

3.03 JOINING OF PIPE

- A. Fusing per Butt fusion methods in strict conformance to the pipe and/or fusing equipment manufacturers recommendations shall be used to join sections of High Density Polyethylene Pipe.
- B. Fusing of 'sticks' of pipe shall be performed in the general vicinity of the pipe insertion pit or

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lay down yard (staging area).

- C. Pipe supplied by the pipe manufacturer in a coil may be fused remote from the pipe insertion pit.
- D. Solvent cement joints performed by anyone other than the manufacturer are unacceptable for any HDPE pipe or fitting.

3.04 PRE-CHLORINATION OF PRODUCT PIPE

- A. Chlorination of pipes prior to bursting shall be carried out per ANSI/AWWA C651-14 Standard for Disinfecting Water Mains and in cooperation with the City's Water Maintenance Department. Any information here shall facilitate that method when performed on pipes not yet placed on grade. In general, the method includes the following:
 - 1. Disinfect all equipment, tools, end caps, pipe fittings or product that may contact pipe.
 - 2. Disinfection shall be carried out by immersing or rinsing items in a hypochlorus solution containing 1 to 5 percent chlorine measured by weight. See details of Chlorination solution in section 3.05.
 - 3. Product pipe shall be fused into a string of sufficient length to complete the designated section or be coiled in a manner suitable for delivery on a pipe reel. Maximum allowable length is 800 feet.
 - 4. The surface upon which the product pipe rests during Chlorination shall be relatively impervious and free from visible contamination. Coiled pipe must be laid horizontally to allow all air to be expelled.
 - 5. Swabbing, Chlorination and testing of the inside diameter of the pipe shall be accomplished by:
 - 1. Swab being inserted at the lowest end of the pipe.
 - 2. Calcium Hypochlorite tablets or granules as described in section 3.05. shall be placed behind the swab.
 - 3. Pressure tight end cap shall be mounted to the low end of the pipe either by fusing or mechanically assembled to the pipe.
 - 4. Potable water shall be introduced through this end cap at a controlled rate such that the swab is propelled at a velocity less than or equal to one foot per second. All air is to be dispelled from the pipe.
 - 5. Upon discharge of the swab from the elevated end of the pipe, the elevated end shall be capped with a pressure tight seal. This seal having a tapped access hole of size at least 1.25" NPT or incorporating the ability to leak (purge) air or water at will by adjustment of clamping bolts. Additional potable water should be added after capping to ensure that no air remains between the caps.
 - 6. Pressure testing of the pipe section should be performed per details in section 3.06 upon replacement of the second end cap.

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7. Chlorinated solution should be maintained in the pipe for a minimum of 24 hours prior to flushing when water temperature is above 41 °F (5°C), 48 hours when water temperature is 41°F (5°C) or less. Time for retention of the chlorinated solution shall not be significantly over designated holding time so as to prevent damage to the pipe or end caps.
8. After designated holding time, the pipe shall be drained, flushed and filled with potable water so as to expel the highly chlorinated solution. The spent Chlorinated solution shall not be allowed to enter any water shed, a sanitary sewer or any other area where environmental damage may occur without neutralizing it in an industry acceptable manner. Flushing water shall be from a source known to be of drinking water standard.
9. Test samples shall be taken from each end of the pipe on consecutive days, 24 hours apart. Samples shall be tested by a state certified lab within 30 hours of being taken.
10. Failure of any sample to pass a bacteriological test should result in the related section of pipe being re-flushed and retested. Should any sample again fail, the section must be chlorinated before retest.
11. Time before re-connection of a passing pipe section shall be limited to 14 days from the last sampling. After this time the pipe must be retested to be acceptable for use.
12. Drain the section of pipe prior to pipe bursting. The pipe shall be drained on the day of the pipe bursting, and sealed after draining and for the pipe bursting process.
13. Swabs should be designated by the manufacturer as suitable for potable water system use. Swabs are to be manufactured by Knapp Industries or be of equivalent design.

3.05 CHLORINATION SOLUTIONS

- A. Acceptable forms of chlorine include Calcium Hypochlorite conforming to ANSI/AWWA B300, preferably in 5 gram tablets, alternately in granular form. Material must be stored per manufacturer's recommendations.
- B. Unacceptable forms of chlorine include Calcium Hypochlorite intended for swimming pool use.
- C. Calcium Hypochlorite tablets shall be placed behind the swab in quantity based on pipe size and length per ANSI/AWWA C651-05 AWWA Standard for Disinfecting Water Mains.
- D. Calcium Hypochlorite in granular form shall be placed behind the swab in quantity based on pipe size and length per ANSI/AWWA C651-05 AWWA Standard for Disinfecting Water Mains.
- E. Solutions acceptable for pipe chlorination shall be acceptable for disinfection of equipment, tools, and caps, pipe fitting or product that may contact pipe.
- F. Dilute Chlorinated solutions over 7 days old shall be disposed of properly and not used as a

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disinfection agent.

