The Enclosed Document Is Provided For Your Convenience.

Please Email ALL Questions:

MailTo:ContractAdministration@TampaGov.net

Please Let Us Know If You Plan To Bid

City of Tampa
Contract Administration Department
306 E. Jackson St. #280A4N
Tampa, FL 33602
(813)274-8456

CITY OF
TAMPA, FLORIDA

NOTICE TO BIDDERS, INSTRUCTIONS TO BIDDERS
PROPOSAL, BID BOND, FORM OF NOTICE OF AWARD,
AGREEMENT, PERFORMANCE BOND AND
SPECIFICATIONS

FOR

Contract 14-C-00011

CHANNEL DISTRICT:
EAST MADISON STREET IMPROVEMENTS

PROJECT 1000327

City of Tampa
CONTRACT ADMINISTRATION DEPARTMENT
TAMPA MUNICIPAL OFFICE BUILDING
306 E. JACKSON STREET - 4TH FLOOR NORTH
TAMPA, FLORIDA 33602

DECEMBER 2013

CITY OF TAMPA
CONTRACT ADMINISTRATION DEPARTMENT
306 E. Jackson Street 280A4N
Tampa, FL 33602

****

BID NOTICE MEMO

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Bids will be received no later than 1:30 p.m. on the indicated Date(s) for the following Project(s):

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CONTRACT NO.: 14-C-00011; Channel District: East Madison Street Improvements
BID DATE: January 28, 2014 ESTIMATE: $990,000 SCOPE: The project comprises providing improvements to East Madison Street in the Channel District including roadway, stormwater, wastewater, and water main construction, signing and pavement markings, specialty concrete and sawcut concrete walks, site furnishings, landscaping and irrigation, underground electrical.
PRE-BID CONFERENCE: Tuesday, January 7, 2014, 2:30 p.m. Attendance is not mandatory, but recommended.

Bids will be opened in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida 33602. Pre-Bid Conference is held at the same location unless otherwise indicated. Plans and Specifications and Addenda for this work may be examined at, and downloaded from, www.demandstar.com. Backup files are available at http://www.tampagov.net/dept_contract_administration/programs_and_services/construction_project_bidding/index.asp. Subcontracting opportunities may exist for City certified Small Local Business Enterprises (SLBEs). A copy of the current SLBE directory may be obtained at www.Tampagov.net. Phone (813) 274-8456 for assistance. Email Technical Questions to: contractadministration@tampagov.net .

NOTICE TO BIDDERS
CITY OF TAMPA, FLORIDA
Contract 14-C-00011; Channel District: East Madison Street Improvements
Project 1000327

Sealed Proposals will be received by the City of Tampa no later than 1:30 P.M., January 28, 2014, in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida, there to be publicly opened and read aloud.

The proposed work is to include, but not be limited to, providing improvements to East Madison Street in the Channel District, including roadway, stormwater, wastewater, and water main construction, signing and pavement markings, specialty concrete and sawcut concrete walks, site furnishings, landscaping and irrigation, underground electrical, with all associated work required for a complete project in accordance with the Contract Documents.

The Instructions to Bidders, Proposal, Form of Bid Bond, Agreement, Form of Public Construction Bond, Specifications, Plans and other Contract Documents are posted at DemandStar.com. Backup files may be downloaded from http://www.tampagov.net/dept_contract_administration/programs_and_services/construction_project_bidding/index.asp. One set may be available for reference at the office of the Contract Administration Department, Municipal Office Building, Fourth Floor North, City Hall Plaza, Tampa, Florida 33602.

Each Proposal must be submitted on the Proposal form included in the Specifications and must be accompanied by a certified check or cashier's check on a solvent bank or trust company in compliance with Section 255.051, Florida Statutes, made payable to the City of Tampa, in an amount of not less than five per cent of the total bid, or a Bid Bond, of like amount, on the form set forth in the Contract Documents, as a guarantee that, if the Proposal is accepted, the Bidder will execute the Proposed Contract and furnish Performance and Payment Bonds within twenty (20) days after receipt of Notice of Award of Contract.

The City of Tampa reserves the right to reject any or all Bids and to waive any informalities in the Bid and/or Bid Bond. Acceptance or rejection of Proposals will be made as soon as practicable after the Proposals are received, but the City reserves the right to hold Proposals for ninety (90) days from the date of Opening.

Bid Protest Procedures: Unless subsequently indicated otherwise, in a revised posting on the Department's web page for Construction Project Bidding, the City of Tampa intends to award the referenced project to the lowest bidder listed in the tabulation posted on or about the date of Bid Opening. A bidder aggrieved by this decision may file a protest not later than 4:30 P.M., five (5) business days from the first posting thereof, pursuant to City of Tampa Code Chapter 2, Article V, Division 3, Section 2-282, Procurement Protest Procedures. Protests not conforming therewith shall not be reviewed.

Communication with City Staff

Pursuant to City of Tampa Ordinance 2010-92, during the solicitation period, including any protest and/or appeal, NO CONTACT initiated by bidders or responders with City officers or employees, other than the individuals specified below is permitted:
Director of Contract Administration, David Vaughn
Contracts Management Supervisor, Jim Greiner
Contract Officer, Jody Gray
The City's Legal Department staff
The City's Contract Administration Department staff.
Technical Questions and Requests For Information should be directed to the Department via
ContractAdministration@tampagov.net

"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 on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list." Refer to Section 287.133 Florida Statues.

In accordance with the City of Tampa's Equal Business Opportunity Ordinance, a Goal may have been established for subcontracting with Small Local Business Enterprises, SLBEs, certified by the City. Links to further information and a list of SLBEs are on the Department's Construction Project Bidding Web page. A link to the current complete directory of SLBEs is on the Minority Business Development Office Website.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.01 GENERAL:

The proposed work is the Channel District: East Madison Street Improvements in the City of Tampa, as required for a complete project, as shown on the plans and detailed in the specifications. The work is located on land owned or controlled by the City of Tampa.

I-1.02 FORM PREPARATION AND PRESENTATION OF PROPOSALS: Replace the second sentence with the following: Submission of the entire specification book is not required.

I-1.03 ADDENDA – Section I-2.03 is replaced with the following: No interpretation of the meaning of the Plans, Specifications, or other Contract Documents will be made to any Bidder orally.

Every request for such interpretation must be in writing, addressed to the City of Tampa, Contract Administration Department, 306 E. Jackson St., 4th Floor, Tampa, Florida 33602 and then emailed to ContractAdministration@tampagov.net. To be given consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of the Proposals. Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be posted on DemandStar.Com and on the Department's web page, with notice given to all prospective bidders at the respective fax numbers or e-mail addresses furnished, for such purposes. Failure of any Bidder to receive any such addenda shall not relieve said Bidder from any obligation under his Proposal as submitted. All addenda so issued shall become part of the Contract Documents.

I-1.04 SIGNATURE OF BIDDERS: Section I-2.07 is replaced with the following:

Proposals must be signed in ink by the Bidder with signature in full. When firm is a Bidder, the Proposal shall be signed in the name of the firm by one or more partners. When a corporation is a bidder the officer signing shall set out the corporate name in full beneath which he shall sign his name and give the title of his office. The Proposal shall also bear the seal of the corporation attested by its secretary.

If the bidder referred to in Section I-2.07 is a corporation, it must submit; upon request, a copy of its filed Articles of Incorporation. In addition, if the bidder was incorporated in another state, it must establish that it is authorized to do business in the State of Florida. If the bidder is using a fictitious name, it must submit upon request, proof of registration of such name with the Clerk of the Circuit Court of the Country where its principal place of business is. Failure to submit what is required is grounds to reject the bid of that bidder.

I-1.05 TIME FOR COMPLETION:

The work shall be arranged to be completed in accordance with a progress schedule approved by the Construction Engineer.

The time for completion of this project, referred in Article 4.01 of the Agreement, shall be 240 consecutive calendar days. The period for performance shall start from the date indicated in the Notice To Proceed.

I-1.06 LIQUIDATED DAMAGES:

The amount of liquidated damages, referred to in Article 4.06 of the Agreement, for completion of this project shall be $500.00 per calendar day.

I-1.07 BASIS OF AWARD OF CONTRACT:

The basis of award referred to in Item I-2.11 of Instructions to Bidders shall be the greatest amount of work, which can be accomplished within the funds available as budgeted. The award may be made on the basis of the total bid, base bid, alternates(s) if any, unit bids if any, or any combination thereof deemed to be in the best interest of the City.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

Unless all bids are rejected, the award will be made within 90 days after opening proposals.

I-1.08 GROUND BREAKING CEREMONY:

Arrangement may be made by the City in coordination with the Contractor, for construction to commence with a Ground Breaking Ceremony. Details will be discussed at the pre-construction conference.

I-1.09 INSURANCE:

The insurance required for this project shall be as indicated on Pages beginning with INS-1. Before commencing work, the Contractor shall provide the evidence of the insurance required on a Certificate of Insurance accompanied by evidence of authority to bind the insurance company or companies such as agents license, power of attorney, or letter of authority.

I-1.10 EQUAL BUSINESS OPPORTUNITY PROGRAM / SLBE / REQUIREMENTS

In accordance with the City of Tampa's Equal Business Opportunity Ordinance, a goal of 21.4%% has been established for subcontracting with Small Local Business Enterprises, (SLBEs), certified by the City. The goal is based upon the availability of the firms listed on the Goal Worksheet and as posted in the "SLBEs" link under this Contract's notice on the Department's Construction Project Bidding web page.

BIDDERS MUST SOLICIT ALL SLBEs ON THAT LIST and provide documentation of emails, faxes, phone calls, letters, or other communication with the firms as a first step to demonstrate Good Faith Efforts to achieve the goal. The list is formatted to facilitate e-mail solicitations to the listed firms by copying and pasting e-mail addresses.

Bidders may explore other opportunities for subcontracting with SLBEs by consulting the current directory of all certified SLBEs posted on the Minority Business Development Office web page.

GOOD FAITH EFFORT COMPLIANCE PLAN REQUIRED - When a Goal has been established, the Bidder must submit, with its bid, completed to the fullest extent possible, a Good Faith Effort Compliance Plan using the form GFECP contained herein. Additional documentation is required whenever an SLBE subcontractor's low quote is not utilized. Supplemental information or documentation concerning the Bidder's Compliance Plan may be required prior to award as requested by the City.

DIVERSITY MANAGEMENT INITIATIVE, DMI, DATA REPORTING FORMS REQUIRED - Bidders must submit, with its bid, "DMI-Solicited" forms listing all subcontractors solicited and "DMI-Utilized" forms listing all subcontractors to be utilized. Supplemental forms, documentation, or information may be submitted at bid time or as requested by the City.

After an award, "DMI-Payments" forms are to be submitted with payment requests to report payments to subcontractors.

Bidders may visit the Minority Business Development Office's web page at TampaGov.net for other information about the SLBE program, FAQ's, and the latest SLBE directory of certified firms.

I-1.11 BID SECURITY:

Surety companies shall have a rating of not less than B+ Class VI as evaluated in the most recently circulated Best Key rating Guide Property-Liability.

I-1.12 PUBLIC CONSTRUCTION BOND:

The Bidder who is awarded the Contract will be required to furnish a Public Construction Bond upon the forms provided herein, each equal to 100 percent of the Contract price, such Bonds to be issued and executed by (a) surety company(ies) acceptable to the City of Tampa and licensed to underwrite contracts in the State of Florida.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.13 AGREEMENT
Section 2 – Powers of the City's Representatives
Add the following:
Article 2.05 CITY'S TERMINATION FOR CONVENIENCE:

The City may, at any time, terminate the Contract in whole or in part for the City's convenience and without cause. Termination by the City under this Paragraph shall be by a notice of termination delivered to the Contractor, specify the extent of termination and the effective date.

Upon receipt of a notice of termination, the Contractor shall immediately, in accordance with instructions from the City, proceed with performance of the following duties regardless of delay in determining or adjusting amounts due under this Paragraph:

(a) cease operations as specified in the notice;
(b) place no further orders and enter into no further subcontracts for materials, labor, services or facilities except as necessary to complete continued portions of the Contract;
(c) terminate all subcontracts and orders to the extent they relate to the Work terminated;
(d) proceed to complete the performance of Work not terminated; and
(e) take actions that may be necessary, or that the City may direct, for the protection and preservation of the terminated Work.

The amount to be paid to the Contract by the City because of the termination shall consist of:

(a) for costs related to work performed on the terminated portion of the Work prior to the effective date including termination costs relative to subcontracts that are properly chargeable to the terminated portion of the Work.
(b) the reasonable costs of settlement of the Work terminated, including accounting, legal, clerical and other expenses reasonable necessary for the preparation of termination settlement proposals and supporting data; additional costs of termination and settlement of subcontracts excluding amounts of such settlements; and storage, transportation, and other costs incurred which are reasonably necessary for the preservation, protection or disposition of the terminated Work; and
(c) a fair and reasonable profit on the completed Work unless the Contractor would have sustained a loss on the entire Contract had it been completed.

Allowance shall be made for payments previously made to the Contractor for the terminated portion of the Work, and claims which the City has against the Contractor under the Contract, and for the value of materials supplies, equipment or other items that are part of the costs of the Work to be disposed of by the Contractor.

I-1.14 Section 5 – subcontracts and Assignments, Article 5.01, Page A-7, Last Paragraph:
Change "…twenty-five (25) percent… "to fifty-one (51) percent…"

Section 10-Payments, Article .05 Partial Payments, 1st Paragraph, 1st Sentence:
Change "…fair value of the work done, and may apply for…" to "…fair value of the work done, and shall apply for…"

I-1.15 Contractors must utilize the U.S. Department of Homeland Security's E-Verify Systems to verify the employment eligibility of all persons employed during the term of the contract to perform employment duties within the State of Florida and all persons, including subcontractors, assigned by the contractor to perform work pursuant to the contract.

I-1.16 GENERAL PROVISIONS; G-2.02 Copies Furnished to Contractor: Replace the first paragraph with the following:

The Contractor shall acquire for its use copies of the plans and specifications as needed. The documents may be downloaded from the City's web site, at
http://www.tampagov.net/dept_contract_administration/programs_and_services/construction_project_bidding/index.asp

I-1.17 PAYMENT DISPUTE RESOLUTION

Any dispute pertaining to pay requests must be presented to the City pursuant to Executive Order 2003-1.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.18 SCRUTINIZED COMPANIES.

For Contracts $1,000,000 and greater, if the City determines the Contractor submitted a false certification under Section 287.135(5) of the Florida Statutes, or if the Contractor has been placed on the Scrutinized Companies with Activities in the Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, the City shall either terminate the Contract after it has given the Contractor notice and an opportunity to demonstrate the City's determination of false certification was in error pursuant to Section 287.135(5)(a) of the Florida Statutes, or maintain the Contract if the conditions of Section 287.135(4) of the Florida Statutes are met.

I-1.19 FLORIDA'S PUBLIC RECORDS LAW

4.33.3 The City of Tampa is a public agency subject to Chapter 119, Florida Statutes. In accordance with Florida Statutes, 119.0701, if applicable, Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:

1. Keep and maintain public records that ordinarily and necessarily would be required by the City in order to perform the service;

2. Provide the public with access to such public records on the same terms and conditions that the City would provide the records and at a cost that does not exceed that provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

3. Ensure that public records that are exempt or that are confidential and exempt from public record requirements are not disclosed except as authorized by law;

4. Meet all requirements for retaining public records and transfer to the City, at no cost, all public records in possession of the contractor upon termination of the contract and destroy any duplicate public records that are exempt or confidential and exempt. All records stored electronically must be provided to the City in a format that is compatible with the information technology systems of the agency.

4.33.4 The failure of Contractor to comply with the provisions set forth in this Article shall constitute a Default and Breach of this award and the City shall enforce the Default in accordance with the provisions set forth in the DEFAULT/RE-AWARD section of this document.

SECTION 2
GENERAL INSTRUCTIONS

I-2.01 BIDDER'S RESPONSIBILITY

Before submitting Proposals, Bidders shall carefully examine the entire site of the proposed work and adjacent premises and the various means of approach and access to the site, and make all necessary investigations to inform themselves thoroughly as to the facilities necessary for delivering, placing and operating the necessary construction equipment, and for delivering and handling materials at the site, and inform themselves thoroughly as to all difficulties involved in the completion of all the work in accordance with the Contract Documents.

Bidders must examine the Plans, Specifications, and other Contract Documents and shall exercise their own judgment as to the nature and amount of the whole of the work to be done, and for the bid prices must assume all risk of variance, by whomsoever made, in any computation or statement of amounts or quantities necessary to complete the work in strict compliance with the Contract Documents.

Elevations of the ground are shown on the Plans and are believed to be reasonably correct, but are not guaranteed to be absolutely so and are presented only as an approximation. Bidders shall satisfy themselves as to the correctness of all elevations.

The City may have acquired, for its own use, certain information relating to the character of materials, earth formations, probable profiles of the ground, conditions below ground, and water surfaces to be encountered at the site of the proposed work. This information, if it exists, is on file at the offices of the Department of Public Works and Bidders will be permitted to see and examine this information for whatever value they consider it worth. However, this information is not guaranteed, and Bidders should satisfy themselves by making borings or test pits, or by such other methods as they may prefer, as to the character, location, and amounts of water, peat, clay, sand, quicksand, gravel, boulders, conglomerate, rock, gas or other material to be encountered or work to be performed.

Various underground and overhead structures and utilities are shown on the plans. The location and dimensions of such structures and utilities, where given, are believed to be reasonably correct, but do not purport to be absolutely so. These structures and utilities are plotted on the Plans for the information of the Bidders, but information so given is not to be construed as a representation or assurance that such structures will be found or encountered as plotted, or that such information is complete or accurate.

I-2.02 FORM, PREPARATION AND PRESENTATION OF PROPOSALS

Each Proposal shall be submitted upon the Proposal Form and in accordance with the instructions included herein. The Proposal Form must not be detached herefrom. All blank spaces for bid prices must be filled in, in both words and figures, with the unit or lump sum prices, or both, for which the Proposal is made. The computed total price for each unit price Contract Item shall be determined by multiplying the estimated quantity of the item, as set forth in the Proposal Form, by the corresponding unit price bid for such item. The resulting product shall be entered in the appropriate blank space under the column headed "Computed Total Price for Item". The lump sum price bid for each lump sum price Contract Item shall also be entered in the column headed "Computed Total Price for Item". If a Proposal contains any omissions, erasures, alterations, additions, or items not called for in the itemized Proposal, or contains irregularities of any kind, such may constitute sufficient cause for rejection of the Proposal. In case of any discrepancy in the unit price or amount bid for any item in the Proposal, the price as expressed in written words will govern. In no case is the Agreement Form to be filled out or signed by the Bidder.

In the case of certain jobs bid Lump Sum a "Schedule of Unit Prices" must be filled out as an attachment to the Lump Sum proposal. These prices may be used as a guide for the negotiation of change orders, at the City's option.

The proposal must be signed and certified and be presented on the prescribed form in a sealed envelope on/or before the time and at the place stated in the Notice of Bidders, endorsed with the name of the person, firm or corporation presenting it, the date of presentation, and the title of the work for which the Proposal is made.

Unless the apparent low bidder is now engaged in or has recently completed contract work for the City of Tampa, he, if requested, shall furnish to the City, after the opening of bids and prior to award, a summary statement of record of construction experience over the past three (3) years with proper supporting evidence, and, if required by the City, shall also furnish a list of equipment and other facilities pertinent to and available for the proper execution of the proposed work, and a statement of financial resources to the extent necessary to establish ability to carry on the proposed work. The City may make further investigations as considered necessary with respect to responsibility of the Bidder to whom it appears may be awarded the Contract.

If forwarded by mail, the sealed envelope containing the Proposal, endorsed as directed above, must be enclosed in another envelope addressed as specified in the Notice to Bidders and sent by registered mail.

I-2.03 ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Plans, Specifications, or other Contract Documents will be made to any Bidder orally.

Every request for such interpretation must be in writing, addressed to the Contract Administration Department, Tampa Municipal Office Building, 4th Floor North, City Hall Plaza, Tampa, Florida 33602. To be given consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of the Proposals. Any and all such interpretations and any supplemental instructions will be in the form of written addenda which, if issued, will be sent by certified mail, with return receipt requested, to all prospective bidders at the respective addresses furnished, for such purposes, not later than three (3) working days prior to the date fixed for the opening of the Proposals, and if requested, a copy will be delivered to the prospective bidder's representative. Failure of any Bidder to receive any such addenda shall not relieve said Bidder from any obligation under his Proposal as submitted. All addenda so issued shall become part of the Contract Documents.

I-2.04 BID SECURITY

Each Proposal must be accompanied by a certified or cashier's check issued by a solvent bank or trust company and payable at sight to the City of Tampa, in compliance with Section 255.051 Florida Statutes, or a Bid Bond upon the form provided herein, in an amount of not less than five percent of the sum of the computed total amount of the Bidder's Proposal as a guarantee that if the Proposal is accepted, the Bidder will execute and fill in the proposed Contract and Public Construction Bond within twenty (20) days after notice of award of the Contract. Certified checks shall have all necessary documentary revenue stamps attached if required by law. Surety on Bid Bonds shall be a duly authorized surety company authorized to do business in the State of Florida, and all such Bonds shall be issued or countersigned by a local resident producing agent, and satisfactory evidence of the authority of the person or persons executing such Bond to Execute the same shall be submitted with the Bond. Bid Bonds shall be issued by a surety company acceptable to the City.

Within ten (10) days after the opening of Proposals, the bid security of all but the three lowest Bidders will be returned. The bid security of the remaining two Bidders whose Proposals are not accepted will be

returned within ten (10) days after the execution of the Contract, or, if no such Contract has been executed, within ninety (90) days after the date of opening Proposals. The bid security of the Bidder whose Proposal is accepted will be returned only after he has duly executed the Contract and furnished the required Public Construction Bond and insurance.

Should it be necessary for the City to retain the bid security and said bid security is in the form of checks, the checks of these Bidders will be returned if replaced by Bid Bonds in an amount equal to the amount of the checks of such Bidders in such form and issued by a surety company acceptable to the City.

A Bidder may withdraw his Proposal before the time fixed for the opening of Proposals, without prejudice to himself, by communicating his purpose, in writing, to the Mayor and City Council, and when his communication is received, the Proposal will be handed to him or his authorized agent unopened. No Bidder may withdraw his Proposal within ninety (90) days after the day of opening Proposals.

The Bidder whose Proposal is accepted shall enter into a written contract, upon the Agreement form included herein, for the performance of the work and furnish the required Public Construction Bond within twenty (20) days after written notice by the City of Award of Contract has been served on such Bidder personally or after receipt of the written notice by registered mail to such Bidder at the address given in his Proposal.

If the Bidder to whom a Contract is awarded refuses or neglects to execute it or fails to furnish the required Public Construction Bond within twenty (20) days after receipt by him of the Notice of Award of Contract, the amount of his bid security shall be forfeited and shall be retained by the City as liquidated damages, and not as a penalty, it being now agreed that said sum is a fair estimate of the amount of damages that the City will sustain in case said Bidder fails to enter into a Contract and furnish the required Public Construction Bond. If a Bid Bond was furnished, the full amount of the Bond shall become due and payable as liquidated damages caused by such failure. The full amount of the bid security shall be forfeited as liquidated damages without consideration of the fact that an award may be less than the full amount of the Bidder's Proposal, excepting that the award shall be within the conditions of said Proposal relating to the basis of consideration for an award. No plea of mistake in the bid or misunderstanding of the conditions of forfeiture shall be available to the Bidder for the recovery of his deposit or as a defense to any action based upon the neglect or refusal to execute a contract.

I-2.05 LAWS AND REGULATIONS
The Bidder who is awarded the Contract must comply with all laws of the State of Florida, and all applicable Ordinances of the City of Tampa respecting labor and compensation and with all other statutes, ordinances, rules and regulations applicable and having the force of law.

I-2.06 PUBLIC CONSTRUCTION BOND
The Bidder who is awarded the Contract will be required to furnish a Public Construction Bond upon the form provided herein, equal to 100 percent of the Contract price, such Bond to be executed by a surety company acceptable to the City of Tampa and licensed to underwrite contracts in the State of Florida. Surety companies shall have a rating of not less than: B+ Class VI as evaluated in the most recently circulated BEST'S KEY RATING GUIDE PROPERTY-LIABILITY.

I-2.07 SIGNATURE AND QUALIFICATIONS OF BIDDERS
Proposals must be signed in ink by the Bidder with signature in full. When a firm is a Bidder, the Proposal shall be signed in the name of the firm by one or more of the partners. When a corporation is a Bidder the officer signing shall set out the corporate name in full beneath which he shall sign his name and give the title of his office. The Proposal shall also bear the seal of the corporation attested by its secretary. Anyone signing the Proposal as agent must file with it legal evidence of his authority to do so.

Bidders who are nonresident corporations shall furnish to the City a duly certified copy of their permit to transact business in the State of Florida, signed by the Secretary of State, within ten days of the notice to do so. Such notice will be given to Bidders who are nonresident corporations, to whom it appears an award will be made, and the copy of the permit must be filed with the City before the award will be made. Failure to promptly submit this evidence of qualification to do business in the State of Florida may be basis for rejection of the Proposal.

I-2.08 REJECTION OF PROPOSALS
The City reserves the right to reject any Proposal if investigation of the Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations and to complete the work contemplated therein. Any or all Proposals will be rejected if there is reason to believe that collusion exists among Bidders. Proposals will be considered irregular and may be rejected if they show serious omissions, alterations in form, additions not called for, conditions or unauthorized alternates, or irregularities of any kind. The City reserves the right to reject any or all Proposals and to waive such technical errors as may be deemed best for the interests of the City.

I-2.09 QUANTITIES ESTIMATED ONLY
The estimate of quantities of the various items of work and materials, if set forth in the Proposal Form, is approximate only and is given solely to be used as a uniform basis for the comparison of Proposals. The quantities actually required to complete the Contract work may be less or more than so estimated, and if awarded a Contract for the work specified, the Contractor agrees that he will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work assumed for comparison of Proposals and quantities of work actually performed. The City further reserves the right to vary the quantities in any amount.

I-2.10 COMPARISON OF PROPOSALS
Except jobs bid on a "One Lump Sum" basis, proposals will be compared on the basis of a total computed price arrived at by taking the sum of the estimated quantity of each time and the corresponding unit price of each item, and including any lump sum prices on individual items.

The computed total prices for individual Contract Items and the total computed price for the entire Contract, as entered by the Bidder in the Proposal Form, are for convenience only and are subject to correction in the tabulation and computation of the Proposals.

I-2.11 BASIS OF AWARD
The Contract will be awarded, if at all, to the lowest responsible Bidder or Bidders, as determined by the City and by the terms and conditions of the Contract Documents. Unless all bids are rejected, the award will be made within ninety (90) days after the opening of Proposals. The successful Bidder will be required to possess, or obtain, a valid City Occupational License.

I-2.12 INSURANCE REQUIRED
The successful Bidder and his subcontractors will be required to procure and pay for insurance covering the work in accordance with the provisions of Article 6.02 of the Agreement as indicated on special instructions pages beginning with INS-1.

I-2.13 NO ASSIGNMENT OF BID
No Bidder shall assign his bid or any rights thereunder.

I-2.14 NONDISCRIMINATION IN EMPLOYMENT
Contracts for work under this Proposal will obligate the contractors and subcontractors not to discriminate in employment practices.

Bidders must, if requested, submit with their initial bid a signed statement as to whether they have previously performed work subject to the President's Executive Order Nos. 11246 and 11375.
Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the Contract.

Successful Bidders must, if requested, submit a list of all subcontractors who will perform work on the project and written,

signed statement from authorized agents of the labor pools with which they will or may deal for employees on the work together with supporting information to the effect that said labor pools practices and policies are in conformity with Executive Order No. 11246 and that said labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment and equal treatment of employees seeking employment and performing work under the Contract, or a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish them prior to the award of the Contract.

I-2.15 LABOR STANDARDS
The Bidder's attention is directed to the Contract Provisions of the Labor Standards for federally assisted projects which may be attached to and made a part of the Agreement.

I-2.16 NOTICE TO LABOR UNIONS
If applicable, the successful Bidder will be required to provide Labor Unions and other organizations of workers a completed copy of the form entitled "Notice to Labor Unions or Other Organizations of Workers", and such form may be made a part of the Agreement.

I-2.17 NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS
A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted to said Secretary prior to the award of a federally-assisted construction and Contract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause. The form of certification may be bound herein following the form of Bid Bond.

Contractors receiving federally-assisted construction Contract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractor for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause:

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT
FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

"A Certification of Nonsegregated Facilities, as required by the May 9, 1967, Order (32 F.R. 7439, May 19, 1967) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity Clause."

"Contractors receiving subcontract awards exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide from the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed $10,000 and are not exempt from the provisions of the Equal Opportunity Clause."

The United States requires a pre-award conference if a proposed construction contract exceeds one million dollars to determine if the the prospective contractor is in compliance with the Equal Employment Opportunity requirements of Executive Order 11246 of September 24, 1965. In such instances, a meeting may be scheduled at which the prospective contractor must specify what affirmative action he has taken or proposed to take to assure equal employment opportunity which must be approved by the United States before award of the contract will be authorized.

Bidders must be prepared to submit an Equal Employment Opportunity (EEO) plan at a pre-award conference. The plan must include bidding opportunities offered by the Bidder to minority subcontractors.

On October 13, 1971, President Nixon issued Executive Order 11246 emphasizing the government's commitment to the promotion of minority business enterprise. Accordingly, the United States is firmly committed to the utilization of available resources to support this important program. U.S. agencies are most interested in realizing minority participation on the subject. Achieving equal employment opportunity compliance is required through Executive Order 11246. WE cannot emphasize too strongly that minority subcontractors be extended subcontractors bidding opportunities as but one step in your affirmative action policy.

Due to the importance of this contract, U.S. Agencies may conduct an EEO Conference prior to the award of the Contract. It is suggested that the responsive Bidder confirm the minority subcontractors he contacted for bids or quotations in his EEO plan submitted at the conference.

I-2.18 EEO AFFIRMATIVE ACTION REQUIREMENTS
By the submission of a Proposal, each Bidder acknowledges that he understands and will agree to be bound by the equal opportunity requirements of Federal regulations which shall be applicable throughout the performance of work under any contract awarded pursuant to solicitation. Each Bidder agrees that if awarded a contract, he will similarly bind contractually each subcontractor. In policies, each Bidder further understands and agrees that if awarded a contract, he must engage in Affirmative Action directed to promoting and ensuring equal employment opportunity in the work force used under the contract (and he must require contractually the same effort of all subcontractors whose subcontracts exceed $100,000). The Bidder understands and agrees that "Affirmative Action" as used herein shall constitute a good faith effort to achieve and maintain minority employment in each trade in the on-site work force used on the project. * * * * * * * END of SECTION * * * * * * *

CITY OF TAMPA INSURANCE REQUIREMENTS

During the life of the award/contract the Awardee/Contractor shall provide, pay for, and maintain insurance with companies authorized to do business in Florida, with an A.M. Best rating of B+ (or better) Class VII (or higher), or otherwise be acceptable to the City if not rated by A.M. Best. All insurance shall be from responsible companies duly authorized to do business in the State of Florida.

All commercial general liability insurance policies (and Excess or Umbrella Liability Insurance policies, if applicable) shall provide that the City is an additional insured as to the operations of the Awardee/Contractor under the award/contract including the additional insured endorsement, the subrogation wavier endorsement, and the Severability of Interest Provision. In lieu of the additional named insured requirement, if the Awardee/Contractor's company has a declared existing policy which precludes it from including additional insureds, the City may permit the Contractor to purchase an Owners and Contractors Protective Liability policy. Such policy shall be written in the name of the City at the same limit as is required for General Liability coverage. The policy shall be evidenced on an insurance binder which must be effective from the date of issue until such time as a policy is in existence and shall be submitted to the City in the manner described below as applicable to certificates of insurance.

The insurance coverages and limits required must be evidenced by a properly executed Acord 25 Certificate of Insurance form or its equivalent. Each Certificate must be personally manually signed by the Authorized Representative of the insurance company shown in the Certificate with proof that he/she is an authorized representative thereof. Thirty days' written notice must be given to the City of any cancellation, intent not to renew, or reduction in the policy coverages, except in the application of the aggregate liability limits provisions. Should any aggregate limit of liability coverage be reduced, it shall be immediately increased back to the limit required by the contract. The insurance coverages required herein are to be primary to any insurance carried by the City or any self-insurance program thereof.

The following coverages are required:

A. Commercial General Liability Insurance shall be provided on the most current Insurance Services Office (ISO) form or its equivalent. This coverage must be provided to cover liability arising from premises and operations, independent contractors, products and completed operations, personal and advertising injury, contractual liability, and XCU exposures (if applicable). Completed operations liability coverage shall be maintained for a minimum of one-year following completion of work. The amount of Commercial General Liability insurance shall not be less than the amount specified.

(a) $1,000,000 per occurrence and a $2,000,000 general aggregate for projects valued at $2,000,000 or less. General aggregate limit for projects over that price shall equal or exceed the price of the project. An Excess or Umbrella Liability insurance policy can be provided to meet the required limit. Risk Management may be contacted for additional information regarding projects of this nature.

B. Automobile Liability Insurance shall be maintained in accordance with the laws of the State of Florida, as to the ownership, maintenance, and use of all owned, non-owned, leased, or hired vehicles. The amount of Automobile Liability Insurance shall not be less than the amount specified.

(a) $500,000 combined single limit each occurrence bodily injury & property damage- for projects valued at $100,000 and under

(b) $1,000,000 combined single limit each occurrence bodily injury & property damage – for projects valued over $100,000

C. Worker's Compensation and Employer's Liability Insurance shall be provided for all employees engaged in the work under the contract, in accordance with the Florida Statutory Requirements. The amount of the Employer's Liability Insurance shall not be less than:

(a) $500,000 bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each employee – for projects valued at $100,00 and under
(b) $1,000,000 bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each –for projects valued over $100,000

D. Excess Liability Insurance or Umbrella Liability Insurance may compensate for a deficiency in general liability, automobile, or worker's compensation insurance coverage limits. If the Excess or Umbrella policy is being provided as proof of coverage, it must name the City of Tampa as an additional insured **(IF APPLICABLE).**

E. Builder's Risk Insurance, specialized policy designed to cover the property loss exposures that are associated with construction of buildings. The amount of coverage should not be less than the amount of the project. **(IF APPLICABLE).**

F. Installation Floater- a builder's risk type policy that covers specific type of property during its installation, is coverage required for highly valued equipment or materials such as compressors, generators, or other machinery that are not covered by the builder's risk policy **(IF APPLICABLE).**

G. Longshoreman's & Harbor Worker's Compensation Act/Jones Act coverage shall be maintained for work being conducted upon navigable water of the United States. The limit required shall be the same limit as the worker's compensation/employer's liability insurance limit **(IF APPLICABLE).**

H. Professional Liability shall be maintained against claims of negligence, errors, mistakes, or omissions in the performance of the services to be performed and furnished by the Awardee/Contractor or any of its subcontractors when it acts as a DESIGN PROFESSIONAL. The amount of coverage shall be no less than amount specified **(IF APPLICABLE).**

(a) $1,000,000 per incident and general aggregate. Note all claims made policies must provide the date of retroactive coverage.

The City may waive any or all of the above referenced insurance requirements based on the specific nature of goods or services to be provided under the award/contract.

ADDITIONAL INSURED - The City must be included as an additional insured by on the general and (Excess or Umbrella liability policies) if applicable. Alternatively, the Contractor may purchase a separate owners protective liability policy in the name of the City in the specified amount as indicated in the insurance requirements.

CLAIMS MADE POLICIES - If any liability insurance is issued on a claims made form, Contractor agrees to maintain uninterrupted coverage for a minimum of one year following completion and acceptance of the work either through purchase of an extended reporting provision, or through purchase of successive renewals with a retroactive date not later than the beginning of performance of work for the City. The retroactive date must be provided for all claims made policies.

CANCELLATION/NON-RENEWAL - Thirty (30) days written notice must be given to the City of any cancellation, intent to non-renew or material reduction in coverages (except aggregate liability limits). However, ten (10) days notice may be given for non-payment of premium. Notice shall be sent to the City of Tampa Department of Public Works, 306 E. Jackson Street, Tampa, FL 33602.

NUMBER OF POLICIES - General and other liability insurance may be arranged under single policies for the full amounts required or by a combination of underlying policies with the balance provided by an excess or umbrella liability insurance policy.

WAIVER OF SUBROGATION - Contractor waives all rights against City, its agents, officers, directors and employees for recovery of damages to the extent such damage is covered under the automobile or excess liability policies.

SUBCONTRACTORS - It is the Contractor's responsibility to require all subcontractors to maintain adequate insurance coverage.

PRIMARY POLICIES - The Contractor's insurance is primary to the City's insurance or any self insurance program thereof.

RATING - All insurers shall be authorized to do business in Florida, and shall have an A.M. Best rating of B+ (or better), Class VII (or higher), or otherwise be acceptable to the City if not rated by A.M. Best.

DEDUCTIBLES - The Contractor is responsible for all deductibles. In the event of loss which would have been covered but for the presence of a deductible, the City may withhold from payment to Contractor an amount equal to the deductible to cover such loss should full recovery not be obtained under the insurance policy.

INSURANCE ADJUSTMENTS - These insurance requirements may be increased, reduced, or waived at the City's sole option with an appropriate adjustment to the Contract price.

Document updated on 12/22/2009 by RLD (Risk Management)

City of Tampa MBD Office

U-WMBE Goal Setting Firms Report

12/9/13

BARRICADES, TRAFFIC CONES, LANE MARKERS, ETC

Sentry Barricades, Inc. **Federal**

59-3590342

P.O. Box 3647
820 Creative Drive
Lakeland, FL 33802

Phone (863) 682-7098

Fax (863) 680-9901

Minority African American

Contact Darryl Talley

E-mail admin@sentryb.com

City of Tampa MBD Office

SLBE Goal Setting Firms Report

as of 12/5/2013

BARRICADES, TRAFFIC CONES, LANE MARKERS, ETC

Sentry Barricades, Inc. **Federal Number** 59-3590342

P.O. Box 3647
820 Creative Drive
Lakeland, FL 33802

Phone (863) 682-7098 **Minority** Small Business
Fax (863) 680-9901 **Contact** Darryl Talley
E-mail admin@sentryb.com

CONCRETE (CURBS & GUTTERS)

E.S. Concrete Services, Inc. **Federal Number** 59-3119582

726 East Harbor Dr. South
St. Petersburg, FL 33705

Phone (727) 821-5029 **Minority** Small Business
Fax (727) 821-5029 **Contact** Enoris Sly
E-mail enorisslysr@yahoo.com

Parking Lot Striping Service **Federal Number** 59-1522393

P.O. Box 11005
Tampa, FL 33680

Phone (813) 623-1454 **Minority** Small Business
Fax (813) 664-0140 **Contact** Fernando Llop
E-mail lindaplss@aol.com

Tampa Bay Construction & Engineering, Inc. **Federal Number** 59-3713572

10503 Palm Cove Ave
Tampa, FL 33647

Phone (813) 984-9898 **Minority** Small Business
Fax (813) 907-0980 **Contact** Ahmad Erchid
E-mail aerchid@tbcei.com

Chet Netherly, LLC d/b/a Anything in Concrete **Federal Number** 20-3926235

246 W Canal Drive
Palm Harbor, FL 34684

Phone (727) 945-7035 **Minority** Small Business
Fax (727) 934-0568 **Contact** Chet Netherly
E-mail netherlyWCAN@aol.com

Velez Concrete Construction, Inc. **Federal Number** 83-0373603

3926 E. Eden Roc Circle
Tampa, FL 33634

Phone (813) 493-4762 **Minority** Small Business
Fax (813) 882-3455 **Contact** John Velez
E-mail velezconcrete@verizon.net

City of Tampa MBD Office

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CONCRETE (CURBS & GUTTERS)

Tagarelli Construction, Inc. **Federal Number** 59-3339407

P.O. Box 681
Tarpon Springs, FL 34689

Phone (727) 937-6171
Fax (727) 937-6172
E-mail tagarelli@verizon.net

Minority Small Business
Contact Michael Tagarelli

Andras Construction Service, LLC **Federal Number** 20-4468935

18449 Lake Iola Rd
Dade City, FL 33523

Phone (813) 482-2581
Fax (352) 588-2073
E-mail jeffandras@gmail.com

Minority Small Business
Contact Jeffrey Andras

Velocity Construction, Inc. **Federal Number** 74-3082984

1320 E. 137th Ave
Tampa, FL 33613

Phone (813) 624-2117
Fax (800) 807-0314
E-mail bconnor@tampabay.rr.com

Minority Small Business
Contact William Connor

Kilgore Construction, LLC **Federal Number** 26-3771464

11697 Walsingham Rd.
Largo, FL 33778

Phone (727) 755-2294
Fax (727) 581-5724
E-mail jo@kilgorellc.com

Minority Small Business
Contact Harold Kilgore

JMJ Site Development, Inc **Federal Number** 27-3413832

P.O. Box 1095
Lithia, FL 33547

Phone (813) 927-2484
Fax
E-mail jmjsitedevelopment@gmail.com

Minority Small Business
Contact Jeff Joaquin

ELECTRICAL SERVICES

Apollo Construction & Engineering Services, Inc. **Federal Number** 59-2811166

P.O. Box 5848
Sun City Center, FL 33571-5848

Phone (813) 645-4926
Fax (813) 645-3351
E-mail tkamprath@apollo-construction.com

Minority Small Business
Contact Thomas Kamprath

City of Tampa MBD Office

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ELECTRICAL SERVICES

Gaylord / Miller Electric Corp — **Federal Number** 59-1631953

602 North Oregon Avenue
Tampa, FL 33606

Phone (813) 254-4681
Fax (813) 254-9473
E-mail james.gmelectric@verizon.net

Minority Small Business
Contact James A. Tepper

All-In-One Electric, Inc. — **Federal Number** 04-3689273

1201 W Waters Ave.
Tampa, FL 33604

Phone (813) 849-6331
Fax (813) 514-0473
E-mail allinoneelectric@msn.com

Minority Small Business
Contact Rodney Jones

Romero & Gray Electric, Inc. — **Federal Number** 57-1164017

6001 Johns Rd.
Tampa, FL 33634

Phone (813) 881-1876
Fax (813) 249-4840
E-mail mgray@rg-electric.com

Minority Small Business
Contact Alfredo Romero

JDP Electric, Inc. — **Federal Number** 59-3511620

6600 N. Florida Avenue
Tampa, FL 33604

Phone (813) 234-4004
Fax (813) 236-0394
E-mail jdpinc@tampabay.rr.com

Minority Small Business
Contact Jeffrey Priede

Cousins Electrical Contracting, Inc. — **Federal Number** 20-1736062

P. O. Box 320534
Tampa, FL 33679

Phone (813) 907-5323
Fax (813) 994-1047
E-mail couselec@aol.com

Minority Small Business
Contact Marilee Cousins

Mandy Electric, Inc. — **Federal Number** 59-2914874

9353 E. Fowler Ave.
Thonotosassa, FL 33592

Phone (813) 264-9234
Fax (813) 333-9701
E-mail lhernandez@mandyselectric.com

Minority Small Business
Contact Armando Hernandez

Ralph A. Philbrook, III LLC — **Federal Number** 61-1460231

3316 Bainbridge Dr.
Holiday, FL 34691

Phone (727) 847-3766
Fax (727) 845-3567
E-mail philbrook3llc@aol.com

Minority Small Business
Contact Ralph Philbrook III

City of Tampa MBD Office

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ELECTRICAL SERVICES

Crevello Electric, Inc. **Federal Number** 59-3559003

3305 N. Stanley Rd.
Plant City, FL 33565

Phone (813) 986-6106
Fax (813) 986-9633
Minority Small Business
Contact Bill Crevello
E-mail crevelloelectric@gmail.com

Electrical Handyman Services **Federal Number** 27-2406369

7046-B West Hillsborough Ave
Tampa, FL 33634

Phone (813) 901-8185
Fax (813) 884-5060
Minority Small Business
Contact Jose Cruz
E-mail ehs915@aol.com

SJM Electric Corporation **Federal Number** 20-4183090

333 North Falkenburg Rd, Suite B201
Tampa, FL 33619

Phone (813) 684-7459
Fax (813) 654-0420
Minority Small Business
Contact Scott Mroczkowski
E-mail tami@sjmelectric.com

YES Electric, LLC **Federal Number** 27-1341928

2412 E. 7th Avenue
Tampa, FL 33605

Phone (813) 447-2531
Fax
Minority Small Business
Contact George Pages
E-mail yeselectric@tampabay.rr.com

JBC Builders & Electric, Inc. **Federal Number** 08-0054484

5001 N. Nebraska Avenue, Suite A
Tampa, FL 33603

Phone (813) 232-5000
Fax (813) 232-3555
Minority Small Business
Contact Gerald Martinez
E-mail jbc@tampabay.rr.com

Best Price Electric Service, LLC **Federal Number** 27-1211988

P.O. Box 6516
Seffner, FL 33583

Phone
Fax (813) 409-3154
Minority Small Business
Contact Frank Fleites
E-mail BestPriceElectricServ@hotmail.com

Manatee Electric, Inc. **Federal Number** 59-3454485

845 Thompson Road
Lithia, FL Fl

Phone (813) 645-7000
Fax (813) 654-7568
Minority Small Business
Contact John Babuka
E-mail john@reliableelectricusa.com

City of Tampa MBD Office

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ELECTRICAL SERVICES

Slentz Electric, Inc. **Federal Number** 59-1996013

1202 Gary Ave
Ellenton, FL 34222

Phone (941) 722-9227
Fax (941) 722-3318
E-mail georgeperry2@gmail.com

Minority Small Business
Contact George Perry

Aguila Electrical Services, Inc. **Federal Number** 20-0818128

8928 N. Newport Avenue
Tampa, FL 33604

Phone (813) 368-9323
Fax (813) 884-4092
E-mail sales@aguilaelectrical.com

Minority Small Business
Contact Jael Aguila

A American Electrical Contractor, Inc. **Federal Number** 59-2603773

9170 126th Avenue N
Largo, FL 33773

Phone (727) 588-0126
Fax (727) 588-9170
E-mail mark.aaec@yahoo.com

Minority Small Business
Contact Mark Comerford

Rhythms Electric Corporation **Federal Number** 27-3150153

433 37th Ave NE
St. Petersburg, FL 33704

Phone (727) 460-8779
Fax
E-mail rhythmselectric@me.com

Minority Small Business
Contact Mathew Krchmar

TAMCO Electric, Inc. **Federal Number** 59-1396630

P.O. Box 579
Tampa, FL 33614

Phone (813) 986-3472
Fax (813) 986-5979
E-mail atrujill@tampabay.rr.com

Minority Small Business
Contact Steven Moates

IRRIGATION SYSTEMS, LABOR AND MATERIALS TO INSTALL

Ed's Lawn & Landscaping, Inc. **Federal Number** 59-3239828

P.O. Box 130744
Tampa, FL 33681

Phone (813) 254-8499
Fax (813) 250-3779
E-mail edslawn@verizon.net

Minority Small Business
Contact Susan Breit

City of Tampa MBD Office

SLBE Goal Setting Firms Report

as of 12/5/2013

IRRIGATION SYSTEMS, LABOR AND MATERIALS TO INSTALL

Aqua Pro Irrigation & Outdoor Services, LLC — **Federal Number** 59-3387591

375 Douglas Road East
Oldsmar, FL 34677

Phone (813) 814-4437
Fax (813) 814-9710
E-mail ken@aquaproirrigation.com

Minority Small Business
Contact Martha Wagenbrenner

LANDSCAPING (TREES, LAWN, NEW CONSTRUCTION)

Morelli Landscaping, Inc — **Federal Number** 59-1877993

4855 162nd Avenue North
Clearwater, FL 33762

Phone (727) 535-6263
Fax (727) 536-6855
E-mail vjmorelli@tampabay.rr.com

Minority Small Business
Contact Joe Morelli

Infante's Services, Inc. — **Federal Number** 59-3648843

18620 Gunn Hwy.
Odessa, FL 33556

Phone (813) 926-2271
Fax (813) 926-1431
E-mail charlotte@infanteservices.com

Minority Small Business
Contact Renee Infante

Ed's Lawn & Landscaping, Inc. — **Federal Number** 59-3239828

P.O. Box 130744
Tampa, FL 33681

Phone (813) 254-8499
Fax (813) 250-3779
E-mail edslawn@verizon.net

Minority Small Business
Contact Susan Breit

Professional Property Services — **Federal Number** 59-1341451

10105 11th Street North
Tampa, FL 33612

Phone (813) 972-4057
Fax (813) 971-0882
E-mail paulrobinson22@msn.com

Minority Small Business
Contact Hyacinth Robinson

Baron's Landscaping Services, Inc. — **Federal Number** 65-0837654

P.O. Box 4047
Tampa, FL 33677

Phone (813) 404-1509
Fax (813) 476-6255
E-mail baronslawncare@aol.com

Minority Small Business
Contact Randy Conte

City of Tampa MBD Office

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LANDSCAPING (TREES, LAWN, NEW CONSTRUCTION)

Sunbelt Sod & Grading Company — **Federal Number** 13-4250933

819 - 9th St. N.E.
Ruskin, FL 33570

Phone (813) 641-9855
Fax (813) 645-7263
E-mail sunbeltsod@verizon.net

Minority Small Business
Contact Lesley Silva

NPC Mowing & Landscaping — **Federal Number** 03-0555858

P.O. Box 292873 6441 Eureka Springs Road
Tampa, FL 33687-2873

Phone (813) 967-4386
Fax (352) 668-3295
E-mail Jwoodho793@aol.com

Minority Small Business
Contact John Woodhouse

Fresh Start Development, Inc. — **Federal Number** 20-3857845

P.O. Box 310592
Tampa, FL 33680

Phone (813) 758-5345
Fax (813) 333-5949
E-mail freshstartdevelop@yahoo.com

Minority Small Business
Contact Katina McClinton

Cardinal Landscaping Services of Tampa, Inc. — **Federal Number** 59-3394554

817 E. Okaloosa Ave.
Tampa, FL 33604

Phone (813) 915-9696
Fax (813) 915-9695
E-mail Mike@cardinallandscape.com

Minority Small Business
Contact Mark Mantei

Nelson's Tree Farm and Nursery, Inc. — **Federal Number** 59-3404710

19139 Geraci Rd.
Lutz, FL 33549

Phone (813) 917-6608
Fax (813) 350-9139
E-mail kimberly.martinez33@gmail.com

Minority Small Business
Contact Kimberly Martinez

Williams Landscape Management Co., Inc. — **Federal Number** 54-3516370

PO Box 311444 5711 N. 50th St.
Tampa, FL 33610

Phone (813) 628-8048
Fax (813) 628-8048
E-mail tonywilliams@wlmslandscape.com

Minority Small Business
Contact Tony Williams

City of Tampa MBD Office

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LANDSCAPING (TREES, LAWN, NEW CONSTRUCTION)

Gibbs Properties, LLC — **Federal Number** 43-2117741

17633 Gunn Hwy #236
Odessa, FL 33556

Phone (727) 376-4465
Fax (813) 425-0455
E-mail gmjservices@msn.com

Minority Small Business
Contact Bill Gibbs

Jungle Scapes — **Federal Number** 26-2517542

1717 E. Busch Blvd., Suite 1101
Tampa, FL 33626

Phone (813) 516-9950
Fax (813) 902-7221
E-mail info@jungle-scapes.com

Minority Small Business
Contact Hulsey Ebanks, Jr.