3.06 HYDROSTATIC PRESSURE TESTING

- A. Maximum allowable test pressure as referenced by PPI TR-31 shall be 1.5 times the pipe rated operating pressure (min. test pressure 125 psi) at the lowest point in the section under test or that of the lowest rated pressure component such as flanges, valves, fittings, etc.
- B. Air trapped in the product pipe must be purged before test.
- C. At the discretion of the City, the test method used may be either a Monitored Make-up Water Test or a Non-monitored Make-up Water Test. Either test shall be performed above ground without fittings prior to pipe bursting. If damage to the product pipe occurs during bursting that requires a fused joint repair, the City may require re-test, with or without fittings after bursting.
- D. Monitored Make-up Water Test shall be comprised of two stages.
 - 1. Initial expansion and stabilization stage. The initial test pressure is applied and the system is allowed to stand without make-up water during a 2 to 3 hour period. During this time the pipe is allowed to expand and stabilize.
 - 2. Test stage, after the stabilization is complete, the system is pumped back to test pressure and allowed to sit for 2 additional hours. Water is then added until the test pressure is attained. Water added shall not exceed that of Table 6.1.
- E. Non-monitored Make-up Water Test shall be comprised of two stages.
 - 1. Initial expansion and stabilization state. The initial test pressure is applied and the system is allowed to stand without make-up water during a 2 to 3 hour period. During this time the pipe is allowed to expand and stabilize.
 - 2. Test stage. After the stabilization is complete, the system is pumped back to test pressure and then reduced by 10 PSI. The pressure shall remain steady, not falling more than 5% from reduced pressure during a one hour test period.
 - 3. Total time allotted for test shall not exceed 8 hours. If successful test can not be completed in this period, then the test section must be depressurized and allowed to relax for a minimum of 8 hours before retest.
- F. Re-test after repair. Should the City require test after repair, refer to Equation 6.2 for Leakage Allowance due to fittings for the Monitored Make-up Water Test.
- G. Manifest shall be filled out with all pressure test results.

3.07 PIPE BURSTING OPERATION

- A. The pipe bursting operation described within provides guidance on the basic process. It is to be understood that the need to make exceptions or additions to this process are common. These changes are made to accommodate non standard conditions. The contractor experience requirements make it reasonable to put the responsibility of devising these exceptions upon the contractor.

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3.08 PIT LOCATION AND EXCAVATION

- A. Burst pit and insertion pit locations shall be placed such that excavations are minimized. This may be accomplished by placing either or both of these pits at the point of a service connection.
- B. Burst length shall be 400 feet (+/-) 50 feet in length for first 2 bursts. After soil pipe friction is evaluated longer burst runs may be performed.
- C. All pits shall be shored to ensure worker safety per OSHA or other local regulations.
- D. All pits shall be roped off and or covered when not active per OSHA or local regulations to ensure public safety.
- E. Traffic control shall be accommodated for by Contractor as per the Contract specifications. Safe traffic passage around pit excavations that are located in or adjacent to streets or highways shall meet requirements of City Right-of-way Department. Parking of related employee vehicles, trucks and auxiliary and equipment shall be such that congestion and traffic delays are minimized.
- F. Utilities intersecting the hose pipe shall be exposed using an excavation technique appropriate for the utility. This Utility Crossing Pit shall exist prior to commencement of bursting. Man entry shoring is not required however appropriate safety precautions should be made.

3.09 BURSTING MACHINE LOCATION AND SHORING

- A. Bursting machines of the static pull style require preparation and planning for the bursting pit that they are to operate from.
 - 1. Burst pit shall be shored in accordance to 3.08 (c).
 - 2. Forward face of the Burst Pit or the surface that the machine bears against while pulling back, shall be shored in workman like manner. This shoring shall maintain perpendicular burst machine alignment to the pipe during pullback. Any loss of perpendicular alignment during pull shall result in stopping of the bursting process and improvement of the forward face shoring.
 - 3. Rearward shoring shall be provided to react rod thrust forces during payout. While these forces are substantially lower than pullback forces, shoring must be used to stabilize the bursting machine so as to maintain perpendicular alignment of the machine during payout. The weight of the machine can not be depended on to react thrust forces. Hose pipe at rear face of pit may only be utilized for rearward shoring if scheduled for replacement.
 - 4. Pipe face for Cast Iron, Ductile Iron or PVC shall be cut off using a saw or similar device to produce a square face for the bursting machine forward face to bear against. Final separation of cast iron pipe with a wedge may provide a clean face. Host Pipe shall be removed in sufficient length to accommodate burst machine.
 - 5. Burst machine must be positioned so as to have rod centerline at approximate centerline of host pipe.
 - 6. Rod Box delivery and removal between temporary rod storage location and Burst Pit

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must be accommodated for with appropriate lifting equipment and techniques. Additionally, movement and or placement of lifting machine must be included in Traffic Control plans.