Pine Lake Services, Inc. — **Federal Number** 27-3360158

2122 Henley Rd.
Lutz, FL 33548

Phone (813) 948-4736
Fax (813) 909-0386
E-mail Ivan@pinelakeservices.com

Minority Small Business
Contact Maria Martinez

Roque Landscaping, LLC — **Federal Number** 27-2430577

9024 Duke Drive
Tampa, FL 33615

Phone (813) 385-6282
Fax (813) 443-3207
E-mail yndi12@univision.com

Minority Small Business
Contact Juan Roque

AAJ Lawn Care Services, Inc. — **Federal Number** 26-0254393

3716 E. Idlewild Avenue
Tampa, FL 33610

Phone (813) 220-8533
Fax (888) 277-1860
E-mail aajlawncare@gmail.com

Minority Small Business
Contact Archie Jerry

The Leaf Man, LLC — **Federal Number** 27-4668275

P.O. Box 4386
Tampa, FL 33677

Phone (813) 381-5133
Fax (888) 527-4874
E-mail tampaleafman@gmail.com

Minority Small Business
Contact Dan Mathis

Gustavo Negrete d/b/a Lawns & More — **Federal Number** 76-6102049

2707 Demont Mollin Rd
Plant City, FL 33565

Phone (813) 650-1834
Fax (813) 754-0282
E-mail

Minority Small Business
Contact Gustavo Negrete

City of Tampa MBD Office

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LANDSCAPING (TREES, LAWN, NEW CONSTRUCTION)

Breit Turf Management, LLC — **Federal Number** 27-3737949

P.O. Box 13551
Tampa, FL 33681

Phone (813) 732-3221
Fax
E-mail breitturf1@gmail.com

Minority Small Business
Contact Edward Breit

Sunscape Ground Maintenance, Inc. — **Federal Number** 56-2306877

3624 N. 18th St.
Tampa, FL 33605-1145

Phone (813) 247-3100
Fax (813) 247-4013
E-mail sunscapegmi@verizon.net

Minority Small Business
Contact Demond Bryant

Evolve Professional Landscape Management, LLC — **Federal Number** 27-2323571

P.O. Box 2362
Bartow, FL 33831

Phone (863) 205-3769
Fax (863) 223-0275
E-mail office@evolveyourlawn.com

Minority Small Business
Contact Joseph Bustos

The PROS Investment Corp. — **Federal Number** 59-3609725

1227 E Madison, #1003
Tampa, FL 33602

Phone (813) 230-3331
Fax (813) 333-2938
E-mail kvknowles@prosinvest.com

Minority Small Business
Contact Kevin Knowles

PAVEMENT MARKING SERVICES

BUN Construction Co., Inc. — **Federal Number** 59-3362663

4202 E. Martin Luther King Blvd.
Tampa, FL 33610

Phone (813) 931-8270
Fax (813) 931-9185
E-mail bunconstruction@tampabay.rr.com

Minority Small Business
Contact Bart Nwagbuo

E.S. Concrete Services, Inc. — **Federal Number** 59-3119582

726 East Harbor Dr. South
St. Petersburg, FL 33705

Phone (727) 821-5029
Fax (727) 821-5029
E-mail enorisslysr@yahoo.com

Minority Small Business
Contact Enoris Sly

City of Tampa MBD Office

SLBE Goal Setting Firms Report

as of 12/5/2013

PAVEMENT MARKING SERVICES

Universal Pavement Marking Inc. **Federal Number** 59-3245096

P.O. Box 0021
Valrico, FL 33594

Phone (813) 653-0092
Fax (813) 653-0092
E-mail upmarking@aol.com

Minority Small Business
Contact Jon Martin

Howard Sealcoating & Land Clearing **Federal Number** 65-0802138

1911N. 57th St
Tampa, FL 33619

Phone (305) 693-8972
Fax (305) 693-8985
E-mail lhoward@asphaltfl.com

Minority Small Business
Contact Leroy Howard

Strong Arm Airfield Services, Inc. **Federal Number** 26-3682330

4509 North 29th St
Tampa, FL 33610

Phone (813) 478-1586
Fax (813) 855-3540
E-mail lobowolf1@hotmail.com

Minority Small Business
Contact Robert Curtis

PIPE AND PIPE FITTINGS

Suca Pipe Supply, Inc. **Federal Number** 59-2499571

P.O. Box 272482
Tampa, FL 33618

Phone (813) 249-7902
Fax (813) 249-7384
E-mail slmau44@yahoo.com

Minority Small Business
Contact Secedrick McIntyre

Reich Construction Services, Inc. **Federal Number** 59-3557617

P.O. Box 1047
Largo, FL 33779-1047

Phone (727) 235-1460
Fax
E-mail mimi.reich@yahoo.com

Minority Small Business
Contact Mary-Irene Reich

---

2 Meyer Corp. **Federal Number** 56-2384669

6308 Lake Sunrise Dr.
Apollo Beach, FL 33572

Phone (813) 645-3150
Fax (813) 645-5634
E-mail Renatonjr@aol.com

Minority Small Business
Contact Melissa Gugliotti

City of Tampa MBD Office

SLBE Goal Setting Firms Report

as of 12/5/2013

PIPE AND PIPE FITTINGS

DRD Enterprises, LLC — **Federal Number** 20-4675317

4104 Yellowwood Dr.
Valrico, FL 33594

Phone (813) 476-9933
Fax (866) 850-1332
E-mail ddeenah@drdenterprise.com

Minority Small Business
Contact Devon Deenah

Larsen Civil Construction LLC — **Federal Number** 20-3567884

10456 66th Street
Pinellas Park, FL 33782

Phone (727) 547-8100
Fax (727) 547-8101
E-mail jim@larsencivil.com

Minority Small Business
Contact Benjamin Larsen

Mar Supply Co. — **Federal Number** 27-0206845

2851 8th St.
Englewood, FL 34224

Phone (941) 286-3240
Fax (941) 214-8215
E-mail info@marsupplyco.com

Minority Small Business
Contact Raul Corona

Terrell Industries, Inc. — **Federal Number** 65-0530148

2067 1st Avenue N
St. Petersburg, FL 33713

Phone (727) 823-4424
Fax (727) 823-3977
E-mail gterrell@verizon.net

Minority Small Business
Contact Grady Terrell

Suca Pipe Supply, Inc. One — **Federal Number** 26-3669556

4910 Lowell Road
Tampa, FL 33624

Phone (813) 249-7902
Fax (813) 249-7384
E-mail mactwinau1@yahoo.com

Minority Small Business
Contact Ashley McIntyre

SLBE Contract Goal

Goal
21.4%

Instructions Regarding Use of the SLBE Goal Setting List

Bidders must solicit a subcontracting bid from ALL of the firms listed on the SLBEs list provided on the City's web site, and provide documentation of emails, faxes, phone calls, letters, or other communication with the firms a first step in demonstrating Good-Faith Efforts to achieve the goal set for SLBE participation on this contract.

The list is formatted to facilitate e-mailing of a solicitation to the listed firms by copying and pasting the email addresses.

The SLBE participation Goal is based upon the availability of the certified firms indicated on the attached list. The Goal and Requirements of the City's Equal Business Opportunity Program are stated in the Bid/Contract Document, Specifications.

Procurement Guidelines To Implement Minority & Small Business Participation

Underutilized WMBE Primes by Industry Category

FORMAL PROCUREMENT

Construction	Construction-Related	Professional	Non-Professional	Goods
Black	Asian	Black	Black	Black
Hispanic	Native Am.	Hispanic	Asian	Hispanic
Native Am.	Woman	Asian	Native Am.	Asian
Woman		Native Am.		Native Am.
		Woman		Woman

Underutilized WMBE Sub-Contractors / Sub-Consultants

SUB WORK

Construction	Construction-Related	Professional	Non-Professional	Goods
Black	Black	Black	Black	Black
	Asian	Hispanic	Asian	Asian
	Native Am.	Asian	Native Am.	Native Am.
	Woman	Native Am.		Woman
		Woman		

Policy

The Guidelines apply to formal procurements and solicitations. WMBE participation will be narrowly-tailored.

Index

- Black = Black/African-American Business Enterprise
- Hispanic = Hispanic Business Enterprise
- Asian = Asian Business Enterprise
- Native Am. = Native American Business Enterprise
- Woman = Woman Business Enterprise (Caucasian)

Industry Categories

Construction is defined as: new construction, renovation, restoration, maintenance of public improvements and underground utilities.
Construction-Related Services are defined as: architecture, professional engineering, landscape architecture, design build, construction management services, or registered surveying and mapping.
Professional Services are defined as: attorney, accountant, medical doctor, veterinarian, miscellaneous consultant, etc.
Non-Professional Services are defined as: lawn maintenance, painting, janitorial, printing, hauling, security guard, etc.
Goods are defined as: all supplies, materials, pipes, equipment, machinery, appliances, and other commodities.

MBD Form-70

SOLICITATION FOR SUBCONTRACTOR QUOTES

From:
OUR COMPANY NAME:
TELEPHONE NUMBER:
ADDRESS:
FAX NUMBER:
E-MAIL ADDRESS:

To Subcontractor:

Our firm is in the process of preparing a bid for a **City of Tampa Contract**. Please accept this notice as our request for quotes for the scope of work identified below. Please respond to this request by filling in the information below and returning via e-mail or fax to the address or number provided. Please contact us if you need any assistance in obtaining bonding, lines of credit, insurance, assistance in obtaining necessary equipment, supplies, materials, participation in a City-sponsored mentor-protégé program, or if you have any questions.

Plans and Specs for this project are posted at:
http://www.tampagov.net/dept_contract_administration/programs_and_services/construction_project_bidding/

CONTRACT NO.:
CONTRACT NAME:
CITY'S BID OPENING DATE:
DEADLINE FOR YOUR SUBCONTRACTOR BID OR RESPONSE:
SPECIFIC SCOPE OF WORK:

Please complete and submit with your subcontract bid or response:
YOUR FIRM'S NAME:
MAILING ADDRESS:
CITY:
STATE:
ZIP:
FAX NUMBER:
E-MAIL ADDRESS:
__Yes, my company is interested in quoting this project for the following items of work:

__No, my company will not quote this project for the following reason(s):

(Sample Suggested Sub Solicitation 3-9-9 Tampa MBDO)

Contract 14-C-00011; Channel District: East Madison Street Improvements - Project 1000327

PROPOSAL

To the Mayor and City Council of the City of Tampa, Florida:

Name of Bidder _____

_____
Business Phone Number and Email Address

_____
Business Name and Mailing Address

_____
Phone Number and Name of Contact Regarding Permits

_____
Contractor/Qualifiers Name and Federal Identification Number

Date of Proposal _____

(If Bidder is a firm, fill in the following blanks):

Names and Residential Addresses of Partners

_____

_____

(If Bidder is a corporation, fill in the following blanks):

Organized under the laws of the State of _____

Names and Address of President

_____

_____

Name and Address of Vice President

_____

_____

Name and Address of Secretary

_____

_____

Names and Address of Treasurer

_____

_____

The above-named Bidder affirms and declares:

(1) That the Bidder is of lawful age and that no other person, firm or corporation has any interest in this Proposal or in the Contract proposed to be entered into.

(2) That this Proposal is made without any understanding, agreement or connection with any other person, firm, or corporation making Proposal for the same purposes, and is in all respects fair and without collusion or fraud.

(3) That the Bidder is not in arrears to the City of Tampa, upon debt or contract, and is not a defaulter, as surety or otherwise, upon any obligation to the City of Tampa.

(4) That no officer or employee or person whose salary is payable in whole or in part from the City Treasury is, shall be or become interested, directly or indirectly, as a contracting party, partner, stockholder, surety or otherwise, in this Proposal, or in the performance of the Contract, or in the supplies, materials, or equipment and work or labor to which it relates, or in any portion of the profits thereof.

(5) That the Bidder has carefully examined the site of the work and that, from his own investigations, he has satisfied himself as to the nature and location of the work, the character, quality, and quantity of materials and the kinds and extent of equipment and other facilities needed for the performance of the work, the general and local conditions and all difficulties to be encountered, and all other items which may, in any way, affect the work or its performance.

(6) That the Bidder

_____ Has; Treasury Number _____

_____ Has not
(Check applicable box)

previously performed work under the President's Executive Order Nos. 11246 and 11375.

(7) That the undersigned, as Bidder, also declares that he has carefully examined and fully understands all the component parts of the Contract Documents and agrees that he will execute the Contract and finish the required Performance Bond and will completely perform the work in strict accordance with the terms of the Contract and the Contract Documents therein referred to for the following prices, to wit:

Pay Item No.	Description	Unit	Approx. Quantity	Unit Price	Total Price

The work includes the furnishing of all labor, equipment, and material for providing improvements to East Madison Street in the Channel District, including roadway, stormwater, wastewater, and water main construction, signing and pavement markings, specialty concrete and sawcut concrete walks, site furnishings, landscaping and irrigation, underground electrical, with any allowances that may be listed in Section 01020, and with all associated work required for a complete project in accordance with the Contract Documents and as follows:

GENERAL CONSTRUCTION ITEMS

SP-3.02-1	Mobilization	LS	1.00	$	$
SP-3.01-1	Maintenance of Traffic	LS	1.00	$	$
SP-7.07-1	Implementation & Maintenance of Erosion Control	LS	1.00	$	$
2208-1	Clearing and Grubbing	LS	1.00	$	$
				Sub Total	**$**

ROADWAY CONSTRUCTION ITEMS

SP-4.02-1	Stabilization Type B (12")	SY	3,670	$	$
334-1	Type FC-9.5 Asphaltic Concrete	TN	167	$	$
334-2	SP-12.5 Asphaltic Concrete (Traffic B)	TN	240	$	$
SP-8.04-1	Conc. Ped. Ramp (6") w/ Truncated Domes	EA	4	$	$
SP-8.05-1	Concrete curb (Type F)	LF	412	$	$
SP-8.05-2	Concrete curb (Type D)	LF	550	$	$
SP-8.05-3	Concrete curb (Drop Curb)	LF	674	$	$
SP-8.06-1	Turnout Construction, Concrete 6"	SY	102	$	$
SP-8.03-1	Base Group 9 (10" Crushed Conc.)(LBR-150)	SY	3,039	$	$
SP-2208-2	Removal of Existing Pavement	SY	3,377	$	$
SP-2208-3	Regular Excavation	CY	370	$	$
SP-2208-4	Embankment	CY	186	$	$
				Sub Total	**$**

Pay Item No.	Description	Unit	Approx. Quantity	Unit Price	Total Price
STORMWATER CONSTRUCTION ITEMS					
SP-4.06-1	Excavate & Removal of Unsuitable Soils	CY	200	$	$
SP-7.03-1	Pipe Conc. Culv. (Class III)(18" RCP)	LF	54	$	$
SP-7.03-2	Pipe Conc. Culv. (Class III)(30"x19" ERCP)	LF	543	$	$
SP-7.03-3	Pipe Conc. Culv. (Class III) (24" RCP)	LF	8	$	$
SP-7.04-1	Drainage Structure Modify (Inlet)	EA	2	$	$
SP-7.04-2	FDOT Curb Inlet Type P-5 <10'	EA	1	$	$
SP-7.04-3	FDOT Curb Inlet Type J-5 <10'	EA	3	$	$
SP-7.04-4	FDOT MH Type P-7, Partial	EA	1	$	$
SP-7.04-5	FDOT MH Type P-8, <10'	EA	1	$	$
				Sub Total	**$**
SIGNING & PAVEMENT MARKINGS					
700-20-11	Single Post Sign, F&I, <12sf	AS	14	$	$
700-20-40	Single Post Sign, Relocate	AS	1	$	$
700-20-60	Single Post Sign, Remove	AS	1	$	$
02580-1	Retro-Reflective Pavement Markers	EA	48	$	$
02580-2	Thermoplastic Solid Traffic Stripe 6" White	LF	2,048	$	$
02580-3	Thermoplastic Solid Traffic Stripe 12" White	LF	236	$	$
02580-4	Thermoplastic Solid Traffic Stripe 24" White	LF	182	$	$
02580-5	Thermoplastic Solid Traffic Stripe 6" Yellow	LF	1,900	$	$
				Sub Total	

Pay Item No.	Description	Unit	Approx. Quantity	Unit Price	Total Price
WATER MAIN CONSTRUCTION					
C2.02-1	Water Main Pipe Removal (F&I) (8" DI)	LF	15	$	$
C2.02-2	Water Main Pipe Removal (F&I) (12" DI)	LF	198	$	$
C2.04-1	Watermain pipe (F&I) (6" DI)	LF	10	$	$
C2.04-2	Watermain pipe (F&I) (8" DI)	LF	17	$	$
C2.04-3	Watermain pipe (F&I) (12" DI)	LF	210	$	$
C2.05-1	Fitting, (Bends, Sleeves,Reduc) (F&I)(DI) (6")	EA	1	$	$
C2.05-2	Fitting, (Bends, Sleeves,Reduc) (F&I)(DI) (8")	EA	4	$	$
C2.05-3	Fitting, (Bends, Sleeves,Reduc) (F&I)(DI)(12")	EA	12	$	$
C2.07-1	Fire Hyd (Standard)(Relocation)	EA	2	$	$
C2.09-1	Mech Joint Restr., Wedge-action, 6 in. (F&I)	LF	10	$	$
C2.09-2	Mech Joint Restr., Wedge-action, 8 in. (F&I)	LF	24	$	$
C2.09-3	Mech Joint Restr., Wedge-action, 12 in. (F&I)	LF	310	$	$
C2.10-1	Water Service Connection, 2" (Irrigation)	EA	1	$	$
C2.11-1	Polyethylene Wrap, 6", D.I. (F&I)	LF	10	$	$
C2.11-2	Polyethylene Wrap, 8", D.I. (F&I)	LF	24	$	$
C2.11-3	Polyethylene Wrap, 12", D.I. (F&I)	LF	310	$	$
				Sub Total	**$**
WASTEWATER CONSTRUCTION					
4900-1	Connection to Existing Manhole	EA	1	$	$
5000-1	6"-8" Wastewater Pipe Removal	LF	400	$	$
5000-2	Sanitary Sewer Manhole Removal	EA	1	$	$
0700-1	Wastewater Pipe (F&I) (6" PVC) Depth < 5'	LF	117	$	$
0700-2	Wastewater Pipe (F&I) (6" PVC) Depth 5' to10'	LF	118	$	$
				Sub Total	**$**

Pay Item No.	Description	Unit	Approx. Quantity	Unit Price	Total Price
HARDSCAPE SURFACES					
02511-1	Colored Shell Aggregate Concrete	SF	6,100	$	$
02510-1	Saw Cut Concrete	SY	560	$	$
				Sub Total	**$**
PLANT MATERIAL & IRRIGATION					
02900-1	Bald Cypress	EA	2	$	$
02900-2	Sky Climber Live Oak	EA	10	$	$
02900-3	Washington Palm	EA	2	$	$
02900-4	Indian Hawthorne	EA	91	$	$
02900-5	Variegated Flax Lily	EA	58	$	$
02900-6	Dwarf Asian Jasmine	EA	461	$	$
02900-7	Mulch	CY	16	$	$
02900-8	Planting Soil	CY	32	$	$
02910-1	Structural Soil	CY	246	$	$
02440-1	Irrigation system	LS	1	$	$
				Sub Total	**$**
SITE FURNISHING					
SP-12.01-1	Bench, Landscape Forms	EA	3	$	$
SP-12.01-2	Trash Receptacle, Landscape Forms	EA	5	$	$
SP-12.01-3	Pooch Station, Pet Pickups	EA	4	$	$
SP-12.01-4	Bike Rack - Landscape Forms	EA	4	$	$
				Sub Total	**$**

Pay Item No.	Description	Unit	Approx. Quantity	Unit Price	Total Price
UNDERGROUND ELECTRIC & LIGHTING					
SP-5.04-1	2" Conduit, Lighting, Install Underground	LF	1,500	$	$
SP-5.04-2	4" Conduit, Lighting, Install Underground	LF	5,590	$	$
SP-5.04-3	6" Conduit, Lighting, Install Underground	LF	4,370	$	$
SP-5.04-4	Electrical Manhole (Install Only)	EA	3	$	$
				Sub Total	**$**
				Sub Total of above Sub Totals	**$**
				Allowance (Reference Section 01020)	**$ 130,000**
				Total Bid	**$**

Notes:

1) It is assumed franchised utility providers to perform their relocations as necessary. Costs to be paid directly to the utility providers by the City.

2) Contractor to design and provide MOT per FDOT design standards.

3) All surveying work associated with construction are incidental to the overall project coordination. This includes, but is not limited to, construction staking, cetified as-built survey, etc.

4) All contractor permit applications and impact fees are the responsibility of the Contractor.

5) Complete road demolition and reconstruction within the project limits is required. The Contractor is to coordinate changes with the Utility Company.

6) Undergrounding of overhead electrical is based on design information provided by TECO.

7) All select backfill material cost for utility and storm sewer system trenches shall be included as part of the unit price of installation.

8) For general information, approximate quantity of 235 LF applies if needed for Pay Item No. 0700-1 or 0700-2.

Computed Total Price In Words:

_____

_____ dollars and _____ cents.

Computed Total Price in Figures: $_____

The bidder acknowledges that the following addenda have been received and that the changes covered by the addendum(s) have been taken into account in this proposal: #1 ___ #2 ___ #3 ___ #4___ #5___.

The bidder acknowledges the requirements of the City of Tampa's Equal Business Opportunity Program.

Bidder acknowledges that included in the various items of the proposal and the Total Bid Price are costs for complying with the Florida Trench Safety Act (90096), (Laws of Fla.) effective October 1, 1990. The bidder further identifies the costs to be summarized below:

	Trench Safety Measure (Description)	Unit of Measure (LF, SY)	Unit Quantity	Unit Cost	Extended Cost
A.	_____	_____	_____	_____	_____
B.	_____	_____	_____	_____	_____
C.	_____	_____	_____	_____	_____
D.	_____	_____	_____	_____	_____

Total Cost $_____

Signed _____

Failure to complete the above may result in the bid being declared non-responsive.

Accompanying this Proposal is a certified check, cashier's check or Bid Bond (form included herein must be used) on the form at least five (5) percent of the total amount of the Proposal which check shall become the property of the

_____ of _____
(Name of Bank or Surety) (City & State)

City of Tampa, or which bond shall become forthwith due and payable to the City of Tampa, if this Proposal shall be accepted by the City of Tampa and the undersigned shall fail to execute a contract with and to furnish the required Performance Bond and Payment Bond to the City of Tampa within twenty (20) days after the date of receipt of written Notice of Award by the City of Tampa to the undersigned so to do.

Dated _____, 2014

_____
(Name of Bidder)

_____
(Address of Bidder)

_____
(Signature)

_____
(Title)

Where Bidder is a Corporation:

Attest:

_____
Secretary

AFFIX
CORPORATE
SEAL

(ACKNOWLEDGMENT OF PRINCIPAL)

STATE OF)
) SS:
COUNTY OF)

For a Corporation:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ of _____, a _____ corporation, on behalf of the corporation. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For an Individual:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ who is ___ personally known to me or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For a Firm:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ who signed on behalf of the said firm. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

_____

Good Faith Effort Compliance Plan for Small Local Business Subcontracting

City of Tampa - Equal Business Opportunity Program

Contract _____ **Bid Date** _____

Bidder _____

Signature _____ **Date** _____

Name _____ **Title** _____

The following Compliance Plan is a true report of Good Faith Efforts made to accomplish subcontracting goals for Small Local Business Enterprises, SLBEs, on the referenced contract:

□ **The goal for SLBE participation has been met or exceeded. See the DMI form reporting subcontractors to be utilized.**
(Check Box, if appropriate; the remainder of the Compliance Plan need not be reported.)

□ **The goal for SLBE participation has not been met. The following is a recap of Good Faith Efforts made:**
(Check applicable boxes below. Enclose additional documents, and/or add remarks below as needed.)

(1) Soliciting through reasonable and available means the interest of SLBEs that have the capability to perform the work of the contract. The Bidder or Contractor must solicit this interest within sufficient time to allow the SLBEs to respond. The Bidder or Contractor must take appropriate steps to follow up initial solicitations with interested SLBEs. □ See DMI report forms for subcontractors solicited. □ See enclosed supplemental data on solicitation efforts. □ Remarks:

(2) Providing interested SLBEs with adequate information about the plans, specifications, and requirements of the contract, including addenda, in a timely manner to assist them in responding to the solicitation. □ See enclosed sample solicitation. □ Remarks:

(3) Negotiating in good faith with interested SLBEs that have submitted bids. Documentation of negotiation must include the names, addresses, and telephone numbers of SLBEs that were solicited; the date of each such solicitation; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why agreements could not be reached with SLBEs to perform the work. That there may be some additional costs involved in soliciting and using SLBEs is not a sufficient reason for a contractor's failure to meet the goals, as long as such costs are reasonable. Bidders are not required to accept higher quotes in order to meet the goal. □ DMI subcontractor-utilized forms reflect successful negotiations □ This project is of a low-bid nature and negotiations are limited to clarifications of scope and specifications. □ See enclosed document. □ Remarks:

(4) Not rejecting SLBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The SLBEs standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations are not legitimate causes for rejecting or not soliciting bids to meet the goals. □ Not applicable. □ See attached explanation for rejection of a low-bidding subcontractor's bid. □ Remarks:

(5) Making a portion of the work available to SLBE subcontractors and suppliers and to select those portions of the work or material consistent with the available SLBE subcontractors and suppliers, so as to facilitate meeting the goal. □ Sub-Contractors were allowed to bid on their own choice of work or trade without restriction to a pre-determined portion. □ See enclosed comments. □ Remarks:

(6) Making good faith efforts, despite the ability or desire of a Bidder or Contractor to perform the work of a contract with its own organization. A Bidder or Contractor who desires to self-perform the work of a contract must demonstrate good faith efforts unless the goal has been met. □ Sub-Contractors were not prohibited from submitting bids on work not usually sub-contracted. □ Remarks:

(7) Selecting portions of the work to be performed by SLBEs in order to increase the likelihood that the goals will be met. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate SLBE participation, even when the Bidder or Contractor might otherwise prefer to perform these work items with its own forces. □ Sub-Contractors were allowed to bid on their own choice of work or trade without restriction to a pre-determined portion. □ Sub-Contractors were not prohibited from submitting bids on work not usually sub-contracted. □ See enclosed comments. □ Remarks:

(8) Making efforts to assist interested SLBEs in obtaining bonding, lines of credit, or insurance as required by the city or contractor. □ See enclosed sample solicitation □ see enclosed document. □ Remarks:

(9) Making efforts to assist interested SLBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, including participation in a City-sponsored mentor-protégé program. □ See enclosed sample solicitation. □ See enclosed document. □ Remarks:

(10) Effectively using the services of the City and other organizations that provide assistance in the recruitment and placement of SLBEs. □ See enclosed document. □ The following services were used:

Other Supporting Good Faith Efforts: □ See enclosed document. □ Remarks:

Compliance Plan: Guidance For Meeting Good Faith Efforts

1. All firms on the SLBE Goal Setting List must be solicited and documentation provided for email, fax, letters, phone calls, and other communication with the listed firms. The DMI Solicited and DMI-Utilized forms must be completed for all firms solicited or utilized. Other opportunities for subcontracting may be explored by consulting the City of Tampa and/or Hillsborough County certification listings of SLBE's.

2. Solicitation of SLBEs, via written or electronic notification, should provide specific information on the services needed, where plans can be reviewed and assistance offered in obtaining these, if required. Solicitations should be typically be sent a week or more before the bid date. Sample copies of the bidder's solicitations should be provided.

3. With any quotes received, a follow-up should be made whenever needed to confirm scope of work. For any SLBE low quotes rejected, an explanation should be provided detailing negotiation efforts.

4. If a low bid SLBE is rejected or deemed unqualified the contractor must provide an explanation and supporting documentation for this decision.

5. Prime should break down portions of work into economical feasible opportunities for subcontracting. The SLBE directory can be useful in identifying additional subcontracting opportunities and firms not listed in the "SLBE Goal Setting Firms List."

6. Contractor should not preclude SLBEs from bidding on any part of work, even if the Contractor can self-perform the work.

7. Contractor should avoid relying solely on subcontracting out work where availability is not sufficient to attain pre-determined goal.

8. In its solicitations, the Bidder should offer assistance to SLBEs in obtaining bonding, insurance, etc, if required of subcontractors by the City or Prime Contractor.

9. In its solicitation, the Bidder should offer assistance in obtaining equipment for a specific job to SLBEs, if needed.

10. Contractor should use the services offered by such agencies as the Minority Business Development Office of the City of Tampa, Hillsborough County and the NAACP Empowerment Center for the recruitment and placement of SLBEs.

City of Tampa –DMI -Schedule of All Sub-(Contractors/Consultants/Suppliers) Solicited

(FORM MBD-10)

Contract No.:_____ Contract Name:_____

Contractor Name:_____ Address:_____

Federal ID:_____Phone:_____ Fax:_____ Email:_____

[] No Firms were contacted/solicited for this contract.

[] No Firms were contacted because:_____

[] See attached documents with supplemental information.

NIGP Code General Categories: Buildings = 909, General = 912, Heavy = 913, Trades = 914, Architects = 906, Engineers & Surveyors = 925, Supplier = 912-77

This DMI Schedule Must Be Submitted with the Bid or Proposal (Do Not Modify This Form)

S = SLBE W=WMBE Federal ID	Company Name Address Phone & Fax	Type of Ownership (F=Female M=Male) BF BM = African Am. HF HM = Hispanic Am. AF AM = Asian Am. NF NM = Native Am. CF CM = Caucasian	Trade or Services NIGP Code (listed above)	Contact Method L=Letter F=Fax E=Email P=Phone	Quote or Resp. Rec'd Y/N

It is hereby certified that the information provided is an accurate and true account of contacts and solicitations for sub – contracting opportunitieson this contract. ***This form must be completed and submitted with the bid or proposal***.Modifying or failing to sign DMI forms may result in Non-Compliance and/or deemed non-responsive.

Signed:_____ Name/Title:_____ Date:_____

Note: Detailed Instructions for completing this form are on the next page

Instructions for completing The Sub-(Contractors/Consultants/ Suppliers) Solicited Form (Form MBD-10)

This form must be submitted with all bids or proposals. All subcontractors (regardless of ownership or size) solicited and subcontractors from whom unsolicited quotations were received must be included on this form. The instructions that follow correspond to the headings on the form required to be completed.Note: Ability or desire to self-perform all work shall not exempt the prime from Good Faith Efforts when Goal has been established.

- **Contract No.** This is the number assigned by the City of Tampa for the bid or proposal.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business.
- **Address.** The physical address of your business.
- **Federal ID.**FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Firms were contacted/solicited for this contract.** Checking the box indicates that a pre-determined Subcontract Goal was not set by the City resulting in your business not using subcontractors and will self-perform all work. If during the performance of the contract you employ subcontractors, the City must pre-approve subcontractors. Use of the "Sub-(Contractors/Consultants/Suppliers) Payments" form must be submitted with your invoices. Note: Certified SLBE or WMBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors.
- **No Firms were contacted because.** Provide brief explanation why no firms were contacted/solicited.
- **See attached documents.**Check box, if after you have completed the DMI Form in its entirety, you are providing any additional documentation relating to the form.All DMI data not submitted on the MBD Form-10 must be in the same format and have all requested data from MBD Form-10 included.

The following instructions are for information of any and all subcontractors solicited.

- **"S" = SLBE, "W" = WMBE.** Enter "**S**" for firms Certified by the City as Small Local Business Enterprises and/or "**W**" for firms Certified by the City as Women/Minority Business Enterprise.
- **Federal ID.**FIN. A number assigned to a business for tax reporting purposes. This information is critical in proper identification of the subcontractor.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Type of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business.
- **Trade, Services, or Materials** Indicate the trade, service, or material provided by the subcontractor. NIGP codes are listed at top section of document.
- **Contact Method L=letter, F=fax, E=Email, P=Phone.** Indicate with letter the method of soliciting for bid.
- **Quote or Resp. (response) Rec'd (received) Y/N**. Indicate "Y" Yes if you received a quotation or if you received a response to your solicitation. Indicate "N" No if you received no response to your solicitation from the subcontractor.

If any additional information is required or you have any questions, you may call the Minority Business Development Office at (813) 274-5522.

City of Tampa –DMI Schedule of Sub-(Contractors/Consultants/Suppliers) to be Utilized

(FORM MBD-20)

Contract No.:_____ Contract Name:_____

Contractor Name:_____ Address:_____

Federal ID:_____Phone:_____ Fax:_____ Email:_____

[ ] See attached documents.

[ ] No Subcontracting (of any kind) will be performed on this contract.

NIGP Code General Categories: Buildings = 909, General = 912, Heavy = 913, Trades = 914, Architects = 906, Engineers & Surveyors = 925, Supplier = 912-77

This DMI Schedule Must Be Submitted with the Bid or Proposal (Do Not Modify This Form)

Enter "S" for firms Certified as Small Local Business Enterprises, "W" for firms Certified as Women/Minority Business Enterprise

S = SLBE W=WMBE Federal ID	Company Name Address Phone & Fax	Type of Ownership (F=Female M=Male) BF BM = African Am. HF HM = Hispanic Am. AF AM = Asian Am. NF NM = Native Am. CF CM = Caucasian	Trade, Services, or Materials NIGP Code Listed above	Amount of Quote. Letter of Intent if available.	Percent of Scope/Contract %

Total Subcontract/Supplier Utilization $_____

Total SLBE Utilization $ _____

Total WMBE Utilization $ _____

Percent SLBE Utilization of Total Bid/Proposal Amt. _____% Percent WMBE Utilization of Total Bid/Proposal Amt. _____%

It is hereby certified that the following information is a true and accurate account of utilization for sub-contracting opportunities on this contract. ***This form must be completed and submitted with the bid or proposal.*** Modifying or failing to sign DMI forms may result in Non-Complianceand/or deemed non-responsive.

Signed:_____ Name/Title:_____ Date:_____

Note: Detailed Instructions for completing this form are on the next page.

Instructions for completing The Sub-(Contractors/Consultants/ Suppliers) to be Utilized Form

(Form MBD-20)

This form must be submitted with all bids or proposals. All subcontractors projected to be utilized must be included on this form.

- **Contract No.** This is the number assigned by the City of Tampa for the bid or proposal.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business.
- **Address.** The physical address of your business.
- **Federal ID.**FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Subcontracting (of any kind) will be performed on this contract.** Checking box indicates your business will not use subcontractors when no Subcontract Goal has been set by the City, but will self-perform all work. When subcontractors are utilized during the performance of the contract, the "Sub-(Contractors/Consultants/Suppliers) Payments" form must be submitted with your invoices. Note: Certified SLBE or WMBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors.
- **See attached documents.** Check if you have provided any additional documentation relating to the utilization of subcontractors.
-

The following instructions are for information of Any and All subcontractors to be utilized.

- **Federal ID.**FIN. A number assigned to a business for tax reporting purposes. This information is critical in proper identification of the subcontractor.
- **"S" = SLBE, "W" = WMBE.** Enter "**S**" for firms Certified by the City as Small Local Business Enterprises and/or "**W**" for firms Certified by the City as Women/Minority Business Enterprise.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Type of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business.
- **Trade, Services, or Materials (NIGP code if Known)** Indicate the trade, service, or material provided by the subcontractor. NIGP codes are available at http:/www.tampagov.net/mbd.
- **Amount of Quote, Letters of Intent** (required for both SLBEs and WMBEs)
- **Percent of Work/Contract.** Indicate the percent of the total contract price the subcontract(s) represent.
- **Total Subcontract/Supplier Utilization.** – Provide total dollar amount of all subcontractors/suppliers projected to be used for the contract. (Dollar amounts may not apply to CCNA proposals.)
- **Total SLBE Utilization.** Provide total dollar amount for all projected SLBE subcontractors/Suppliers used for this contract. (Dollar amounts may not apply to CCNA proposals.)
- **Total WMBE Utilization.** Provide total dollar amount for all projected WMBE subcontractors/Suppliers used for this contract. (Dollar amounts may not apply to CCNA proposals.)
- **Percent SLBE Utilization.** Total amount allocated to SLBEs divided by the total bid amount. (Dollar amounts may not apply to CCNA proposals.)
- **Percent WMBE Utilization.** Total amount allocated to WMBEs divided by the total bid/proposal amount. (Dollar amounts may not apply to CCNA proposals.)

If any additional information is required or you have any questions, you may call the Minority Business Development Office at (813) 274-5522.

TAMPA BID BOND
Contract 14-C-00011; Channel District: East Madison Street Improvements - Project 1000327

KNOW ALL MEN BY THESE PRESENTS, that we, _____

_____

(hereinafter called the Principal) and _____

(hereinafter called the Surety) a Corporation chartered and existing under the laws of the State of _____, with its principal offices in the City of _____, and authorized to do business in the State of Florida, are held and firmly bound unto the City of Tampa, a Municipal Corporation of Hillsborough County, Florida, in the full and just sum of 5% of the amount of the (Bid) (Proposal) good and lawful money of the United States of America, to be paid upon demand of the City of Tampa, Florida, to which payment will and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally and firmly these presents.

WHEREAS, the Principal is about to submit, or has submitted to the City of Tampa, Florida, a Proposal for the construction of certain facilities for the City designated Contract 14-C-00011, Channel District: East Madison Street Improvements - Project 1000327.

WHEREAS, the Principal desires to file this Bond in accordance with law, in lieu of a certified Bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE: The conditions of this obligation are such that if the Proposal be accepted, the Principal shall, within twenty (20) days after the date of receipt of written Notice of Award, execute a contract in accordance with the Proposal and upon the terms, conditions and price set forth therein, in the form and manner required by the City of Tampa, Florida and execute a sufficient and satisfactory Performance Bond and Payment Bond payable to the City of Tampa, Florida in an amount of one hundred percent (100%) of the total contract price, in form and with security satisfactory to said City, then this Bid Bond obligation is to be void; otherwise to be and remain in full force and virtue in law, and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the aforesaid City, upon demand, the amount thereof, in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY THEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day of _____,2014.

Principal _____

BY _____

TITLE _____

BY _____

TITLE _____

Countersigned:
(SEAL)

_____
Local Resident Producing Agent

_____
Local Resident Producing Agent's Address

_____
Name of Local Agency

_____
The addition of such phrases as "not to exceed" or like import shall render the (Bid) (Proposal)non-responsive.

AGREEMENT

For furnishing all labor, materials and equipment, together with all work incidental thereto, necessary and required for the performance of the work for the construction of Contract 14-C-00011 in accordance with your Proposal dated _____, amounting to a total of $_____ as completed in accordance with subsections I-2.09 and I-2.10 of the Instruction to Bidders.

THIS AGREEMENT, made and entered into in triplicate, this ____ day of _____, 2014, between the City of Tampa, Florida, hereinafter called the City, and hereinafter called the Contractor.

WITNESSETH that, in consideration of the mutual stipulations, agreements, and covenants herein contained, the parties hereto have agreed and hereby agree with each other, the Party of the First Part for itself, its successors and assigns, and the Party of the Second Part for itself, or himself, or themselves, and its successors and assigns, or his or their executors, administrators and assigns, as follows:

Contract 14-C-00011; Channel District: East Madison Street Improvements, shall include, but not be limited to, providing improvements to East Madison Street in the Channel District, including roadway, stormwater, wastewater, and water main construction, signing and pavement markings, specialty concrete and sawcut concrete walks, site furnishings, landscaping and irrigation, underground electrical, with all associated work required for a complete project in accordance with the Contract Documents.

Contract Documents referred to in Article 1.01 of this Agreement also includes this volume, applicable standard drawings, the plans and any provisions referred to whether actually attached or not.

TAMPA AGREEMENT

SECTION 1
GENERAL

ARTICLE 1.01 THE CONTRACT

Except for titles, subtitles, headings, running headlines, and tables of contents (all of which are printed herein merely for convenience), the following, except for such portions thereof as may be specifically excluded, constitute the Contract:

The Notice to Bidders;
The Instructions to Bidders, including Special Instructions and General Instructions;
The Proposal;
The Bid Bond;
The Certification of Nonsegregated Facilities;
The Notice of Award;
The Agreement;
The Performance Bond;
The Notice To Proceed;
The Specifications, including the General Provisions, the Workmanship and Materials, the Specific Provisions or the Contract Items
The Plans;
All Supplementary Drawings Issued after award of the Contract;
All Addenda issued by the City prior to the receipt of proposals;
All provisions required by law to be inserted in this Contract, whether actually inserted or not.

ARTICLE 1.02 DEFINITIONS

The following words and terms, or pronouns used in their stead, shall, wherever they appear in this Contract, be construed as follows, unless different meaning is clear from the context:

(a)"City" shall mean the City of Tampa, Florida, represented by its Mayor and City Council, Party of the First Part, or such other City official as shall be duly empowered to act for the City on matters relating to this Contract.

(b)"Contractor" shall mean the Party of the Second Part hereto, whether corporation, firm or individual, or any combination thereof, and its, their, or his successors, personal representatives, executors, administrators, and assigns, and any person, firm or corporation who or which shall at any time be substituted in the place of the Party of the Second Part under this Contract.

(c)"Engineer" shall mean the Director of the Department or his duly authorized representative.

(d)"Consultant" shall mean the engineering or architectural firm or individual employed by the City to consult with and advise the City in the construction of the project.

(e)"Surety" shall mean any person, firm or corporation that has executed as Surety the Contractor's Performance Bond securing the performance of this Contact.

(f)"The Work" shall mean everything expressly or implied required to be furnished and done by the Contractor under the Contract, and shall include both Contract Work and Extra Work.

(g)"Contract Work" shall mean everything expressly or implied required to be furnished and done by the Contractor by any one or more of the Contract parts referred to in Article 1.01 hereof, except Extra Work, as hereinafter defined; it being understood that, in case of any inconsistency in or between any part or parts of this Contract, the Engineer shall determine which shall prevail.

(h)"Contract" or "Contract Documents" shall mean each of the various part of the Contract referred to in Article 1.01 hereof, both as a whole and severally.

(i)"Extra Work" shall mean work other than that required either expressly or implied by the contract in its present form.

(j)"Plans" shall mean only those drawings specifically referred to as such in these documents, or in any Addendum. Drawings issued after the execution of the Contract to explain further, or to illustrate, or to show changes in the work, will be known as "Supplementary Drawings" and shall be binding upon the Contractor with the same force as the Plans.

(k)"Specifications" shall mean all of the directions, requirements, and standards of performance applying to the work, as hereinafter detailed and designated as such, or which may be issued in an addendum.

(l)"Addendum or Addenda" shall mean the additional contract provisions issued in writing prior to the receipt of bids.

(m)"Notice" shall mean written notice. Notice shall be served upon the Contractor, either personally or by leaving the said notice at his residence or with any employee found on the work, or addressed to the Contractor at the residence or place of business given in his proposal and deposited in a postpaid wrapper in any post office box regularly maintained by the United States Post Office.

(n)"Project" shall mean the entire improvement package or related work. The "project" may consist of several different, but related, contracts.

(o)"Site" shall mean, and be limited to, the area upon or in which the Contractor's operations are carried on and such other appropriate areas as may be designed as such by the Engineer.

(p)"Subcontractor" shall mean any person, firm, or corporation, other than employees of the Contractor, who or which contracts with the Contractor to furnish, or actually furnishes labor, or labor and materials, or labor and equipment or labor, materials, and equipment at the site.

(q)Whenever in the Contract the words "directed", "required", "permitted", "ordered", "designated", "prescribed", and words of like import are used, they shall imply the direction, requirement, permission, order, designation, or prescription of the Engineer; and "approved", "acceptable", "satisfactory", "in the judgement of", and words of like import shall mean approved by, or acceptable to, or satisfactory to, or in the judgment of the Engineer.

(r)Whenever in the Contract the word "day" is used, it shall mean calendar day.

(s)"Final Acceptance" shall mean acceptance of the

work as evidenced by an official resolution of the City. Such acceptance shall be deemed to have taken place only if and when an approving resolution has been adopted by the City Council. The final acceptance shall be signed only after the City has assured itself by tests, inspection, or otherwise, that all of the provisions of the Contract have been carried out to its satisfaction.

(t)"Eastern Standard Time" shall be construed as the time being observed in the City on the day proposals are received or other documents issued or signed.

SECTION 2
POWERS OF THE CITY'S REPRESENTATIVES

ARTICLE 2.01 THE ENGINEER

It is covenanted and agreed that the Engineer, in addition to those matters elsewhere herein expressly made subject to his determination, direction, or approval, shall have the power, subject to such express provisions and limitations herein contained as are not in conflict herewith, and subject to review by the Mayor and City Council:

(a)To monitor the performance of the work.

(b)To determine the amount, kind, quality, sequence, and location of the work to be paid for hereunder and, when completed, to measure such work for payment.

(c)To determine all questions of an engineering character in relation to the work, to interpret the Plans, Specifications and Addenda.

(d)To determine how the work of this Contract shall be coordinated with the work of other contractors engaged simultaneously on this project.

(e)To make minor changes in the work as he deems necessary, provided such changes do not result in a net increase in the cost to the City or to the Contractor of the work to be done under the Contract.

(f)To amplify the Plans, add explanatory information and furnish additional Specifications and Drawings consistent with the intent of the Contract Documents.

The power of the Engineer shall not be limited to the foregoing enumeration, for it is the intent of this Contract that all of the work shall be subject to his determinations and approval, except where the determination or approval of someone other than the Engineer is expressly called for herein and except as subject to review by the Mayor and City Council. All orders of the Engineer requiring the Contractor to perform work as Contract work shall be promptly obeyed by the Contractor.

The Engineer shall not, however, have the power to issue an extra work order, and the performance of such work on the order of the Engineer without previously obtaining written confirmation thereof from the Mayor in accordance with Article 7.02 hereof may constitute a waiver of any right to extra compensation therefor. The Contractor is warned that the Engineer has no power to change the terms and provisions of this Contract, except minor changes where such change results in no net increase in the Contract Price.

ARTICLE 2.02 DIRECTOR

The Director of the Department in addition to those matters expressly made subject to his determination, direction or approval in his capacity as "Engineer", shall also have the power:

(a)To review any and all questions in relation to this Contract and its performance, except as herein otherwise specifically provided, and his determination upon such review shall be final and conclusive upon the Contractor.

(b)With the approval of the Mayor and City Council to authorize modifications or changes in the Contract so as to require: (1) the performance of extra work, or (2) the omission of Contract work whenever he deems it in the interest of the City to do so, or both.

(c)To suspend the whole or any part of the work whenever, in his judgment, such suspension is required: (1) in the interest of the City generally, or (2) to coordinate the work of the various Contractors engaged on this project, or (3) to expedite the completion of the entire project, even though the completion of this particular Contract may be thereby delayed, without compensation to the Contractor for such suspension other than extending the time for the completion of the work, as much as it may have been, in the opinion of the City, delayed by such a suspension.

(d)If, before the final acceptance of all the work contemplated herein, it shall be deemed necessary to take over, use, occupy, or operate any part of the completed or partly completed work, the Engineer shall have the right to do so and the Contractor will not, in any way, interfere with or object to the use, occupation, or operation of such work by the City after receipt of notice in writing from the Engineer that such work or part thereof will be used by the City on and after the date specified in such notice. Such taking over, use, occupancy or operation of any part of the completed or partially completed work shall not constitute final acceptance or approval of any such part of the work.

ARTICLE 2.03 NO ESTOPPEL

The City shall not, nor shall any department, officer, agent, or employee thereof, be bound, precluded, or estopped by any determination, decision, acceptance, return, certificate, or payment made or given under or in connection with this Contract by any officer, agent or employee of the City at any time either before or after final completion and acceptance of the work and payment therefor: (a) from showing the true and correct classification, amount, quality, or character of the work done, or that any determination, decision, acceptance, return certificate or payment is untrue, incorrect or improperly made in any particular, or that the work or any part thereof does not in fact conform to the requirements of the Contract Documents, and (b) from demanding and recovering from the Contractor any overpayments made to him or such damages as it may sustain by reason his failure to comply with the requirements of the Contract of Documents, or both.

ARTICLE 2.04 NO WAIVER OF RIGHTS

Neither the inspection, nor any order, measurements or certificate of the City or its employees, officers, or agents, nor by any order of the City for payment of money, nor any money, nor payments for or acceptance of the whole or any part of the work by the City, nor any extension of time, nor any changes in the Contract, Specifications or Plans, nor any possession by the City or its employees shall operate as a

waiver of any provisions of this Contract, nor any power herein provided nor shall any waiver of any breach of this Contract be held as a waiver of any other subsequent breach.

Any remedy provided in this Contract shall be taken and construed as cumulative, namely, in addition to each and every other suit, action, or legal proceeding. The City shall be entitled as of right to an injunction against any breach of the provisions of this Contract.

SECTION 3
PERFORMANCE OF WORK

ARTICLE 3.01 CONTRACTOR'S RESPONSIBILITY
The Contractor shall do all the work and furnish, at his own cost and expense, all labor, materials, equipment, and other facilities, except as herein otherwise provided, as may be necessary and proper for performing and completing the work under this Contract. The Contractor shall be responsible for the entire work until completed and finally accepted by the City.

The work shall be performed in accordance with the true intent and meaning of the Contract Documents. Unless otherwise expressly provided, the work must be performed in accordance with the best modern practice, with materials as specified and workmanship of the highest quality, all as determined by and entirely to the satisfaction of the Engineer.

Unless otherwise expressly provided, the means and methods of construction shall be such as the Contractor may choose, subject, however, to the approval of the Engineer. Only adequate and safe procedure, methods, structures and equipment shall be used. The Engineer's approval or the Engineer's failure to exercise his right thereon shall not relieve the Contractor of obligations to accomplish the result intended by the Contract, nor shall such create a cause of action for damages.

ARTICLE 3.02 COMPLIANCE WITH LAWS
The Contractor must comply with all local, State and Federal laws, rules, ordinances and regulations applicable to this Contract and to the work done hereunder, and must obtain, at his own expense, all permits, licenses or other authorization necessary for the prosecution of the work.

No work shall be performed under this Contract on Sundays, legal holidays or after regular working hours without the express permission of the Engineer. Where such permission is granted, the Engineer may require that such work be performed without additional expense to the City.

ARTICLE 3.03 INSPECTION
During the progress of the work and up to the date of final acceptance, the Contractor shall, at all times, afford the representatives of the City, the Florida Department of Environmental Regulation, and if applicable, the Federal Environmental Protection Agency and the Federal Department of Labor every reasonable, safe and proper facility for inspecting the work done or being done at the site. The inspection of any work shall not relieve the Contractor of any of his obligations to perform proper and satisfactory work as herein specified. Finished or unfinished work found not to be in strict accordance with the Contract shall be replaced as directed by the Engineer, even though such work may have been previously approved and payment made therefor.

The City shall have the right to reject materials and workmanship which are defective or require their correction. Rejected work and materials must be promptly removed from the site, which must at all times be kept in a reasonably clean and neat condition.

Failure or neglect on the part of the City to condemn or reject bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if it becomes evident at any time prior to the final acceptance of the work by the City. Neither shall it be construed as barring the City at any subsequent time from the recovery of damages of such a sum of money as may be needed to build anew all portions of the work in which inferior work or improper materials were used, wherever found.

Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make examinations of work already completed, by removing or tearing out all or portions of such work, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and material for that purpose. If such work is found to be defective in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray all expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the cost of examination and restoration of the work shall be considered an item of extra work to be paid for in accordance with the provisions of Article 7.02 hereof.

ARTICLE 3.04 PROTECTION
During performance and until final acceptance, the Contractor shall be under an absolute obligation to protect the finished and unfinished work against any damage, loss, or injury. The Contractor shall take proper precaution to protect the finished work from loss or damage, pending completion and the final acceptance of all the work included in the entire Contract, provided that such precaution shall not relieve the Contractor from any and all liability and responsibility for loss or damage to the work occurring before final acceptance by the City. Such loss or damage shall be at the risk of and borne by the Contractor, whether arising from acts or omissions of the Contractor or others. In the event of any such loss or damage, the Contractor shall forthwith repair, replace, and make good the work without extension of time therefor, except as may be otherwise provided herein.

The provisions of this Article shall not be deemed to create any new right of action in favor of third parties against the Contractor or the City.

ARTICLE 3.05 PRESERVATION OF PROPERTY

The Contractor shall preserve from damage all property along the line of the work, or which is in the vicinity of or is in anywise affected by the work, the removal or destruction of which is not called for by the Plans. This applies, but is not limited, to the public utilities, trees, lawn areas, building monuments, fences, pipe and underground structures, public streets (except natural wear and tear of streets resulting from legitimate use thereof by the Contractor), and wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor and at his own expense.