3.10 ROD PAYOUT OPERATION

- A. Rod payout is the process of assembling a string of rods and pushing them in a step wise manner from Burst Pit, through the interior of the hose pipe to Insertion Pit.
- B. Lifting of rod boxes into or out of the Burst Pit shall be performed per OSHA or other applicable requirements with respect to equipment and method.
- C. Threads shall be cleaned of foreign matter before assembly.
- D. Counting of Rods during payout, or quantity of rods per box shall be monitored such that the operator is aware of the distance between the burst machine and the lead end of the rod string.
- E. Thrust force should be monitored by the operator. Should an unexpected sudden and significant increase in thrust force be experienced, the process shall be halted. The operator or contractor shall review the results of 3.10 (E.1) with the City to remedy per 3.10 (E.2) in an attempt to determine if offsets, valves or other features or obstruction exist that may cause the rod string to leave the pipe.
 - 1. Front end of the rod string should be located by distance from the Burst Pit.

Location should be painted and compared to as built plans.
 - 2. Appropriate action should be taken to remedy the cause. This action may include an additional pit at the obstruction to determine the cause, and remove or accommodate for the obstruction. The decision may be to continue thrusting if the obstruction is believed to be encrustation.
- F. Host pipe in the Insertion Pit shall be cut or broken prior to arrival of the rod string. Sufficient length shall be removed so as to allow the Burst Tooling to enter the host pipe and bend the product within the allowable radius specified by the pipe manufacturer. The second end of the host pipe in the Insertion Pit shall be positioned or worked so as not to damage the product pipe as it travels through the Insertion Pit.
- G. Workmen shall not enter the Insertion Pit when the rod string is nearing the Pit. A workman shall be in visual or radio contact with the burst machine operator so as to have the payout halted in a position that allows attachment of the Burst tooling. Burst tooling style shall be chosen based on anticipated properties of host pipe and host pipe repairs.
 - 1. Cast Iron or Asbestos Concrete host pipe anticipated to be free of either Ductile Iron repair sections or Dressor Style Couplings may use a simple conical burst head with a single or double longitudinal blade.
 - 2. Ductile Iron, PVC or hose pipe with Ductile Iron repair sections or Dressor Style Couplings require use of a rolling blade cutter (slitter) ahead of the conical expander.

3.11 TOOLING AND ATTACHMENT

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- A. The Product Pipe shall be moved into position for attachment to the rod string. Appropriate traffic or pedestrian control will be exercised along the path of the Product Pipe.
- B. The lead and second rod shall be painted orange or yellow so as to give notice to the burst machine operator position of the Burst Tooling.
- C. Attachment of the Burst Tooling to the rod shall be through the use of removable pin joint allowing the tooling to pivot at least 46 degrees to the rod axis.
- D. Burst head diameter must be a minimum of 15% over size to the outside diameter of the Product Pipe. Actual size is left to the discretion of the contractor. A greater outside diameter allows for reduced pipe friction and increases bursting forces pushed and increases solid pipe placement.
- E. Attachment of the Product pipe to the Burst Tooling shall be with a swivel that permits rotation to relieve torsional (twist) stress on the Product pipe.
- F. Burst Head shall slide on the rod string such that the rear of the burst head overlaps the forward end of the Product Pipe to eliminate the chance of damage to the Product Pipe.

3.12 PULLBACK OPERATION

- A. Prior to commencement of pullback, there will be visual or radio contact between observers stationed adjacent to the Insertion Pit, the Burst Machine operator and a Product Pipe Observer stationed strategically along the length of the product pipe to watch for product pipe entanglement with above ground obstructions.
- B. The Burst Machine operator will begin the pullback with the OK of the Insertion Pit Observer. Progress will be made at a slow rate until the Observer sees the Burst Tooling has completely entered the Host Pipe.
- C. Pipe progress will be monitored for the first 20 feet of pullback by the Insertion Pit Observer and the Product Pipe Observer.
- D. As the Burst Tooling nears any Utility Crossing Pit, an observer in radio or visual contact with the Burst Machine Operator will monitor and control movement of the Burst Tooling past the utility.
- E. Should the forward shoring upon which the bursting machine bears yield sufficiently to bring the Bursting Machine out of square to the host pipe, the shoring will be reworked according to 3.09 (B).

3.13 TOOLING REMOVAL

- A. Burst Machine Operator shall note rod count and anticipate entry of painted rods into the Burst Pit. As the Pin Joint Connection nears the Burst Machine forward face, the burst is to be halted. Load on the forward face is relieved by reversing the rod direction slightly.
- B. The Burst Machine Shore Plate is to be removed, allowing the tooling to enter a cage or the hull of the Burst Machine. The tooling string will be disassembled and removed, in sections if necessary until the Product Pipe face has been pulled beyond the face of the Burst Pit. The distance past the face of the Burst Pit shall be at the discretion of the contractor anticipating

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