In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the City may, upon forty-eight (48) hour written notice, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due the Contractor under this Contract. Nothing in this clause shall prevent the Contractor from receiving proper compensation for the removal, damage, or replacement of any public or private property not shown on the Plans, when this is made necessary by alteration of grade or alignment authorized by the Engineer, provided that such property has not been damaged through fault of the Contractor, his employees or agents.

ARTICLE 3.06 BOUNDARIES
The Contractor shall confine his equipment, apparatus, the storage of materials, supplies and apparatus of his workmen to the limits indicated on the plans, by law, ordinances, permits or direction of the Engineer.

ARTICLE 3.07 SAFETY AND HEALTH REGULATIONS
The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91- 596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL91-54).

ARTICLE 3.08 TAXES
All taxes of any kind and character payable on account of the work done and materials furnished under this Contract shall be paid by the Contractor and shall be deemed to have been included in his bid. The laws of the State of Florida provide that sales and use taxes are payable by the Contractor upon the tangible personal property incorporated in the work and such taxes shall be paid by the Contractor and shall be deemed to have been included in his bid.

ARTICLE 3.09 ENVIRONMENTAL CONSIDERATIONS
The Contractor, in the performance of the work under this Contract, shall comply with all Local, State and Federal laws, statutes, ordinances, rules and regulations applicable to protection of the environment; and, in the event he violates any of the provisions of same, he shall be answerable to the Local, State and Federal agencies designated by law to protect the environment. In the event the City receives, from any of the environmental agencies, a citation which is occasioned by an act or omission of the Contractor or his subcontractor or any officers, employees or agents of either, it is understood and agreed that the Contractor shall automatically become a party-respondent under said citation; and the City immediately shall notify the Contractor and provide him with a copy of said citation.

The Contractor shall comply with the requirements of the citation and correct the offending conditions(s) within the time stated in said citation and further shall be held fully responsible for all fines and/or penalties.

SECTION 4
TIME PROVISIONS

ARTICLE 4.01 TIME OF START AND COMPLETION
The Contractor must commence work within thirty (30) days subsequent to the date of the receipt of the "Notice to Proceed" by the City unless otherwise provided in the Specific Provisions and Special Instructions. Time being of the essence of this Contract, the Contractor shall thereafter prosecute the work diligently, using such means and methods of construction as well as secure its full completion in accordance with the requirements of the Contract Documents no later than the date specified therefor, or on the date to which the time for completion may be extended.

The Contractor must complete the work covered by this Contract in the number of consecutive calendar days set forth in the Instructions to Bidders, unless the date of completion is extended pursuant to the provisions of Article 4.05 hereof. The period for performance shall start from the date of signing of this Agreement by the City.

The actual date of completion will be established after a final inspection as provided in Article 4.07 hereof.

ARTICLE 4.02 PROGRESS SCHEDULE
To enable the work to be laid out and prosecuted in an orderly and expeditious manner, the Contractor shall submit to the Engineer a proposed progress schedule within fifteen (15) days after the award of this Contract.

The schedule shall state the Contract starting date, time for completion and date of completion and shall show the anticipated time of starting and completion of each of the various operations to be performed under this Contract, together with all necessary and appropriate information regarding sequence and correlation of work and an estimated time required for the delivery of all materials and equipment required for the work. The proposed schedule shall be revised as directed by the Engineer until finally approved by him, and, after such approval, shall be strictly adhered to by the Contractor. The approved progress schedule may be changed only with the written permission of the Engineer.

If the Contractor shall fail to adhere to the approved progress schedule or the schedule as revised, he shall promptly adopt such other or additional means and methods of construction as will make up for the time lost, and will assure completion in accordance with the contract time.

ARTICLE 4.03 APPROVAL REQUESTS
From time to time, as the work progresses and in the sequence indicated by the approved schedule, the Contractor must submit to the Engineer a specific request, in writing, for each item of information or approval required of him by the Contract. These requests must be submitted sufficiently in advance of the date upon which the information or approval is actually required by the Contractor to allow for the time the Engineer may take to act upon such submissions or resubmissions. The Contractor shall not have any right to an extension of time on account of delays due to his failure to submit his requests for the required information or the required approval in accordance with these requirements.

ARTICLE 4.04 COORDINATION WITH OTHER CONTRACTORS
During progress of the work, other Contractors may be engaged in performing other work on this project or on other projects on the site. In that event, the Contractor shall coordinate the work to be done hereunder with the work of such other Contractors in such manner as the Engineer may direct.

ARTICLE 4.05 EXTENSION OF TIME
If such an application is made, the Contractor shall be entitled to an extension of time for delay in completion of the work should the Contractor be obstructed or delayed in the commencement, prosecution or completion of any part of said work by any act or delay of the City, or by acts or omissions of other Contractors on this project, or by a riot, insurrection, war, pestilence, acts of public authorities, fire, lightning, hurricanes, earthquakes, tornadoes, floods, extremely abnormal and excessive inclement weather as indicated by the records of the local weather bureau for a five-year period preceding the date of the Contract, or by strikes, or other causes, which causes of delay mentioned in this Article, in the opinion of the City, are entirely beyond the expectation and control of the Contractor.

The Contractor shall, however, be entitled to an extension of time for such causes only for the number of days of delay which the City may determine to be due solely to such causes and only to the extent that such occurrences actually delay the completion of the project and then only if the Contractor shall have strictly complied with all of the requirements of Articles 4.01, 4.02, 4.03 and 4.04 hereof. It is hereby understood that the determination by the Engineer as to the order and sequence of the work shall not in itself constitute a basis for extension of time.

The determination made by the City on an application for an extension of time shall be binding and conclusive on the Contractor.

Delays caused by failure of the Contractor's materialmen, manufacturers, and dealers to furnish approved working drawings, materials, fixtures, equipment, appliances, or other fittings on time or failure of subcontractors to perform their work shall not constitute a basis of extension of time.

The Contractor agrees to make no claim for damages for delay in the performance of this Contract occasioned by any act or omission to act of the City or any of its representatives or because of any injunction which may be brought against the City or its representatives and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the work as provided herein.

ARTICLE 4.06 LIQUIDATED DAMAGES
It is mutually agreed between the parties that time is the essence of this Contract and that there will be on the part of the City considerable monetary damage in the event the Contractor should fail to complete the work within the time fixed for completion in the Contract or within the time to which such completion may have been extended.

The amount per day set forth in the Instructions to Bidders is hereby agreed upon as the liquidated damages for each and every calendar day that the time consumed in completing the work under this Contract exceeds the time allowed.

This amount shall, in no event, be considered as a penalty or otherwise than as the liquidated and adjusted damages to the City because of the delay and the Contractor and his Surety agree that the stated sum per day for each such day of delay shall be deducted and retained out of the monies which may become due hereunder and if not so deductible, the Contractor and his Surety shall be liable therefor.

ARTICLE 4.07 FINAL INSPECTION
When the work has been completed in accordance with the requirements of the Contract and final cleaning up performed, a date for final inspection of the work by the Engineer shall be set by the Contractor in a written request therefor, which date shall be not less than ten (10) days after the date of such request. The work will be deemed complete as of the date so set by the Contractor if, upon such inspection, the Engineer determines that no further work remains to be done at the site.

If such inspection reveals interms of work still to be performed, however, the Contractor shall promptly perform them and then request a reinspection. If, upon such inspection, the Engineer determines that the work is complete, the date of final completion shall be deemed to be the last day of such reinspection.

SECTION 5
SUBCONTRACTS AND ASSIGNMENTS

ARTICLE 5.01 LIMITATIONS AND CONSENT
The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due thereunder to any other person, firm or corporation unless the previous written consent of the City shall first be obtained thereto and the giving of any such consent to a particular subcontract or assignment shall not dispense with the necessity of such consent to any further or other assignment.

Before making any subcontract, the Contractor must submit a

written statement to the Engineer, giving the name and address of the proposed contractor, the portion of the work and materials which he is to perform and furnish and any other information tending to prove that the proposed subcontractor has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract.

If the City finds that the proposed subcontractor is qualified, the Contractor will be notified in writing. The City may revoke approval of any subcontractor when such subcontractor evidences an unwillingness or inability to perform his work in strict accordance with these Contract Documents. Notice of such revocation of approval will be given in writing to the Contractor.

The Contractor will promptly, upon request, file with the City a conformed copy of the subcontract. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of these Contract Documents, insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontracts that the City may exercise over the Contractor under provisions of these Contract Documents.

The Contractor shall be required to perform with his own forces at least twenty-five (25) percent of the work, unless written consent to subcontract a greater percentage of the work is first obtained from the City.

ARTICLE 5.02 RESPONSIBILITY
The approval by the City of a subcontractor shall not relieve the Contractor of any of his responsibilities, duties, and liabilities hereunder. The Contractor shall be solely responsible to the City for the acts or defaults or omissions of his subcontractor and of such subcontractor's officers, agents, and employees, each of whom shall for all purposes be deemed to be the agent or employee of the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between any subcontractor and the City.

SECTION 6
SECURITY AND GUARANTY

ARTICLE 6.01 CONTRACT SECURITY
The Contractor shall execute and deliver to the City a Performance Bond on the form as provided herein, in an amount at least equal to one hundred (100) percent of the full Contract price, such Bond to be executed by a surety company acceptable to the City. The surety on such Performance Bond shall be a surety company duly authorized to do business in the State of Florida, and the Bond shall be issued or countersigned by a local resident producing agent of such surety company who is a resident of the State of Florida, regularly commissioned and licensed in said State, and satisfactory evidence of the authority of the person or persons executing such Bond shall be submitted with the Bond. The Performance Bond shall serve as security for the faithful performance of this Contract, including maintenance and guaranty provisions, and for the payment of all persons performing labor and furnishing materials in connection with the Contract. The premiums on the Performance Bond shall be paid by the Contractor.

If, at any time, the City shall become dissatisfied with any surety or sureties then upon the Performance Bond, or if for any other reason such bond shall cease to be adequate security for the City, the Contractor shall, within five days after notice so to do, substitute an acceptable Bond in such form and sum and signed by such other sureties as may be satisfactory to the City. The premiums on such Bond shall be paid by the Contractor. No further partial payments shall be deemed due or shall be made until the new sureties have qualified.

ARTICLE 6.02 CONTRACTORS INSURANCE
Insurance required shall be as indicated on Special Instructions pages beginning with "INS-1"

ARTICLE 6.03 AGAINST CLAIMS AND LIENS
The City may withhold from the Contractor as much as any approved payments to him as may, in the opinion of the City, be necessary to secure (a) just claims of any persons supplying labor or materials to the Contractor or any of his subcontractors for the work then due and unpaid; (b) loss due to defective work not remedied, or (c) liability, damage, or loss due to injury to persons or damages to the work or property of other contractors, subcontractors, or others, caused by the act or neglect of the Contractor or of any of his subcontractors. The City shall have the right, as agent for the Contractor, to apply any such amounts so withheld in such manner as the City may deem proper to satisfy such claims or to secure such protection. Such application of such money shall be deemed payments for the account of the Contractor.

ARTICLE 6.04 MAINTENANCE AND GUARANTY
The Contractor hereby guarantees all the work furnished under this Contract against any defects in workmanship and materials for a period of one year following the date of final acceptance of the work by the City. Under this guarantee, the Contractor hereby agrees to make good, without delay, at his own expense, any failure of any part of the work due to faulty materials or manufacture, construction, or installation, or the failure of any equipment to perform satisfactorily all the work put upon it within the limits of the Contract Documents, and further, shall make good any damage to any part of the work caused by such failure. It is hereby agreed that the Performance Bond shall fully cover all guarantees contained in this Article.
It is also agreed that all warranties, expressed or implied, inure to the benefit of the City and are enforceable by the City.

SECTION 7
CHANGES

ARTICLE 7.01 MINOR CHANGES
The City reserves the right to make such additions, deductions, or changes to this Contract from time to time as

it deems necessary and in a manner not materially affecting the substance thereof or materially changing the price to be paid in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed. This Contract shall in no way be invalidated by any such additions, deductions, or changes, and no claim by the Contractor shall be made for any loss of anticipated profits thereby.

Construction conditions may require that minor changes be made in the location and installation of the work and equipment to be furnished and other work to be performed hereunder, and the Contractor when ordered by the Engineer, shall make such adjustments and changes in said locations and work as may be necessary, without additional cost to the City, provided such adjustments and changes do not alter the character, quantity of cost of the work as a whole, and provided further that Plans and Specifications showing such adjustments and changes are furnished to the Contractor by the City within a reasonable time before any work involving such adjustment and changes is begun. The Engineer shall be the sole judge of what constitutes a minor change for which no additional compensation shall be allowed.

ARTICLE 7.02 EXTRA WORK

The City may at any time by a written order and without notice to the sureties require the performance of such extra work as it may find necessary or desirable. An order for extra work shall be valid only if issued in writing and signed by the Mayor and the work so ordered must be performed by the Contractor.

The amount of compensation to be paid to the Contractor for any extra work as so ordered shall be determined as follows:

(a)By such applicable unit prices, if any, as are set forth in the Proposal; or

(b)If no such unit prices are set forth then by a lump sum or other unit prices mutually agreed upon by the City and the Contractor; or

(c)If no such unit prices are set forth in the Proposal and if the parties cannot agree upon a lump sum or other unit prices then by the actual net cost in money to the Contractor of the extra work performed, which cost shall be determined as follows:

(1) For all labor and foreman in direct charge of the authorized operations, the Contractor shall receive the current local rate of wages to be agreed upon, in writing, before starting such work for each hour that said labor and foremen are actually engaged thereon, to which shall be added an amount equal to 25 percent of the sum thereof which shall be considered and accepted as full compensation for general supervision, FICA taxes, contributions under the Florida Unemployment Compensation Act, insurance, bond, subcontractor's profit and overhead, the furnishing of small tools and miscellaneous equipment used, such as picks, shovels, hand pumps, and similar items.

(2) For all materials used, the Contractor shall receive the actual cost of such materials delivered at the site or previously approved delivery point as established by original receipted bills. No percentage shall be added to this cost.

(3) For special equipment and machinery such as power-driven pumps, concrete mixers, trucks, and tractors, or other equipment, required for the economical performance of the authorized work, the Contractor shall receive payment based on the average local area rental price for each item of equipment and the actual time of its use on the work. No percentage shall be added to this sum.

(4) Records of extra work done under this procedure shall be reviewed at the end of each day by the Contractor or his representative and the Engineer. Duplicate copies of accepted records shall be made and signed by both Contractor or his representative and the Engineer, and one copy retained by each.

Request for payment for approved and duly authorized extra work shall be submitted in the same form as Contract work or in the case of work performed under paragraph (c) (1) above upon a certified statement supported by receipted bills. Such statement shall be submitted for the current Contract payment for the month in which the work was done.

ARTICLE 7.03 DISPUTED WORK

If the Contractor is of the opinion that any work required, necessitated, or ordered violates the terms and provisions of this Contract, he must promptly notify the Engineer, in writing, of his contentions with respect thereto and request a final determination thereof. If the Engineer determines that the work in question is Contract work and not extra work or that the order complained of is proper, he will direct the Contractor to proceed and the Contractor shall promptly comply. In order, however, to reserve his right to claim compensation for such work or damages resulting from such compliance, the Contractor must, within five (5) days after receiving notice of the Engineer's determination and direction, notify the City in writing that the work is being performed or that the determination and direction is being complied with under protest. Failure of the Contractor to notify shall be deemed as a waiver of claim for extra compensation or damages therefor.

Before final acceptance by the City, all matters of dispute must be adjusted to the mutual satisfaction of the parties thereto. Final determinations and decisions, in case any questions shall arise, shall constitute a condition precedent to the right of the Contractor to receive the money therefor until the matter in question has been adjusted.

ARTICLE 7.04 OMITTED WORK

The City may at any time by a written order and without notice to the sureties require the omission of such Contract work as it may find necessary or desirable.

An order for omission of work shall be valid only if signed by the Mayor and the work so ordered must be omitted by the Contractor. The amount by which the Contract price shall be reduced shall be determined as follows:

(a) By such applicable unit prices, if any, as are set forth in the Contract; or

(b) By the appropriate lump sum price set forth in the Contract; or

(c) By the fair and reasonable estimated cost to the City

of such omitted work as determined by the Engineer and approved by the City.

SECTION 8
CONTRACTOR'S EMPLOYEES

ARTICLE 8.01 CHARACTER AND COMPETENCY
The Contractor and his subcontractors shall employ upon all parts of the work herein contracted for only competent, skillful, and trustworthy workers. Should the Engineer at any time give notice, in writing, to the Contractor or his duly authorized representative on the work that any employee in his opinion is incompetent, unfaithful, disorderly, careless, unobservant of instructions, or in any way a detriment to the satisfactory progress of the work, such employee shall immediately be dismissed and not again allowed upon the site.

ARTICLE 8.02 SUPERINTENDENCE
The Contractor shall give his personal supervision to the faithful prosecution of the work and in case of his absence shall have a competent, experienced, and reliable supervisor or superintendent, acceptable to the Engineer on the site who shall follow without delay all instructions of the Engineer in the prosecution and completion of the work and every part thereof, in full authority to supply workers, material, and equipment immediately. He shall keep on hand at all times copies of the Contract Documents.

ARTICLE 8.03 EMPLOYMENT OPPORTUNITIES
The Contractor shall, in the performance of the work required to be done under this Contract, employ all workers without discrimination regarding race, creed, color, sex or national origin and must not maintain or provide facilities that are segregated on the basis of race, color, creed or national origin.

ARTICLE 8.04 RATES OF WAGES
On federally assisted projects, the rates of wages to be paid under this Contract shall not be less than the rates of wages set forth in Section 12 of this Agreement.

On other projects, no wage rate determination is included. Florida's Prevailing Wage Law (Section 215.19, Florida Statutes) was repealed effective April 25, 1979.

ARTICLE 8.05 PAYROLL REPORTS
The Contractor and each subcontractor shall, if requested to do so, furnish to the Engineer a duly certified copy of his payroll and also any other information required by the Engineer to satisfy him that the provisions of the law as to the hours of employment and rate of wages are being observed.

Payrolls shall be prepared in accordance with instructions furnished by the City and on approved forms. The Contractor shall not carry on his payroll any persons not employed by him. Subcontractor's employees shall be carried only on the payrolls of the employing subcontractor.

SECTION 9
CONTRACTOR'S DEFAULT

ARTICLE 9.01 CITY'S RIGHT AND NOTICE
It is mutually agreed that: (a) if the Contractor fails to begin work when required to do so, or (b) if at any time during the progress of the work it shall appear to the Engineer that the Contractor is not prosecuting the work with reasonable speed, or is delaying the work unreasonably and unnecessarily, or (c) if the force of workmen or quality or quantity of material furnished are not sufficient to insure completion of the work within the specified time and in accordance with the Specifications hereto attached, or (d) if the Contractor shall fail to make prompt payments for materials or labor or to subcontractors for work performed under the Contract, or (e) if legal proceedings have been instituted by others than the City in such manner as to interfere with the progress of the work and may subject the City to peril of litigation or outside claims of (f) if the Contractor shall be adjudged a bankrupt or make an assignment for the benefit of creditors, or (g) if in any proceeding instituted by or against the Contractor an order shall be made or entered granting an extension of time of payment, composition, adjustment, modification, settlement or satisfaction of his debts or liabilities, or (h) if a receiver or trustee shall be appointed for the Contractor or the Contractor's property, or (i) if the Contract or any part thereof shall be sublet without the consent of the City being first obtained in writing, or (j) if this Contract or any right, monies, or claim thereunder shall be assigned by the Contractor, otherwise than as herein specified, or (k) if the Contractor shall fail in any manner of substance to observe the provisions of this Contract, or (l) if any of the work, machinery, or equipment shall be defective, and shall not be replaced as herein provided, or (m) if the work to be done under this Contract shall be abandoned, then such fact or conditions shall be certified by the Engineer and thereupon the City without prejudice to any other rights or remedies of the City, shall have the right to declare the Contractor in default and so notify the Contractor by a written notice, setting forth the ground or grounds upon which such default is declared and the Contractor must discontinue the work, either as a portion of the work or the whole thereof, as directed.

ARTICLE 9.02 CONTRACTOR'S DUTY UPON DEFAULT
Upon receipt of notice that his Contract is in default, the Contractor shall immediately discontinue all further operations on the work or such part thereof, and shall immediately quit the site or such part thereof, leaving untouched all plant, materials, equipment, tools, and supplies.

ARTICLE 9.03 COMPLETION OF DEFAULTED WORK
The City, after declaring the Contractor in default, may then have the work completed or the defective equipment or machinery replaced or anything else done to complete the work in strict accordance with the Contract Documents by such means and in such manner, by Contract with or without public letting, or otherwise, as it may deem advisable,

utilizing for such purpose without additional cost to the City such of the Contractor's plant, materials, equipment, tools, and supplies remaining on the site, and also such subcontractors as it may deem advisable.

The City shall reimburse all parties, including itself, for the expense of such completion, including liquidated damages, if any, and the cost of reletting. The City shall deduct this expense from monies due or to become due to the Contractor under this Contract, or any part thereof, and in case such expense is more than the sum remaining unpaid of the original contract price, the Contractor and his sureties shall pay the amount of such deficiency to the City.

ARTICLE 9.04 PARTIAL DEFAULT
In case the City shall declare the Contractor in default as to a part of the work only, the Contractor shall discontinue such part, shall continue performing the remainder of the work in strict conformity with the terms of the Contract, and shall in no way hinder or interfere with any other contractor or person whom the City may engage to complete the work as to which the Contractor was declared in default.

SECTION 10
PAYMENTS

ARTICLE 10.01 PRICES
For the Contractor's complete performance of the work, the City will pay and the Contractor agrees to accept, subject to the terms and conditions hereof, the lump sum prices or unit prices in the Contractor's Proposal and the award made therein, plus the amount required to be paid for any extra work ordered under Article 7.02 hereof, less credit for any work omitted pursuant to Article 7.04 hereof. Under unit price items, the number of units actually required to complete the work under the Contract may be more than stated in the Proposal. The Contractor agrees that no claim will be made for any damages or for loss of profits because of a difference between the quantities of the various classes of work assumed and stated in the Proposal Form as a basis for comparing Proposals and the quantities of work actually performed.

The sum as awarded for any lump sum Contract or lump sum Contract Item shall represent payment in full for all of the various classes of work, including materials, equipment, and labor necessary or required to complete, in conformity with the Contract Document, the entire work shown, indicated or specified under the lump sum Contract or lump sum Contract Item.

The amount as awarded as a unit price for any unit price Contact Item shall represent payment in full for all the materials, equipment, and labor necessary to complete, in conformity with the Contract Documents, each unit of work shown, specified, or required under the said unit price Contract Item.

No payment other than the amount as awarded will be made for any class of work included in a lump sum Contract Item or a unit price Contract Item, unless specific provision is made therefor in the Contract Documents.

ARTICLE 10.02 SUBMISSION OF BID BREAKDOWN
Within fifteen (15) days after the execution of this Contract, the Contractor must submit to the Engineer in duplicate an acceptable breakdown of the lump sums and unit prices bid for items of the Contract, showing the various operations to be performed under the Contract, as described in the progress schedule required under Article 4.02 hereof, and the value of each of such operations, the total of such items to equal the total price bid. The Contractor shall also submit such other information relating to the bid prices as may be required and shall revise the bid breakdown as directed. Thereafter, the breakdown may be used for checking the Contractor's applications for partial payments hereunder but shall not be binding upon the City or the Engineer for any purpose whatsoever.

ARTICLE 10.03 REPORTS, RECORDS AND DATA
The Contractor shall furnish to the Engineer such schedules of quantities and costs, progress schedules, reports, invoices, delivery tickets, estimates, records, and other data as the Engineer may request concerning work performed or to be performed and the materials furnished under the Contract.

ARTICLE 10.04 PAYMENTS BY CONTRACTOR
The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered, (b) for all materials, tools, and equipment delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools, and equipment are incorporated or used, and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors, to the extent of each subcontractor's interest therein; and proof of such payments or releases therefor shall be submitted to the Engineer upon request.

ARTICLE 10.05 PARTIAL PAYMENTS
On or about the first of each month, the Contractor shall make and certify an estimate, on forms prescribed by the City, of the amount and fair value of the work done, and may apply for partial payment therefor. The Contractor shall revise the estimate as the Engineer may direct. When satisfactory progress has been made, and shows that the value of the work completed since the last payment exceeds one percent (1%) of the total Contract price in amount, the Engineer will issue a certificate that such work has been completed and the value thereof. The City will then issue a voucher to the Contractor in accordance with the following schedule:

FOR CONTRACT AMOUNTS UNDER $250,000
(A)In the amount of ninety percent (90%) of the value of the work completed as certified until construction is one hundred percent (100%) complete (operational or beneficial occupancy), the withheld amount may be reduced below ten percent (10%), at the Engineer's option, to only that amount necessary to assure completion.

FOR CONTRACT AMOUNTS OVER $250,000

(A)In the amount of ninety percent (90%) of the value of the work completed as certified until construction is fifty percent (50%) complete.

(B)When the dollar value, as determined by the Engineer, of satisfactorily completed work in place is greater than fifty percent (50%) of the original contract price, vouchers for partial payment will be issued by the City to the Contractor in the amount of one hundred percent (100%) of the value of the work, above 50%, completed as certified for that payment period.

(C)If the Contractor has performed satisfactorily and the work is substantially complete (operational or beneficial occupancy) the withheld amount may be reduced, at the Engineer's option, to only that amount necessary to assure completion.

In addition to the Conditions set forth in (A), (B), and (C) above, payments will always be less any sums that may be retained or deducted by the City under the terms of any of the contract documents and less any sums that may be retained to cover monetary guarantees for equipment, materials or progress performance.

Payment on estimates made on or about the first of the month may be expected on or about the 20th of the month.

Unless specified otherwise in the Contract Items, the delivered cost of equipment and nonperishable materials suitably stored at the site of the work and tested for adequacy may be included in the Contractor's application for partial payment provided, however, that the Contractor shall furnish evidence satisfactory to the City that the Contractor is the unconditional owner and in possession of such materials or equipment. The amount to be paid will be 90 percent of the invoice cost to the Contractor which cost shall be supported by receipted bills within 30 days of the date of payment by the City to the Contractor. Such payment shall not relieve the Contractor from full responsibility for completion of the work and for protection of such materials and equipment until incorporated in the work in a permanent manner as required by the Contract Documents.

Before any payment will be made under this Contract, the Contractor and every subcontractor, if required, shall deliver to the Engineer a written, verified statement, in satisfactory form, showing in detail all amounts then due and unpaid by such Contractor or subcontractor to all laborers, workmen, and mechanics, employed by him under the Contract for the performance of the work at the site thereof, for daily or weekly wages, or to other persons for materials, equipment, or supplies delivered at the site of the work during the period covered by the payment under consideration.

ARTICLE 10.06 FINAL PAYMENT

Under determination of satisfactory completion of the work under this Contract as provided in Article 4.07 hereof, the Engineer will prepare the final estimate showing the value of the completed work. This estimate will be prepared within 30 days after the date of completion or as soon thereafter as the necessary measurements and computations can be made. All prior certificates and estimates, being approximate only, are subject to correction in the final estimate and payment.

When the final estimate has been prepared and certified by Engineer, he will submit to the Mayor and City Council the final certificate stating that the work has been completed and the amount based on the final estimate remaining due to the Contractor. The City will then accept the work as fully completed and will, not later than 30 days after the final acceptance, as defined in Article 1.02, of the work done under this Contract, pay the Contractor the entire amount so found due thereunder after deduction of all previous payments and all percentages and amounts to be kept and retained under provisions of this Contract; provided, however, and it is understood and agreed that, as a precedent to receiving final payment, the Contractor shall submit to the City a sworn affidavit that all bills for labor, service, materials, and subcontractors have been paid and that there are no suits pending in connection with this work. The City, at its option, may permit the Contractor to execute a separate surety bond in a form satisfactory to the City. The surety bond shall be in the full amount of the suit or suits.

Neither the final payment nor any part of the retained percentage shall be paid until the Contractor, if required, shall furnish the City with a complete release from any should remain unsatisfied after all payments are made, the Contractor shall refund to the City all monies which the City may be compelled to pay in discharging such claim, including incidental costs and attorney's fees.

ARTICLE 10.07 ACCEPTANCE OF FINAL PAYMENT

The acceptance by the Contractor, or by anyone claiming by or through him, of the final payment shall operate as and shall be a release to the City and every officer and agent thereof from any and all claims and liability to the Contractor for anything done or furnished in connection with the work or project and for any act or neglect of the Contractor or of any others relating to or affecting the work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance Bond.

SECTION 11
MISCELLANEOUS PROVISIONS

ARTICLE 11.01 CONTRACTOR'S WARRANTIES

In consideration of, and to induce the award of this contract to him, the Contractor represents and warrants:

(a)That he is not in arrears to the City upon debt or contract, and he is not a defaulter, as surety, contractor, or otherwise.

(b)That he is financially solvent and sufficiently experienced and competent to perform the work.

(c)That the work can be performed as called for by the Contract Documents.

(d)That the facts stated in his proposal and the information given by him are true and correct in all respects.

(e)That he is fully informed regarding all the conditions affecting the work to be done and labor and materials to be

furnished for the completion of this Contract, and that his information was secured by personal investigation and research.

ARTICLE 11.02 PATENTED DEVICES, MATERIAL AND PROCESSES

It is mutually understood and agreed that Contract prices include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the work. Whenever the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall indemnify and save harmless the City, its officers, agents and employees from any and all claims for infringement by reason of the use of any such patented design, device, tool, material, equipment, or process, to be performed under the Contract, and shall indemnify the said City, its officers, agents, and employees for any costs, expenses, and damages which may be incurred by reason of such infringement at any time during the prosecution or after completion of the work.

ARTICLE 11.03 SUITS AT LAW

In case any action at law or suit in equity may or shall be brought against the City or any of its officers, agents, or employees for or on account of the failure, omission, or neglect of the Contractor or his subcontractors, employees, or agents, to do or perform any of the covenants, acts, matters, or things by this Contract undertaken to be done or performed by the Contractor of his subcontractors, employees, or agents, or from any injuries done to property or persons and caused by the negligence or alleged negligence of the Contractor of his subcontractors, employees, or agents, or in any other manner arising out of the performance of this Contract, then the Contractor shall immediately assume and take charge of the defense of such actions or suits in like manner and to all intents and purposes as if said actions or suits have been brought directly against the Contractor, and the Contractor shall also indemnity and save harmless the City, its officers, agents, and employees from any and all loss, cost or damage whatever arising out of such actions or suits, in like manner and to all intents and purposes as if said actions or suits have been brought directly against the Contractor.

The Contractor shall and does hereby assume all liability for and agrees to indemnify the City or its Engineer against any or all loss, costs, damages, and liability for any or by reason of any lien, claims or demands, either for materials purchased or for work performed by laborers, mechanics, and others and from any damages, costs, actions, or causes of action and judgement arising from injuries sustained by mechanics, laborers, or other persons by reason of accidents or otherwise, whether caused by the carelessness or inefficiency or neglect of said Contractor, his subcontractors, agents, employees, workmen or otherwise.

ARTICLE 11.04 CLAIMS FOR DAMAGES

If the Contractor shall claim compensation for any damage sustained, other than for extra or disputed work covered by Article 7.02 and 7.03 hereof, by reason of any act or omission of the City, its agents, or any persons, he shall, within five days after sustaining such damage, make and deliver to the Engineer a written statement of the nature of the damage sustained and of the basis of the claim against the City. On or before the 15th of the month succeeding that in which any damage shall have been sustained, the Contractor shall make and deliver to the Engineer an itemized statement of the details and amounts of such damage, duly verified by the Contractor. Unless such statements shall be made delivered within the times aforesaid, it is stipulated that and all claims for such compensation shall be forfeited and invalidated, and the Contractor shall not be entitled to payment on account of such claims.

ARTICLE 11.05 NO CLAIMS AGAINST INDIVIDUALS

No claim whatsoever shall be made by the Contractor against any officer, agent, employee of the City for, or on account of, anything done or omitted to be done in connection with this Contract.

ARTICLE 11.06 LIABILITY UNAFFECTED

Nothing herein contained shall in any manner create any liability against the City on behalf of any claim for labor, services, or materials, or of subcontractors, and nothing herein contained shall affect the liability of the Contractor or his sureties to the City or to any workmen or materialsmen upon bond given in connection with this Contract.

ARTICLE 11.07 INDEMNIFICATION PROVISIONS

Whenever there appears in this Agreement, or in the other Contact Documents made a part hereof, an indemnification provision within the purview of Chapter 725.06, Laws of Florida, the monetary limitation on the extent of the indemnification under each such provision shall be One Million Dollars or a sum equal to the total Contract price, whichever shall be the greater.

ARTICLE 11.08 UNLAWFUL PROVISIONS DEEMED STRICKEN

If this contract contains any unlawful provisions not an essential part of the Contract and which shall not appear to have a controlling or material inducement to the making thereof, such provisions shall be deemed of no effect and shall, upon notice by either party, be deemed stricken from the Contract without affecting the binding force of the remainder.

ARTICLE 11.09 LEGAL PROVISIONS DEEMED INCLUDED

Each and every provision of any law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein and if, through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon application of either party the Contract shall forthwith be physically amended to make such insertion.

ARTICLE 11.10 DEATH OR INCOMPETENCY OF CONTRACTOR

In the event of death or legal incompetency of a Contractor who shall be an individual or surviving member of a contracting firm, such death or adjudication of incompetency

shall not terminate the Contract, but shall act as default hereunder to the effect provided in Article 9.01 hereof and the estate of the Contractor and his surety shall remain liable hereunder to the same extent as though the Contractor had lived. Notice of default, as provided in Article 9.01 hereof, shall not be required to be given in the event of such death or adjudication of incompetency.

ARTICLE 11.11 NUMBER AND GENDER OF WORDS

Whenever the context so admits or requires, all references herein in one number shall be deemed extended to and including the other number, whether singular or plural, and the use of any gender shall be applicable to all genders.

ARTICLE 11.12 ACCESS TO RECORDS

Representatives of Federal Agencies, if applicable, and the State of Florida shall have access to the work whenever it is in preparation of progress. On federally assisted projects the Federal Agency, the Comptroller General of the United States, or any authorized representative shall have access to any books, documents, papers, and records of the Contractor which are pertinent to the project for the purpose of making audit, examination, excerpts, and transcription thereof.

SECTION 12
LABOR STANDARDS

ARTICLE 12.01 LABOR STANDARDS

The Contractor shall comply with all of the regulations set forth in "Labor Standards Provisions for Federally Assisted Construction Contracts", which may be attached, and any applicable Florida Statutes.

ARTICLE 12.02 NOTICE TO LABOR UNIONS

If required, the Contractor shall provide Labor Unions and other organizations of workers, and shall post, in a conspicuous place available to employees or applicants for employment, a completed copy of the form entitled "Notice to Labor Unions or Other Organizations of Workers" attached to and made a part of this Agreement.

ARTICLE 12.03 SAFETY AND HEALTH REGULATIONS

The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91- 596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54). Nothing in these Acts shall be construed to supersede or in any manner affect any worker's compensation law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of, or in the course of, employment.

ARTICLE 12.04 EEO AFFIRMATIVE ACTION REQUIREMENTS

The Contractor understands and agrees to be bound by the equal opportunity requirements of Federal regulations which shall be applicable throughout the performance of work under this Contract. The Contractor also agrees to similarly bind contractually each subcontractor. In policies, the Contractor agrees to engage in Affirmative Action directed at promoting and ensuring equal employment opportunity in the work force used under the Contract (and the Contractor agrees to require contractually the same effort of all subcontractors whose subcontractors exceed $100,000). The Contractor understands and agrees that "Affirmative Action" as used herein shall constitute a good faith effort to achieve and maintain minority employment in each trade in the on-site work force used on the Contract.

ARTICLE 12.05 PREVAILING RATES OF WAGES

Florida's prevailing wage law was repealed effective April 25, 1979.

For Federally assisted projects, appropriate prevailing wage rate determinations are indicated on pages beginning with WR-1.

* * * * * * *

IN WITNESS THEREOF, the parties have hereunto set their hands and seals, and such of them as are corporation have caused these present to be signed by their duly authorized officers.

CITY OF TAMPA, FLORIDA

_____
Bob Buckhorn, Mayor
(SEAL)

ATTEST:

_____
City Clerk

Approved as to Form:
The execution of this document was authorized by Resolution No. _____

_____
Justin R. Vaske, Assistant City Attorney

Contractor

By:_____
(SEAL)

Title:

ATTEST:

_____
Secretary

STATE OF)
) SS:
COUNTY OF)

For a Corporation:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ of _____, a _____ corporation, on behalf of the corporation. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For an Individual:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ who is ___ personally known to me or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

For a Firm:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ___ of _____, 2014 by _____ who signed on behalf of the said firm. He/she is ___ personally known or has ___ produced _____ as identification.

_____
Notary

My Commission Expires:

_____

_____

PUBLIC CONSTRUCTION BOND

Bond No. (enter bond number)_____

Name of Contractor:_____

Principal Business Address of Contractor:_____

_____

Telephone Number of Contractor:_____

Name of Surety (if more than one list each):_____

_____

Principal Business Address of Surety:_____

_____

Telephone Number of Surety:_____

Owner is The City of Tampa, Florida

Principal Business Address of Owner: 306 E Jackson St, Tampa, FL 33602

Contract Administration Department (280A4N)

Telephone Number of Owner: 813/274-8456

Contract Number Assigned by City to contract which is the subject of this bond:_____

Legal Description or Address of Property Improved or Contract Number is:_____

_____

_____

_____

General Description of Work and Services:_____

_____

_____

_____

KNOW ALL MEN BY THESE PRESENTS That we, _____

_____
(Name of Contractor)

as Principal, hereinafter called CONTRACTOR, of the State of _____, and

_____(Name of Surety)
a corporation organized and existing under and by virtue of the laws of the State of _____, and regularly authorized to do business in the State of Florida, as SURETY, are held and firmly bound unto the City of Tampa, a municipal corporation organized and existing under the laws of the State of Florida, hereinafter called Owner, in the penal sum of _____Dollars and _____Cents ($_____), lawful money of the United States of America, for the payment whereof well and truly to be made, we bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, 20___, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, in the time and in the manner prescribed in the contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1) (Section 713.01), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and

3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

5. Contractor and Surety acknowledge that the Work for which this bond has been issued may be one of several such contract documents for a group of projects. This bond does not secure covenants to pay for or to perform design services survey or program management services. The Owner/Obligee is expected to reasonably account for damages that are caused to Owner with respect to Principal's (Contractor's) default in performance of the scope of the Work incorporated by reference into the bond, and notwithstanding any contractual or common law remedy permitted to Owner as against Contractor, the obligation of Surety for any damages under this bond shall be determined by the cost of completion of the Work less the contract balance unpaid upon default of Contractor for the Work plus liquidated damages at the rate of $500.00 per day for delays by the Contractor and/or Surety in reaching substantial completion.

6. The notice requirements for claimants and conditions for entitlement to payment set forth in Section 255.05, Fla. Stat. and the limitations period to actions upon Section 255.05, Fla. Stat. bonds apply to claimants seeking payment from surety under this bond. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05, Florida Statutes.

7. The Surety, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the contract documents or other Work to be performed hereunder, or the specifications referred to therein shall in any way affect its obligations under this bond, and it does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to Work or to the specifications.

8. The above SURETY states that it has read all of the Contract Documents made by the CONTRACTOR with the CITY, hereto attached, and the terms and conditions of the contract and work, and is familiar therewith and in particular those portions of the Agreement concerning the guaranty of such CONTRACTOR for a period of one year following the date of the final acceptance of the completed work under the Contract by the CITY, all of which this BOND includes.

DATED ON _____, 20___

_____
(Name of Principal)

_____
(Principal Business Address)

By _____

Title _____

_____
Telephone Number of Principal

Countersignature:

_____
(Name of Local Agency)

_____
(Address of Resident Agent)

By _____

Title _____

_____
Telephone Number of Local Agency

_____
(Name of Surety)

_____
(Surety Address)

By _____
(As Attorney in Fact)*

_____
Telephone Number of Surety

Accepted by City of Tampa:

By _____
Bob Buckhorn, Mayor

Date: _____ 20____

Approved as to legal sufficiency:

By _____
Assistant City Attorney

Date: _____, 20____

*(As Attorney in Fact) attach Power of Attorney and Current Certificate with Original Signature

SPECIFICATIONS
GENERAL PROVISIONS

SECTION 1
SCOPE AND INTENT

G-1.01 DESCRIPTION
The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.

G-1.02 WORK INCLUDED
The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

The cost of incidental work described in these General Provisions, for which there are no specific Contract Items, shall be considered as part of the overhead cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefor.

The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his plant and equipment, prior approval of the Engineer notwithstanding.

G-1.03 PUBLIC UTILITY INSTALLATIONS AND STRUCTURES
Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes, and all other appurtenances and facilities pertaining thereto whether owned or controlled by the City, other governmental bodies or privately owned by individuals, firms, or corporations, and used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water or other public or private property which may be affected by the work.

The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. These data are not guaranteed as to their completeness or accuracy and it is the responsibility of the Contractor to make his own investigations to inform himself fully of the character, condition and extent of all such installations and structures as may be encountered and as may affect the construction operations.

The Contractor shall protect all public utility installations and structures from damage during the work. Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as directed by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.

Public utility installations or structures owned or controlled by the City or other governmental body which are shown on the Plans to be removed, relocated, replaced or rebuilt by the Contractor shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various Contract Items. No separate payment shall be made therefor.

Where public utility installations or structures owned or controlled by the City or other governmental body are encountered during the course of the work, and are not indicated on the Plans or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction or such work may be ordered, in writing by the Engineer, for the Contractor to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be paid for as extra work as provided for in Article 7.02 of the Agreement.

The Contractor shall, at all times in performance of the work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of public utility installations and structures; and shall, at all times in the performance of the work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the owners thereof to that end.

All City and other governmental utility departments and other owners of public utilities, which may be affected by the work, will be informed in writing by the Engineer within two weeks after the execution of the Contract or Contracts covering the work. Such notice will set out, in general, and direct attention to, the responsibilities of the City and other governmental

utility departments and other owners of public utilities for such installations and structures as may be affected by the work and will be accompanied by one set of Plans and Specifications covering the work under such Contract or Contracts.

In addition to the general notice given by the Engineer, the Contractor shall give written notice to all City and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight (48) hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Underground Utility Notification Center for Excavators (Call Candy)".

The maintenance, repair, removal, relocation, or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Engineer.

SECTION 2
PLANS AND SPECIFICATIONS

G-2.01 PLANS
The Plans referred to in the Contract Documents bear the general project name and number as shown in the Notice To Bidders.

When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

G-2.02 COPIES FURNISHED TO CONTRACTOR
After the Contract has been executed, the Contractor will be furnished with five sets of paper prints, the same size as the original drawings, of each sheet of the Plans and five copies of the Specifications. Additional copies of the Plans and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.

The Contractor shall furnish each of the subcontractors, manufacturers, and material suppliers such copies of the Contract Documents as may be required for his work.

G-2.03 SUPPLEMENTARY DRAWINGS
When, in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the Engineer and five paper prints thereof will be given to the Contractor.

The Supplementary Drawings shall be binding upon the Contractor with the same force as the Plans. Where such Supplementary Drawings require either less or more than the estimated quantities of work, credit to the City or compensation therefor to the Contractor shall be subject to the terms of the Agreement.

G-2.04 CONTRACTOR TO CHECK PLANS AND DATA
The Contractor shall verify all dimensions, quantities, and details shown on the Plans, Supplementary Drawings, Schedules, Specifications, or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions as full instructions will be furnished by the Engineer, should such errors or omissions be discovered. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

G-2.05 SPECIFICATIONS
The specifications consist of four parts, the General Provisions, the Technical Specifications, the Special Provisions and the Contract Items. The General Provisions and Technical Specifications contain general requirements which govern the work. The Special Provisions and the Contract Items modify and supplement these by detailed requirements for the work and shall always govern, whenever there appears to be conflict.

G-2.06 INTENT
All work called for in the Specifications applicable to this Contract, but not shown on the Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Plans or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.

SECTION 3
WORKING DRAWINGS

G-3.01 SCOPE
The Contractor shall promptly prepare and submit layout, detail and shop drawings to insure proper construction, assembly, and installation of the work using those materials and methods as hereafter specified under the Technical Specifications, Special Provisions and Contract Items.

These drawings shall accurately and distinctly present the following:

a. All working and erection dimensions.
b. Arrangements and sectional views.
c. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
d. Kinds of materials and finishes.
e. Parts listed and description thereof.

Drawings for mechanical equipment shall present, where applicable, such data as dimensions, weight and performance characteristics. These data shall show conformance with the performance characteristics and other criteria incorporated in the Plans and Specifications.

Each drawing shall be dated and shall contain the name of the project, Division number and description, the technical specifications section number, names of equipment or materials and the location at which the equipment or materials are to be installed. Location shall mean both physical location and location relative to other connected or attached material. The Engineer will return unchecked any submittal which does not contain complete data on the work and full information on related matters.

Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.

The Contractor shall review all working drawing submittals before transmitting them to the Engineer to determine that they comply with requirements of the Specifications. Drawings which are incomplete or are not in compliance with the Contract Documents shall not be submitted for processing by the Engineer. The Contractor shall place his stamp of approval on all working drawings submitted to the Engineer to indicate compliance with the above.

G-3.02 APPROVAL
If the working drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of submittal; otherwise approval of such submittals shall not constitute approval of the departure. Approval of the drawings shall constitute approval of the subject matter thereof only and not of any structure, material, equipment, or apparatus shown or indicated.

The approval of drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the proper fitting and construction of the work, nor for the furnishing of materials or work required by the Contract and not indicated on the drawings. No work called for by working drawings shall be done until such drawings have been approved by the Engineer.

The procedure in seeking approval of the working drawings shall be as follows:

1.The Contractor shall submit four complete sets of drawings and other descriptive data together with one copy of a letter of transmittal to the Engineer for approval. The letter of transmittal shall contain the name of the project, contract number, technical specifications section number, the name of the Contractor, a list of drawings with numbers and titles, and any other pertinent information.

2.Drawings or descriptive data will be stamped "Approved", "Approved Subject to Corrections Marked", or "Examined and Returned for Correction" and one copy with a letter of transmittal will be returned to the Contractor.

3.If a drawing or other data is stamped "Approved", the Contractor shall insert the date of approval on five additional copies of the document and transmit the five copies to the Engineer together with one copy of a letter of transmittal containing substantially the same information as described in Instruction 1. above.

4.If a drawing or other data is stamped "Approved Subject to Corrections Marked", the Contractor shall make the corrections indicated and proceed as in Instruction 3., above.

5.If a drawing or data is stamped "Examined and Returned for Correction", the Contractor shall make the necessary corrections and resubmit the documents as set forth in Instruction 1., above. The letter of transmittal shall indicate that this is a resubmittal.

The Contractor shall revise and resubmit the working drawings as required by the Engineer, until approval thereof is obtained.

SECTION 4
MATERIALS AND EQUIPMENT

G-4.01 GENERAL REQUIREMENTS
All materials, appliances, and types or methods of construction shall be in accordance with the Specifications and shall, in no event, be less than that necessary to conform to the requirements of any applicable laws, ordinances, and codes.

All materials and equipment shall be new, unused, and correctly designed. They shall be of standard first grade quality, produced by expert personnel, and intended for the use for which they are offered. Materials or equipment which, in the opinion of the Engineer, are inferior or of a lower grade than indicated, specified, or required will not be accepted.

The quality of Workmanship and Materials entering into the work under this Contract shall conform to the requirements of the pertinent sections, clauses, paragraphs, and sentences, both directly and indirectly applicable thereto, of that part of the Technical Specifications, whether or not direct reference to such occurs in the Contract Items.

Equipment and appurtenances shall be designed in conformity with ANSI, ASME, IEEE, NEMA and other

generally accepted standards and shall be of rugged construction and of sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions of operation. All bearings and moving parts shall be adequately protected against wear by bushings or other approved means and shall be fully lubricated by readily accessible devices. Details shall be designed for appearance as well as utility. Protruding members, joints, corners, gear covers, and the like, shall be finished in appearance. All exposed welds shall be ground smooth and the corners of structural shapes shall be mitered.

Equipment shall be of the approximate dimensions as indicated on the Plans or as specified, shall fit the spaces shown on the Plans with adequate clearances, and shall be capable of being handled through openings provided in the structure for this purpose. The equipment shall be of such design that piping and electrical connections, ductwork, and auxiliary equipment can be assembled and installed without causing major revisions to the location or arrangement of any of the facilities.

Machinery parts shall conform exactly to the dimensions shown on the working drawings. There shall be no more fitting or adjusting in setting up a machine than is necessary in assembling high grade apparatus of standard design. The equivalent parts of identical machines shall be made interchangeable. All grease lubricating fittings on equipment shall be of a uniform type. All machinery and equipment shall be safeguarded in accordance with the safety codes of the ANSI and applicable state and local codes.

G-4.02 MANUFACTURER

The names of proposed manufacturers, suppliers, material, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Engineer for approval, as early as possible, to afford proper investigation and checking. Such approval must be obtained before shop drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the Engineer, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.

Any two or more pieces of material or equipment of the same kind, type or classification, and being used for identical types of service, shall be made by the same manufacturer.

G-4.03 REFERENCE TO STANDARDS

Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for proposals, even though reference has been made to an earlier standard, and such standards are made a part hereof to the extent which is indicated or intended.

Reference to a technical society, organization or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO for American Association of State Highway and Transportation Officials (formerly AASHO)
ACI for American Concrete Institute
AGMA for American Gear Manufacturer's Association
AFBMA for Anti-Friction Bearing Manufacturer's Association
AISC for American Institute of Steel Construction
AISI for American Iron and Steel Institute
ANSI for American National Standards Institute
ASCE for American Society of Civil Engineers
ASTM for American Society for Testing and Materials
ASME for American Society of Mechanical Engineers
AWS for American Welding Society
AWWA for American Water Works Association
AWPA for American Wood Preservers Association
CEMA for Conveyor Equipment Manufacturers Association
CIPRA for Cast Iron Pipe Research Association
IEEE for Institute of Electrical and Electronic Engineers
IPCEA for Insulated Power Cable Engineers Association
NEC for National Electrical Code
NEMA for National Electrical Manufacturers Association
SAE for Society of Automotive Engineers
SHBI for Steel Heating Boiler Institute
Fed.Spec. for Federal Specifications
Navy Spec. for Navy Department Specifications
U.L.,Inc. for Underwriters' Laboratories, Inc.

When no reference is made to a code, standard or specification, the Standard Specifications of the ANSI, the ASME, the ASTM, the IEEE, or the NEMA shall govern.

G-4.04 SAMPLES

The Contractor shall, when required, submit to the Engineer for approval typical samples of materials and equipment. The samples shall be properly identified by tags and shall be submitted sufficiently in advance of the time when they are to be incorporated into the work, so that rejections thereof will not cause delay. A letter of transmittal, in duplicate, from the Contractor requesting approval must accompany all such samples.

G-4.05 EQUIVALENT QUALITY

Whenever, in the Contract Documents, an article, material, apparatus, equipment, or process is called for by trade name or by the name of a patentee, manufacturer, or dealer or by reference to catalogs of a manufacturer or dealer, it shall be understood as intending to mean and specify the article, material, apparatus, equipment or process designated, or any

equal thereto in quality, finish, design, efficiency, and durability and equally serviceable for the purposes for which it is intended.

Whenever material or equipment is submitted for approval as being equal to that specified, the decision as to whether or not such material or equipment is equal to that specified shall be made by the Engineer.

Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Contract, the Contractor shall immediately proceed to furnish the designated material or equipment.

Neither the approval by the Engineer of alternate material or equipment as being equivalent to that specified nor the furnishing of the material or equipment specified, shall in any way relieve the Contractor of responsibility for failure of the material or equipment, due to faulty design, material, or workmanship, to perform the functions required of them by the Specifications.

G-4.06 DELIVERY
The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete thw work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid a delay in, or impediment of, the progress of the work of any related Contractor.

G-4.07 CARE AND PROTECTION
The Contractor shall be solely responsible for properly storing and protecting all materials, equipment, and work furnished under the Contract from the time such materials and equipment are delivered at the site of the work until final acceptance thereof. He shall, at all times, take necessary precautions to prevent injury or damage by water, freezing, or by inclemencies of the weather to such materials, equipment and work. All injury or damage to materials, equipment, or work resulting from any cause whatsoever shall be made good by the Contractor.

The Engineer shall, in all cases, determine the portion of the site to be used by the Contractor for storage, plant or for other purposes. If, however, it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the work or interference with the work to be done by any other Contractor, the Contractor shall remove and restack such materials at his own expense.

G-4.08 TOOLS AND ACCESSORIES
The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified.

Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

G-4.09 INSTALLATION OF EQUIPMENT
The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.

Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the Engineer during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.

The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the Engineer and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall, at his own expense, furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations. Grout shall completely fill the space between the equipment base and the foundation.

G-4.10 OPERATING INSTRUCTIONS
The Contractor, through qualified individuals, shall adequately instruct designated employees of the City in the operation and care of all equipment installed hereunder, except for equipment that may be furnished by the City.

The Contractor shall also furnish and deliver to the Engineer three complete sets for permanent files, identified in accordance with Subsection G-3.01 hereof, of instructions, technical bulletins and any other printed matter, such as diagrams, prints or drawings, containing full information required for the proper operation, maintenance, and repair, of the equipment installed and the ordering of spare parts, except for equipment that may be furnished by the City.

In addition to the above three copies, the Contractor shall furnish any additional copies that may be required for use during construction and start-up operations.

G-4.11 SERVICE OF MANUFACTURER'S ENGINEER
The Contract prices for equipment shall include the cost of furnishing a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test and place in operation the equipment in conformity with the Contract Documents. After the equipment is placed in

permanent operation by the City, such engineer or superintendent shall make all adjustments and tests required by the Engineer to provide that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the City in the proper operation and maintenance of such equipment.

SECTION 5
INSPECTION AND TESTING

G-5.01 GENERAL
The Contractor's attention is hereby directed to Article 3.03 of the Agreement.

Inspection and testing of materials will be performed by the City unless otherwise specified.

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Five copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer as a prerequisite for the acceptance of any material or equipment.

If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor will be notified thereof and he will be directed to refrain from delivering said material and equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the City.

Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the City formally takes over the operation thereof.

G-5.02 COSTS
All inspection and testing of materials furnished under this Contract will be performed by the City or duly authorized inspection engineers or inspection bureaus without cost to the Contractor, unless otherwise expressly specified.

The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor and such costs shall be deemed to be included in the contract price.

Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the City for compliance. The Contractor shall reimburse the City for the expenditures incurred in making such tests on materials and equipment which are rejected for noncompliance.

G-5.03 INSPECTIONS OF MATERIALS
The Contractor shall give notice, in writing to the Engineer, sufficiently in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice the Engineer will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

G-5.04 CERTIFICATE OF MANUFACTURE
When inspection is waived or when the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

G-5.05 SHOP TESTS OF OPERATING EQUIPMENT
Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function, or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents. No such equipment shall be shipped to the work until the Engineer notifies the Contractor, in writing, that the results of such tests are acceptable.

Five copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company, shall be forwarded to the Engineer for approval.

The cost of the shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

G-5.06 PRELIMINARY FIELD TESTS
As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments, and replacements required.

G-5.07 FINAL FIELD TESTS
Upon completion of the work and prior to final payment, all equipment and appliances installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.

The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment, and instruments necessary for all acceptance tests, at no additional cost to the City.

G-5.08 FAILURE OF TESTS
Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacements or otherwise. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails to make those corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees or specified requirements, the City, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.

In case the City rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the City may, after the expiration of a period of thirty calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from any compensation due or which may become due the Contractor under this Contract.

The City agrees to obtain other equipment within a reasonable time and the Contractor agrees that the City may use the equipment furnished by him without rental or other charges until the new equipment is obtained.

Materials or work in place that fails to pass acceptability tests shall be retested at the direction of the construction engineer all such retests shall be at the Contractor's expense. The rates charged shall be in accordance with the Department of Public Works current annual inspection contract which is available for inspection at the offices of the Department of Public Works.

G-5.09 FINAL INSPECTION
The procedures for final inspection shall be in accordance with the provisions of Article 4.07 of the Agreement. During such final inspections, the work shall be clean and free from water. In no case will the final estimate be prepared until the Contractor has complied with all the requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily cosntructed in accordance with the requirements of the Contract Documents.

SECTION 6

TEMPORARY STRUCTURES

G-6.01 GENERAL
All false work, scaffolding, ladders, hoistways, braces, pumping plants, shields, trestles, roadways, sheeting, centering forms, barricades, drains, flumes, and the like, any of which may be needed in the construction of any part of the work and which are not herein described or specified in detail, must be furnished, maintained and removed by the Contractor, and he shall be responsible for the safety and efficiency of such works and for any damages that may result from their failure or from their improper construction, maintenance, or operation.

G-6.02 PUBLIC ACCESS
At all points in the work where public access to any building, house, place of business, public road, or sidewalk would be obstructed by any action of the Contractor in executing the work required by this Contract, the Contractor shall provide such temporary structure, bridges or roadway as may be necessary to maintain public access at all times. At least one lane for vehicular traffic shall be maintained in streets in which the Contractor is working. Street closure permits are required from the Department of Public Works.

The Contractor shall provide suitable temporary bridges, as directed by the Engineer, at street intersections when necessary for the maintenance of vehicular and pedestrian traffic.

Prior to temporarily cutting of access to driveways and garages, the Contractor shall give twelve (12) hours notice to affected property owners. Interruptions to use of private driveways shall be kept to a minimum.

G-6.03 CONTRACTOR'S FIELD OFFICE
The Contractor shall erect, furnish and maintain a field office with a telephone at the site during the entire period of construction. He or an authorized agent shall be present at this office at all times while his work is in progress. Readily accessible copies of both the Contract Documents and the latest approved working drawings shall be kept at this field office.

G-6.04 TEMPORARY FENCE
If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the Engineer, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The Engineer shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

G-6.05 RESPONSIBILITY FOR TEMPORARY STRUCTURES
In accepting the Contract, the Contractor assumes full responsibility for the sufficiency and safety of all temporary structures or work and for any damage which may result from their failure or their improper construction, maintenance, or operation and will indemnify and save harmless the City from

all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provisions.

SECTION 7
TEMPORARY SERVICES

G-7.01 WATER
The Contractor shall provide the necessary water supply at his own expense. He shall, if necessary, provide and lay necessary waterlines from existing mains to the place of using, shall secure all necessary permits and pay for all taps to water mains or hydrants and for all water used at the established rates.

G-7.02 LIGHT AND POWER
The Contractor shall provide, at his own expense, temporary lighting and power facilities required for the proper prosecution and inspection of the work. If, in the opinion of the Engineer, these facilities are inadequate, the Contractor will not be permitted to proceed with any portion of the work affected thereby.

G-7.03 SANITARY REGULATIONS
The Contractor shall prohibit and prevent the committing of nuisances on the site of the work or on adjoining property and shall discharge any employee who violates this rule.

Ample washrooms and toilet facilities and a drinking water supply shall be furnished and maintained in strict conformity with the law by the Contractor for use by his employees.

G-7.04 ACCIDENT PREVENTION
Precautions shall be exercised at all times for the protection of persons and property. The safety provisions of applicable laws, building and construction codes shall be observed. The Contractor shall comply with the U. S. Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596), and under Section 107 of the Contract Work. Hours and Safety Standards Act (PL 91-54), except where state and local safety standards exceed the federal requirements and except where state safety standards have been approved by the Secretary of Labor in accordance with provisions of the Occupational Safety and Health Act.

G-7.05 FIRST AID
The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when men are employed on the work.

G-7.06 HEATING
The Contractor shall provide temporary heat, at his own expense, whenever required on account of work being carried on during cold weather and to prevent freezing of water pipes and other damage to the work.

SECTION 8
LINES AND GRADES

G-8.01 GENERAL
All work done under this Contract shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

The Engineer will establish bench marks and base line controlling points. Reference remarks for lines and grades as the work progresses will be located to cause as little inconvenience to the prosecution of the work as possible. The Contractor shall so place excavation and other materials as to cause no inconvenience in the use of the use of the reference marks provided. He shall remove any obstructions placed by him contrary to this provision.

G-8.02 SURVEYS
The Contractor shall furnish and maintain, at his own expense, stakes and other such materials, and give such assistance, including qualified helpers, as may be required by the Engineer for setting reference marks. The Contractor shall check such reference marks by such means as he may deem necessary and, before using them, shall call the Engineer's attention to any inaccuracies. The Contractor shall, at his own expense, establish all working or construction lines and grades as required from the reference marks set by the Engineer, and shall be solely responsible for the accuracy thereof. He shall, however, be subject to the check and review of the Engineer.

The Contractor shall keep the Engineer informed a reasonable time in advance as to his need for line and grade reference marks, in order that they may be furnished and all necessary measurements made for record and payment with the minimum of inconvenience to the Engineer or of delay to the Contractor.

It is the intention not to delay the work for the establishment of reference marks but, when necessary, working operations shall be suspended for such reasonable time as the Engineer may require for this purpose.

G-8.03 SAFEGUARDING MARKS
The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes and marks.

The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

G-8.04 DATUM PLANE
All elevations indicated or specified refer to the Mean Sea Level Datum of the U.S.C. & G.S. (N.O.S.) which is 0.80 feet above the Mean Low Water Datum of the U. S. Army

Corps of Engineers.

SECTION 9
ADJACENT STRUCTURES AND LANDSCAPING

G-9.01 RESPONSIBILITY
The responsibility for removal, replacement, relocation, repair, rebuilding or protection of all public utility installations, including poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes, sewers, traffic control and fire alarm signal circuit installations and other appurtenances and facilities shall be in accordance with G-1.02 and G-1.03.

The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation, and reconstruction of such items called for on the Plans or specified shall be included in the various Contract Items and no separate payment will be made therefor. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the Engineer, removal or relocation and reconstruction is necessary to avoid interference with the work, payment therefor will be made as provided for extra work in Article 7.02 of the Agreement.

G-9.02 PROTECTION OF TREES
All trees and shrubs shall be adequately protected by the Contractor with boxes or otherwise and, within the City of Tampa, in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season, and at the sole expense of the Contractor.

Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.

The City may order the Contractor, for the convenience of the City, to remove trees along the line of trench excavation. If so ordered, the City will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate Contract Items.

G-9.03 LAWN AREAS
Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed and later replaced, or the area where sod has been removed shall be restored with new sod in the manner described in the Technical Specifications section.

G-9.04 RESTORATION OF FENCES
Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Engineer. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or Items, or if no specific Item is provided therefor, as part of the overhead cost of the work, and no additional payment will be made therefor.

SECTION 10
PROTECTION OF WORK AND PUBLIC

G-10.01 TRAFFIC REGULATIONS
The Contractor shall arrange his work to comply with Article G-6.02. The work shall be done with the least possible inconvenience to the public and to that end the work may be confined by the Engineer to one block at a time.

G-10.02 BARRIERS AND LIGHTS
During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers, and lights, as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public. Such barriers and signs shall be constructed to State of Florida Department of Transportation standards and placed as recommended by the Traffic Division of the City's Department of Public Works.

No open fires will be permitted.

G-10.03 SMOKE PREVENTIONS
The Contractor shall use hard coal, coke, oil or gas as fuel for equipment generating steam. A strict compliance with ordinances regulating the production and emission of smoke will be required.

G-10.04 NOISE
The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

Except in the event of an emergency, no work shall be done between the hours of 7:00 p.m. and 7:00 a.m., or on Sundays. If the proper and efficient prosecution of the work requires operations during the night, the written permission of the Engineer shall be obtained before starting such items of the work.

G-10.05 ACCESS TO PUBLIC SERVICES
Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

G-10.06 DUST PREVENTION
The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the streets sprinkled with water at all times.

G-10.07 PRIVATE PROPERTY
The Contractor shall so conduct the work that no equipment, material, or debris will be placed or allowed to fall upon private property in the vicinity of the work unless he shall have obtained the owner's written consent thereto and shall have shown this consent to the Engineer.

SECTION 11
SLEEVES AND INSERTS

G-11.01 COORDINATION
When the Contract requires the placing of conduits, saddles, boxes, cabinets, sleeves, inserts, foundation bolts, anchors, and other like work in floors, roofs, or walls of buildings and structures, they shall be promptly installed in conformity with the construction program. The Contractor who erects the floors, roofs, and walls shall facilitate such work by fully cooperating with the Contractors responsible for installing such appurtenances. The Contractor responsible for installing such appurtenances shall arrange the work in strict conformity with the construction schedule and avoid interference with the work of other contractors.

G-11.02 OPENINGS TO BE PROVIDED
In the event timely delivery of sleeves and other materials cannot be made and to avoid delay, the affected Contractor may arrange to have boxes or other forms set at the locations where the appurtenances are to pass through or into the floors, roofs, walls, or other work. Upon the subsequent installation of these appurtenances, the Contractor erecting the structure shall fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in shall be borne by the Contractor or Contractors required to furnish the sleeves and inserts. Formed openings and later installation of sleeves will not be permitted at locations subject to hydrostatic pressure.

SECTION 12
CUTTING AND PATCHING

G-12.01 GENERAL
The Contractor shall do all cutting, fitting, or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

SECTION 13
CLEANING

G-13.01 DURING CONSTRUCTION
During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris, and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefor develops.

G-13.02 FINAL CLEANING
At the conclusion of the work, all erection plant, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished, and new appearing condition.

SECTION 14
MISCELLANEOUS

G-14.01 PROTECTION AGAINST SILTATION AND BANK EROSION
The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed watercourses and drainage ditches.

G-14.02 EXISTING FACILITIES
The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Work shall be scheduled to minimize bypassing during construction. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

G-14.03 USE OF CHEMICALS
All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

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SUPPLEMENTARY GENERAL PROVISIONS

1.0 GENERAL:

1.1 This Section sets forth modifications to the "General Provisions" of the Contract Documents which are referred to as Specifications, General Provisions.

1.2 Paragraph numbers and titles used herein refer to similarly numbered and titled articles in the General Provisions.

1.3 Only those paragraphs contained herein shall be assumed to be modified. Paragraphs not appearing herein shall apply as written in the General Provisions.

1.4 Any portion of the General Provisions, whether or not modified herein, may be further modified in Special Conditions and in the Instructions to Bidders of these Specifications.

1.5 Where the Supplementary General Provisions, Special Conditions and Instructions to Bidders conflict with the General Provisions, the Supplementary General Provisions, Special Conditions and the Instructions to Bidders shall take precedence.

2.0 MODIFICATIONS TO THE GENERAL PROVISIONS AS FOLLOWS:

2.1 SECTION 1 SCOPE AND INTENT

G-1.02 WORK INCLUDED

The first paragraph shall be deleted in its entirety and replaced by the following paragraph:

"The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, and other means of construction necessary or proper for performing and completing the work. He shall obtain all required permits. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until incidental thereto. He shall repair or restore all during performance of the work."

2.2 SECTION 3 WORKING DRAWINGS

a. Change to read as follows:

SECTION 3 SHOP DRAWINGS

b. Replace the existing paragraphs in their entirety with the following paragraphs:

G-3.01 SCOPE

Shop drawings, schedules, etc., shall be submitted to the Engineer and/or Architect in quadruplet, accompanied by a letter of transmittal. Subcontractors and suppliers shall submit shop drawings and make requests for approvals through their respective prime Contractors.

The drawings shall be numbered consecutively and shall accurately and distinctly present the following:

(1) Names of equipment or materials, and the locations at which the equipment or materials are to be installed in the work.

(2) All working and erection dimensions.

(3) Arrangement and sectional views.

(4) Necessary details, including complete information for making connections between work under this contract and work under other contracts.

(5) Kinds of materials and finishes.

(6) Parts list and description thereof.

The Engineer and/or Architect may decline to consider any shop drawing that does not contain complete data on the work and full information of related matters.

Fax submittals will not be reviewed.

G-3.02 APPROVAL:

Shop drawings shall be examined by the Contractor prior to his transmitting them to the Engineer and/or Architect. Shop drawings submitted to the Engineer and/or Architect shall bear the Contractor's stamp of approval evidencing that he has examined and checked each drawing and that he has found said drawings to be in accordance with the Contract requirements. Any drawings submitted without this stamp will not be considered by the Engineer and/or Architect and will be returned to the Contractor for re- submission.

If the shop drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of submittal and the following shall be submitted:

(1) Each request shall include a complete description of the proposed substitute and the name of the material or equipment for which it is to be substituted.

(2) Furnish drawings, cut, manufacturer's printed specifications, performance and test data and any other data or information necessary for a complete evaluation of both the item specified and the proposed substitute item.

Approval of the drawings shall constitute approval of the subject matter thereof only and not of any structure, material, equipment or apparatus shown or indicated.

Approval of the drawings shall be general and shall not relieve the Contractor of responsibility for the accuracy of such drawings, nor for the quantities of materials and equipment, nor for the proper fitting and construction of the work, nor for the furnishing of materials, tools, equipment, etc., required by this contract and not indicated on the drawings.

No work called for by Shop Drawings shall be done until the said drawings have been approved by the Engineer and/or Architect.

The Contractor shall revise and resubmit the shop drawings as required by the Engineer and/or Architect until approval thereof is obtained.

The City shall retain four (4) copies of all submittals unless the Engineers and/or Architect makes a specific request for additional copies.

Items	Submittals	*Approval
All trade	Fourteen (14) Days	Fourteen (14) Days

*From date of receipt of submittal.

Delays on account of tardy or untimely submittals will not be considered as causes of extension of time of the Contract or increases to the Contract Sum.

G-3.03 JOB SITE:

One (1) copy of all approved submittals SHALL BE available at the Contractor's Office at the job site.

2.3 SECTION 4 MATERIALS AND EQUIPMENT

G-4.01 GENERAL REQUIREMENTS

In the first paragraph, second line, delete the word "specifications" and substitute the words "Contract Documents".

G4.03 REFERENCE TO STANDARDS

The following paragraph shall be added in its entirety:

"Compliance with the Standard Building Code, latest edition, and all local electrical and plumbing codes shall be required. In the event of a conflict in code requirements, the most stringent code or standard shall apply."

G-4.05 EQUIVALENT QUALITY

Add the following sentence to paragraph two: "Any professional fees associated with shop drawing review of materials or equipment submitted for approval as equivalent to that specified shall be borne by the Contractor.

2.4 SECTION 5 INSPECTION AND TESTING

G-5.01 GENERAL

a. The City shall provide soil density and concrete strength testing only.

G-5.02 COSTS

a. The City shall provide soil density and concrete strength testing only.

G-5.07 FINAL FIELD TEST

a. Add the following sentence to BOTH of the above paragraphs:

The Contractor shall provide, at NO EXTRA COST to the City, ALL labor, tools, equipment, materials, etc., for the Engineer and/or Architect to make any field test that may be required in the judgment of the Engineer and/or Architect.

2.5 SECTION 6 TEMPORARY STRUCTURES

G-6.03 CONTRACTOR'S FIELD OFFICE

a. In the last sentence of this paragraph, add the following words: "...and Shop Drawings".

2.6 SECTION 7 TEMPORARY SERVICES

G-7.07 TELEPHONE

The Contractor shall furnish the Engineer with a telephone number(s) by which the Engineer may contact the site.

2.7 SECTION 14 MISCELLANEOUS

G-14.04 USE OF EXPLOSIVES:

Explosives will not be used on the work except when authorized by the Engineer and/or Architect. The use of same, if authorized, shall conform to laws or ordinances which may pertain to the use of same and the utmost care will be exercised by the Contractor so as not to endanger life or property. The Contractor will assume full responsibility in connection with use of any explosives even though authorized. Explosives will not be stored within the City limits.

G-14.05 OWNERSHIP OF MATERIALS:

The removal of any underground and surface structures as required shall be performed in a careful manner to permit salvaging of as much material, such as pipe and brick, also broken section of sidewalk, as practical for use in repair and maintenance of City-owned facilities.

Such acceptable salvaged material remains the property of the City and shall be placed in stock piles so as not to interfere with new construction work but accessible for loading and hauling by the City or by the Contractor within the free haul limit of six (6) miles. The Engineer and/or Architect shall direct the Contractor as to the location of stockpile.

The paving material, such as vitrified brick, asphalt block and other paving materials removed from the excavated areas and suitable for reuse but not reused in the work, shall also be considered the property of the City. The handling of such materials shall be as set forth elsewhere in the Specifications or Special Provisions.

G-14.06 NOTICE OR SERVICE THEREOF:

All notices, which shall include demands, instructions, requests, approvals and claims, shall be in writing.

Any notice to or demand upon the Contractor shall be sufficiently given if delivered to the office of the Contractor specified in the bid (or to such other office as the Contractor may, from time to time, designate to the City in writing), or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered, with charges case addressed to such office.

All notices required to be delivered to the City shall, unless otherwise specified in writing to the Contractor, be delivered to Contract Administration Department – Construction Management Division, 3808 East 26th Avenue, Tampa, Florida 33605, and any notice to or demand upon the City shall be sufficiently given if delivered to the office of the said Engineer and/or Architect, or if deposited in the United States mail in a sealed, postage- prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to said Engineer and/or Architect or to such other representative of the City or to such other address as the City may subsequently specify in writing to the Contractor or to its representative at the construction site for such purposes.

Any such notice or demand shall be deemed to have been given or made as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post or (in the case of telegram) at the time of actual receipt, as the case may be.

G-14.07 REQUIREMENTS FOR CONTROL OF THE WORK:

Prior to the start of the work included in this contract, a Preconstruction Conference will be held by the Engineer and/or Architect to be attended by the Contractor and representatives of the various utilities and others for the purpose of establishing a schedule of operations which will coordinate the work to be done under this contract with all related work to be done by others within the limits of the project. The Contractor shall be prepared for this meeting and shall present a comprehensive construction schedule for all items of work to be accomplished by him, which will be used as the basis for the development of an overall operational schedule and a list of subcontractors to be used on this work.

All items of work on this contract shall be coordinated so that progress on each related work item will be continuous from week to week. The progress of the work will be reviewed by the Engineer and/or Architect at the end of each week, and if the progress on any item of work during that week is found to be unsatisfactory, the Contractor shall be required to adjust the rate of progress on that item or other items as directed by the Engineer and/or Architect.

The Contractor shall conduct his operations in such a manner as will result in a minimum of inconvenience to occupants of adjacent homes and business establishments and shall provide temporary access as directed or as conditions in any particular location may require.

G-14.08 WORK DIRECTIVE CHANGE:

"A Work Directive Change is a written directive to the Contractor, issued on or after the date of the execution of the Agreement, and signed by the Engineer on behalf of the City, ordering an addition, deletion or revision in the work, or responding to an emergency. A Work Directive Change will not change the contract price or the time for completion, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the contract price or the time for completion. "Without invalidating the Agreement, additions, deletions or revisions in the Work may, at any time or from time to time, be authorized by a Change Order or a Work Directive Change. Upon receipt of any such document, the Contractor shall promptly proceed with the work involved."

G-14.09 RESERVED PARKING SIGNS IN PARKING METER AREAS

Not Applicable.

G-14.10 EROSION AND SEDIMENT CONTROL:

During construction, the Contractor shall provide adequate erosion and sediment controls to prevent adverse effects to the environment and public and private property. He shall construct and maintain control structures necessary to prevent erosion and sediment. He shall conduct and schedule construction operations to avoid, prevent, and minimize erosion and sediment. He shall comply with City, County, State, and Federal codes, laws, and regulations and the plans and specifications for this project pertaining to erosion and sediment prevention and control.

At the Preconstruction Conference, the Contractor shall present a plan for erosion and sediment prevention and control. This plan shall include the operations methods, also temporary and permanent control measures and structures to be used on this project.

G-14.11 ENGINEER'S FIELD OFFICE:

The Contractor shall provide and maintain an adequate field office, which may be combined with but completely separated from the Contractor's field office, for the exclusive use of the Construction Engineer and/or

Architect and engineering technicians within the project limits. No additional payment shall be made for this item. Location of said field office shall be as directed by the Engineer and/or Architect.

Contractor shall provide one (1) desk with chair, one (1) four-drawer metal file cabinet with lock, plan rack to hold a minimum of eight (8) separate sets of plans and one (1) plan table, top shall be minimum of 3'-0" wide x 6'-8" long; also adequate heating, air conditioning, lighting and one (1) window, 36"x36" minimum size, in each of two (2) walls.

G-14.12 PROJECT SIGNS:

The Contractor shall furnish and install, as directed by the Engineer and/or Architect, a project sign of design, size, color, etc., as per drawing page SIGN-1 and SIGN-2.

END OF SECTION SGP

SPECIAL CONDITIONS

1.0 PRECONSTRUCTION BRIEFING:

The Contractor, upon receiving notice that he has been awarded the contract for the construction of the project, shall make an appointment with the Engineer and/or Architect for said briefing. The Contractor shall bring to this meeting the following:

1. Contract Documents not yet submitted.
2. A detailed Job Progress Schedule.
3. Samples, questions, etc., he feels necessary.
4. List of subcontractors.

Failure to bring the above items to the meeting will result in cancellation of meeting. Once items have been submitted, meeting will be rescheduled by the City. Site access and commencement of work will not be allowed during period between meetings.

Contractor shall have representatives present at meeting that are familiar with, and conversant on, the scope of the work and Contract Document requirements. Failure to have such persons present will also result in cancellation and rescheduling of meeting until such a time when condition is corrected.

Elapsed time as a result of the Contractor's failure to comply with above will not result in an extension of contract time.

2.0 SITE REVIEW:

Before submitting Proposals, Bidders shall carefully examine the entire site of the proposed work and adjacent premises and the various means of approach and access to the site, and make all necessary investigations to inform themselves thoroughly as to the facilities for delivering, placing and operating the necessary construction equipment, and for delivering and handling materials at the site, and inform themselves thoroughly as to all difficulties involved in the completion of all the work in accordance with the Contract Documents.

The Contractor shall immediately, upon entering project site for the purpose of beginning work, review project site with the Engineer and/or Architect for the purpose of selecting area(s) to place materials for storage.

The Contractor must exercise proper precaution to verify all figures shown or indicated on the drawings, all existing trees, paved areas; utilities, etc., shall be located before beginning any work, and he shall be held responsible for any error resulting from his failure to exercise such precaution.

2.1 LAYING OUT WORK:

The Contractor shall locate all general reference points and take necessary action to prevent their destruction; lay out his own work and be responsible for all lines, elevations, measurements, grading, trenching, backfilling, utilities and other work to be executed by him for a complete project under this contract.

The Contractor shall lay out all work and have final approval by the Engineer and/or Architect before installation begins. Contractor shall be held responsible for any error resulting from his failure to exercise such approval. Said errors shall be corrected by the Contractor at NO EXTRA COST to the City.

The Contractor shall coordinate with the Parks Department and shall identify each and every tree to remain prior to the start of work. The specific trees to remain shall be approved by the Parks Department.

The final location of all work to be performed shall be made jointly by the Engineer and/or Architect and the Contractor at the project site.

3.0 SAFETY AND HEALTH STANDARDS:

The performance of all construction under this contract shall conform to ALL Local, State, Federal Occupation Safety and Health Act Standards.

At the end of each work day, all work areas shall be left in a safe condition. Barricades and/or warning devices shall be provided for at any open excavations or barriers on the project site.

The Contractor's attention is directed to paragraphs Article 3.07 (page A-10) and Article 12.03 (page A-31) of the Agreement, and paragraph G-7.04 (page G-18) of the General Provisions.

4.0 INFORMATION FOR COLOR SCHEDULES:

Not later than thirty (30) calendar days after authorization to proceed with contract work, the Contractor shall submit to the Engineer and/or Architect the names of all manufacturers and trade names for all materials involving selection based upon color or texture or other design appearance features which are to be used in this project. Where samples are necessary for such selection, furnish same.

If such information is not furnished by Contractor within thirty (30) day period, the Engineer and/or Architect will select colors and textures from products named in the Contract Documents.

5.0 RESPONSIBILITY OF CONTRACTOR:

The Contractor shall take all necessary precautions to protect all project surfaces and adjoining areas from mechanical damage from tools, equipment, materials, supports, etc., and shall provide adequate protection from leaking lubricants or fluids from his equipment.

Damage to said project surfaces and adjoining areas caused by a lack of protection or negligence by the Contractor shall be repaired and/or replaced at NO EXTRA COST to the City and to the full satisfaction of the Engineer and/or Architect.

The Contractor and all subcontractors are charged with the protection of the work and property, but the final responsibility for these provisions rests with the Contractor who shall take complete charge of the project site from start to finish of work.

The Contractor shall take particular precautions to protect existing trees and plant material. All trees and other plant material to remain shall be marked by the City prior to start of work.

Excavation, earthwork or sitework within the drip line of existing trees shall be done either manually or by methods approved by the City of Tampa Parks Department.

If the Contractor damages any tree or plant material in any way he shall be required to replace the damaged tree or plant material as follows:

1. Trees

   a. Replace a 6" caliper or less with a 6" caliper of the same species.

   b. Replace a 7"-10" caliper with two (2) 6" caliper of the same species.

c. Replace a 10"-15" caliper with three 6" caliper of the same species.

d. Replace a 16"-20" caliper with five (5) 6" caliper of the same species.

e. Replace a 21"-36" caliper with ten (10) 6" caliper of the same species.

2. Plant Material

Replace any damaged plant material with an equal size and quantity of the same material.

The replaced trees and plant material shall be guaranteed by the Contractor for a period of six (6) months.

6.0 COORDINATION WITH N.I.C. ITEMS:

The Contractor shall give to the Engineer and/or Architect, in writing, a time schedule for the installation or removal of all N.I.C. items at the beginning of the project. Failure of the Contractor to supply the Engineer and/or Architect with said schedule shall not be used for reason of time extension by the Contractor.

7.0 ELECTRICAL SERVICE LOCATION:

The Contractor shall verify and coordinate the service location with the local power company and the Engineer and/or Architect.

The Contractor shall coordinate with the local power company and shall include in his bid all costs for electrical service to work area(s) under this Contract, including but not limited to new service, connections from existing and/or new service and all required labor, equipment, materials etc. and all other associated electrical work.

8.0 SCHEDULING:

The Contractor shall provide the City with a detailed schedule prior to start of work.

The schedule shall be a fully developed, horizontal bar-chart type Contractor's construction schedule. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".

Unless otherwise directed or approved, prepare schedule on a single 8-1/2" X 14" sheet of plain bond white paper.

Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.

Contractor shall also prepare schedule in accordance with applicable portions of Section 4.02 of the Agreement.

9.0 ASSIGNMENT OF CONTRACT: Not applicable.

10.0 WORKMANSHIP AND MATERIALS:

Workmanship and materials shall be installed in accordance with accepted standards of the specific trade, as defined by the applicable recognized trade association(s). In the event of a conflict between these trade standards and the Contract Documents, the conflict shall be brought to the Engineer's and/or Architect's attention writing and the final decision shall be made by the Engineer and/or Architect.

11.0 RECORD DRAWINGS:

During the course of the work, Contractor shall maintain, at the site, a clean undamaged set of the Contract Documents. Contractor shall mark set, on a daily basis, with location and progress of all contract work, including but not limited to:

1. Sewer, water, stormwater and irrigation fabrication drawings showing to scale all manholes, all distances and angles between manholes, line dimension, grid co-ordinates, trunk lines, inverts and cleanouts,

2. Fencing, roadway, parking and sleeving,

3. Electrical service, and

4. General building location, and/or foundations, structures, etc.

Drawings shall be on site at all times and available for review by the City. Failure of Contractor to have drawings on site and/or up to date may result in suspension of work until situation is corrected. Extension of contract will not be granted for such condition.

At conclusion of work, the Contractor shall provide the City with one complete set of Electronic Record Drawings incorporating changes described above, and four marked hard copy sets of as-built record drawings clean and damaged free shall also be submitted to the City at the same time. Electronic files will be issued to the Contractor by the City of Tampa. These files will be AutoCAD DWG, AutoCAD DWF or Adobe PDF latest versions.

All Record Drawing surveys shall be completed and certified by a Florida Registered Professional Surveyor and Mapper hired and/or employed by the Contractor, and shall consist of survey data collected on all constructed improvements, so they may be compared to and contrasted with the design plans and/or construction drawings. The annotated disk shall delineate all changes and deviations to the planned improvements within the project limits. All changes and deviations shall be clearly shown on the drawing files.

12.0 ON SITE RECYCLABLE CRITERIA:

Contractor shall make reasonable attempts to recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Contractor shall develop and implement a Construction Waste Management Plan that identifies the materials that are to be diverted from disposal by weight or volume and be directed to a recycling facility. Specific area(s) on the construction site shall be designated for collection and tracking of the designated materials as needed. Location of the recycling area on site shall be coordinated with the project owner's representative on site prior to construction start. The intent of this section is to encourage recycling where practical in the context of the scope of work.

Contractor shall submit the following but not limited to items related to this section:

1. Provide a submittal of the contractor's plan of action to recycle

2. Contractor is required to document all activities with above requirements and provide to the city upon request items that are recyclable, documentation of the quantity of material disposed at a recycling facility.

END OF SECTION SC

SPECIFIC PROVISIONS

INDEX OF SUBJECTS

SP- 1.01 DPW TECHNICAL SPECIFICATIONS:

The work on this project shall comply with the FDOT Standard Specifications for Road and Bridge Construction (2013), and the FDOT Roadway and Traffic Design Standards (2013), except as noted herein. The Engineer shall be notified of any discrepancy between either the FDOT Standard Specifications for Road and Bridge Construction or FDOT Roadway and Traffic Design Standards and these Technical Specifications or City specifications and standards.

It is required that the maintenance of the traffic conform to the Manual of Uniform Minimum Standards For Design, Construction and Maintenance For Streets and Highways (Florida Greenbook), the FDOT Standard Specifications for Road and Bridge Construction (2013), and the FDOT Roadway and Traffic Design Standards (2013).

SP- 2.01 BID ITEMS:

It is the intent of these Contract Documents that any items of work and all costs for which compensation is not directly provided by a bid item but are incidental to various project items of work, shall be prorated and included in the bid item for which they are required. Failure of the Contractor to follow this procedure shall be basis for rejection of its bid. Items related to the construction of the park shall be included in the lump sum bid amount for the park.

SP-2.02 LINES AND GRADES:

The General Provisions Section G-8.01 through G-8.04 are revised to read as follows:

G-8.01 GENERAL

All work done under this contract shall be constructed in accordance with the lines and grades as shown on the plans or as directed by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

The Engineer will establish Bench Marks and baseline controlling points only. All elevations indicated or specified refer to the North American Vertical Datum of 1988.

G-8.02 SURVEYS

The Contractor shall furnish and maintain stakes and other such material as may be required for setting reference marks, and shall establish all working or construction lines and grades as required from the reference marks set by the Engineer's Surveyor, and shall be solely responsible for the accuracy thereof. The Contractor shall, however, be subject to check and review by the Engineer's Surveyor. The cost of this work shall be included in the pay item for Mobilization, and no separate payment shall be made.

Pay items requiring survey information, such as embankment or excavation, shall be documented by a Florida Registered Professional Surveyor and Mapper hired and/or employed by the Contractor. In addition, plotted cross sections and quantity computations must be supplied and certified. All surveys shall be in accordance with the Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

G-8.03 SAFEGUARDING MARKS

Add the following paragraph to General Provision Section G-8.03:

The Contractor shall, with no additional payment, furnish and install reference stakes at all even and half-stations along the project survey baseline. These stakes shall be maintained for the duration of construction for the purpose of the Engineer's reference

G-8.04 DATUM PLANE

All elevations indicated or specified refer to the North American Vertical Datum of 1988 (NAVD88).

SP-2.03 REQUIREMENTS FOR CONTROL OF THE WORK:

Prior to the start of the work included in this contract, a Pre-construction Conference will be held by the Engineer to be attended by the Contractor and representatives of the various utilities and others for the purpose of establishing a schedule of operations which will coordinate the work to be done under this contract with all related work to be done by others within the limits of the project. The Contractor shall be prepared for this meeting and shall present a comprehensive construction schedule for all items of work to be accomplished, which will be used as the basis for the development of an overall operational schedule and a list of subcontractors and material suppliers to be used on this work.

All items of work in this contract shall be coordinated so that progress on each related work item will be continuous from week to week. The progress of the work will be reviewed by the Engineer at the end of each week, and if the progress on any item of work during that week is found to be unsatisfactory, the Contractor shall be required to adjust the rate of progress on that item or other items as directed by the Engineer.

The Contractor shall conduct operations in such a manner as will result in the minimum of inconvenience to occupants of adjacent homes and business establishments and shall provide temporary access as directed or as conditions in any particular location may require.

Access to adjacent residential, public and commercial properties shall be provided at all times during the contract period. The Contractor shall restore to its previous condition as directed by the Engineer any private property, City property, or utilities damaged by its construction. No payment shall be made to the Contractor for any required restoration of private property, City property or utilities, unless otherwise noted.

SP-2.04 CONTRACTOR'S WEEKLY SCHEDULE:

In order that the Department of Public Works personnel may be advised of the work to be performed, the Contractor shall be required to submit weekly to the Engineer of its designated representative a schedule indicating the proposed work plan for the forthcoming week. Such shall be delivered to DPW not later than Friday preceding the work plan week unless other arrangements have been made for this submittal.

SP-2.05 MONTHLY CONSTRUCTION ESTIMATES AND RELEASE OF LIEN:

The Contractor shall prepare on or about the first day of each month an estimate of the work completed in the preceding month. Said estimate shall be prepared on standard forms provided by the Engineer, and three (3) signed originals shall be provided by the Contractor. Monthly construction estimates shall include separate breakdowns for each base bid and alternates. Any disputed quantities shall be adjusted as directed by the Engineer prior to each partial payment, as provided for in Article 10.05 of the Agreement.

Certification that all subcontractors have been paid for the previous month's work shall be submitted with each partial payment request on forms provided by the Engineer.

An update of the overall project schedule shall be submitted with each partial payment request.

SP-2.06 CONTRACTOR'S REPRESENTATIVE:

Add the following paragraph to Article 8.02 of the Agreement:

"The Contractor shall submit in writing to the Engineer the name of its duly authorized representative who will be present on the job during all work activities and is authorized to make decisions for the Contractor. Any change in the contractor's representative shall require written notification to the Engineer prior to such change".

SP-2.07 SANITARY FACILITIES

Contractor shall at all times provide a lockable sanitary facility available for engineer’s use for the duration of the project.

SP-2.08 DAMAGE TO ADJACENT STREETS:

Any streets (including detour routes) consisting of travel lanes, curbs, gutters and shoulders, outside the project area (not designated for construction), which are determined by the Engineer to have been damaged due to construction related operations and/or equipment, shall be restored by the Contractor to its original or better condition without any cost to the City and to the satisfaction of the Engineer.

SP-2.09 PROJECT PHOTOGRAPHS:

The Contractor will not be required to furnish photographs of the project; however, the Engineer may or may not take photographs of the area immediately prior to and after completion of the construction for record and information. To assure that there will not be any conflict with this photography, the Contractor shall not perform clearing operations or actions which will disturb any street or area within the project until the Engineer has been advised thereof and has had adequate opportunity to perform the desired photography.

SP-2.10 PROJECT VIDEOTAPES:

The Contractor shall submit to the Engineer for approval prior to commencing work a DVD containing a continuous color video recording including complete coverage of pre-construction conditions of all surface features within the construction's zone of influence, (including detour routes) simultaneously produced audio commentary and electronic display of time and date. The video recording shall be sufficient to fulfill the technical and forensic requirements of the project and provide continuous unedited coverage, establishing locations and viewer orientation with clear, bright, steady and sharp video images with accurate colors free of distortion or other imperfections. The video must be accompanied by a detailed log of the recorded contents including date, locations, track numbers and features. No work shall be allowed to commence until the completed video and Log are approved by the Engineer.

The cost of providing this work should be included under the pay item for Mobilization and no separate payment shall be made.

SP-2.11 PROJECT CLEAN-UP:

Clean-up on this project is extremely important and the Contractor will be responsible for keeping the construction site neat and clean with debris being removed regularly as the work progresses.

If project cleanliness and/or dust control reaches an unacceptable level in the opinion of the Engineer, the Engineer will notify the Contractor in writing. If the Contractor does not act to correct the situation within 4 hours in the case of dust control or within 24 hours in the case of general cleanliness, the Engineer may call upon outside forces to provide the appropriate services. Cost of all such activities shall be charged to the Contractor via contract change order.

SP-2.12 PERMITS:

The Contractor shall be responsible for obtaining all applicable City permits for this project. These can include but may not be limited to: Rights-of-Way permit(s), Site Clearing/Tree Removal permit(s), and Drainage /Earthwork permit(s). The Contractor shall supply any required plans or other information to the issuing department.

The time required to prepare, submit, review, and issue the permits shall be included in the contract time and no payment shall be made for any delay incurred by this process.

Cost for obtaining City permits shall be included in the pay item for Mobilization, and no separate payment shall be made. The fee for a Rights-of-Way Construction Permit shall be waived by the City.

Copies of the Southwest Florida Water Management District Environmental Resource Permit and FDEP Water Permit will be provided to the Contractor prior to commencement of construction.

SP-3.01 STREET CLOSURE AND MAINTENANCE OF TRAFFIC:

A temporary street closure permit, to be secured by the Contractor, will be required for closure of a street, lane, or sidewalk within Rights-of-Way under the jurisdiction of the City of Tampa, Florida Department of Transportation, and Tampa Hillsborough Expressway Authority.

These permits will establish the requirements for the closure related to number of lanes and/or time of day lanes or street may be closed. The Contract shall adhere to the requirements as described in the permit(s). The cost for

obtaining temporary street closure permits shall be included in the pay item for Maintenance of Traffic and no separate payment will be made.

Maintenance of Traffic (MOT) on Meridian Avenue is restricted. There will be no lane closures between the hours of 5:00 AM and 9:00 AM and 3:00 PM through 7:00 PM, Monday through Friday. In addition, due to the Tampa Bay Times Forum event schedule, other restrictions may apply. Contractor shall coordinate any lane closures with the respective agencies a minimum of Forty-Eight (48) Hours in advance.

Vehicular (both personal and commercial) and pedestrian access to adjacent properties shall be maintained at all times. Unless approved otherwise by the City of Tampa one lane of traffic shall remain open during construction.

The cost for the various items associated with maintenance of traffic shall reflect the cost for placing and maintaining the item for the duration of construction.

Payment shall be made under:

Item No. SP-3.01-1	Maintenance of Traffic	LS

SP-3.02 TRAFFIC INFORMATION SIGNS:

The Contractor's attention is directed to Section 10 of the General Provisions, PROTECTION OF WORK AND PUBLIC, and to the consideration therein for providing Advanced Notice information signs advising the public of scheduled closures, thereby creating better understanding and relations during the construction. Variable message signs shall be set in-place at least two weeks prior to the closing.

Payment shall be made under:

Item No. SP-3.02-1	Mobilization	LS

SP-3.03 PROJECT SIGN:

The Contractor shall furnish one (1) project signs in conformance with the general configuration and dimensions as shown on the attachment SIGN-1 and SIGN-2, which is made a part of these specifications. The signs shall be maintained in good condition until the completion of the project, and shall be located as instructed by the Engineer.

The cost of furnishing and maintaining the signs shall be included in the pay item for Mobilization and no separate payment shall be made.

SP-3.04 NIGHT WORK:

No work shall be performed at night unless approved by the City and/or Engineer prior.

SP-4.01 DENSITY REQUIREMENTS:

Refer to applicable sections of FDOT Standard Specifications (2013). Soil density testing shall be provided by the City of Tampa.

SP-4.02 SOIL STABILIZATION:

Refer to applicable sections of FDOT Standard Specifications (2013).

Payment shall be made under:

Item No. SP-4.02-1	Stabilization Type B (12")	SY

SP-4.03 SOIL BORING INFORMATION:

A subsurface geotechnical investigation has been completed and is included with the contract documents. Refer to Geotechnical Engineering Report East Madison Street by Terracon Consultants, Inc dated August 12, 2013. Additional investigation required during construction will be at no cost to the City of Tampa.

SP-4.04 TEMPORARY STOCKPILING:

For temporary stockpiling of the excavated material within project limits (and anywhere within City limits) the Contractor shall adhere to the following procedure:

Public Right of Way

A. The Contractor will not be allowed to stockpile suitable, excavated material within right- of-way for a period in excess of 30 calendar days. Unsuitable excavated material shall not be stockpiled within public right-of-way for a period in excess of 7 calendar days.

Location other than Public Right-of-Way

B. The Contractor shall:
   1. Obtain written permission from the owner of the property where stockpiling is desired.
   2. At its own expense present the above letter and a contour plan of the site to the Engineer for approval of stockpiling site.
   3. At the conclusion of the stockpiling activity, the Contractor shall obtain a signed letter of release from the property owner that he/she is completely satisfied with the stockpiling operation and with the restoration of their property. A copy of the letter shall be furnished to the Engineer.

The time periods of stockpiling shall be specified by the Contractor in writing. Upon removal of stockpiled material, the Contractor shall clean up and grade the site to its original contours and conditions.

The City of Tampa shall not be a party to any agreement between the Contractor and private property owner(s).Regardless of the location of stockpiling, it shall be the Contractor's responsibility to make sure that stockpiling in no way constitutes a public hazard, nuisance and does not interfere with the natural surface runoff in the area.

SP-4.05 DEWATERING:

Dewatering operations shall be performed with consideration to possible effects to adjacent structures. The condition of adjacent structures and surrounding areas that may be affected by the lowering of the groundwater level shall be surveyed and documented prior to beginning dewatering operations. Upon completion of dewatering activities the contractor shall inspect adjacent structure and surrounding areas to determine if any damage may have occurred. Contractor shall document the results of this inspection.

The dewatering shall be done by an experienced contractor. The Contractor shall submit a dewatering plan signed and sealed by a professional engineer registered in the state of Florida detailing the proposed methodology by which dewatering is to be accomplish and shall include a list of the structures and areas to be surveyed for potential damage.

Discharges from dewatering activities shall meet State and Federal regulatory criteria. Dewatering permitting, as regulated by the Southwest Florida Water Management District, shall be the responsibility of the Contractor.

Any dewatering requiring discharge to the City of Tampa sanitary sewer system shall be metered. The Contractor shall submit the meter details and specifications to the Engineer for approval prior to installation. The discharge shall not exceed 250 gallons per minute as directed by the City of Tampa Wastewater Department. The dewatering discharge connection to a sewer manhole or pipe shall meet the City of Tampa criteria.

Dewatering will only be allowed for one (1) calendar year from the issuance of a Service Commitment by the City of Tampa Wastewater Department. Should the dewatering activities need to extend past this date, the Contractor is to notify the Engineer 30-days in advance of the expiration of the Commitment to allow sufficient time for the Service Commitment to be extended. A copy of the Service Commitment will be provided to the Contractor prior to commencement of dewatering activities on Madison Street. The Contractor will be required to create a temporary customer service account with the City of Tampa for to allow for meter reading and inspection of the meter. The Contractor shall provide the City with the meter serial number and the meter shall be maintained and used on-site throughout the duration of the project dewatering activities. The City may, at its discretion, sample the discharge into the sewer system. Payment will be made to the Contractor for the fee paid to the City for the disposal of the discharge on the City sanitary sewer system.

Payment shall be made under:

Item SP-4.05-1	Dewatering Discharge Disposal	Allowance

SP-4.06 REMOVAL OF UNSUITABLE SOILS:

Refer to Geotechnical Engineering Report East Madison Street by Terracon Consultants, Inc dated August 12, 2013 and included with the contract documents for unsuitable material classification and locations. The Contractor shall be responsible for excavation, removal, and disposal of all material deemed unsuitable, and replace with suitable backfill. Payment will be made to the Contractor per ton of unsuitable soil removed measured by the truckload.

Payment shall be made under:

Item SP-4.06-1	Removal of Unsuitable Soils	Tons

SP-5.01 UTILITY PROTECTION CONSIDERATIONS:

The Contractor shall protect all utilities and other facilities within and adjacent to the construction area, unless a utility firm has conclusively indicated, or such is shown on the plans, that the certain adjustment, removal, reconstruction, or protection of the utility's facility will be performed by that respective utility.

The Contractor shall make every effort to protect all water mains. If the main is damaged or lost, the Contractor shall replace the affected line in strict accordance with the City of Tampa Water Department Specifications and Construction Standards, latest, edition, at no extra cost to the City, and he shall assure that service is maintained at all times.

The Contractor shall make every effort to protect all sanitary sewer lines. If the main is damaged or lost, the Contractor shall replace the affected line in strict accordance with the City of Tampa Wastewater Specifications and Construction Standards, latest edition, at no extra cost to the City.

It will be the Contractor's responsibility to preserve all existing sanitary sewer services without interruption--unless noted otherwise--during the construction of storm sewers or the repairs or reconstruction of sanitary sewers. When the construction of storm sewers, repair or reconstruction of sanitary sewers has been completed, all temporary connections shall be removed. Sewers shall be cleaned of all settled solids and debris removed and disposed of properly.

The cost of handling sanitary sewers during construction, including cost of all labor, materials, and equipment or other items incidental to completing the job, shall be included in the contract price as bid for the contract items and no separate payment shall be made.

It will be the Contractors responsibility to preserve all existing ditches, swales, force main, gravity main, laterals, etc., and other stormwater appurtenances and facilities pertaining thereto whether owned or controlled by City, other governmental bodies or privately owned by individuals, firms or corporations.

Any temporary measures constructed shall first be approved by the Engineer. The cost of such temporary measures shall be included in the contract price for storm sewer items and no separate payment shall be made.

The Contractor shall furnish, install, and remove sheeting and shoring and other protective measures as may be necessary to satisfactorily accomplish the construction of this project. The cost of such sheeting and shoring and other protective measures shall be included in the unit prices as bid for the storm sewer items and no separate payment shall be made.

In the event that a utility line is located within the limits shown in Diagram P of these specifications, the following exceptions may be made:

a) If the utility is incorrectly shown on the plans and the actual location is found to be completely within the limits of Zone B, the Contractor will be eligible to receive compensation for steel sheeting and shoring to be furnished, installed, and removed to protect the portions of such utility line lying within Zone B as directed and approved by the Engineer.

b) If the utility is incorrectly shown on the plans and the actual location is found to be within the limits of Zone A so that relocation will be necessary, as determined by the Engineer, the Contractor will be compensated for performing the relocation construction when directed and approved by the Engineer, at applicable contract unit prices.

The above provisions shall only apply to water, sanitary sewer and drainage lines, which are, in general parallel to the lines under construction.

The limits and the definitions of Zones A and B are not intended to define any excavation requirements and shall in no way cause any conflict with any authorized safety requirements or applicable governmental laws and regulations.

Utility lines which are correctly located on the plans and fall within the limits of Zone B or A of Diagram P shall not be considered as being either exception (a) or (b) and are not eligible for compensation.

Compensation for steel sheeting and shoring furnished, installed and removed shall be paid for as extra work in accordance with Article 7.02, EXTRA WORK, on Page A-8 of the Tampa Agreement when approved for use by the Engineer. Such approval shall be for its use only, and the Contractor shall have full responsibility for the design, installation, and removal of the sheeting and shoring. The Contractor shall obtain the services of a registered Professional Engineer to design and certify the sheeting and shoring plans.

SP-5.02 ADJUSTMENT OF UTILITIES AND PUBLIC SERVICE INSTALLATIONS:

Storm and sanitary sewer manhole covers, valve covers or boxes, water meter boxes, fire hydrants, and vaults located within the limits of construction of the pavement or sidewalk area to be constructed, reconstructed or overlaid shall be relocated or adjusted by the Contractor to conform with the new pavement or sidewalk elevation as a part of the work of constructing or reconstructing the pavement or sidewalk and no separate payment will be made.

Appurtenances of other utilities will be relocated or adjusted by the utility company owning or having jurisdiction over the respective utility.

SP-5.03 REMOVAL OR ADJUSTMENT OF PUBLIC UTILITIES:

The Contractor will make necessary arrangements with public utility companies for removal or adjustments of existing utilities, whether shown or not shown on the plans, where such removal or adjustment is determined by the Engineer to be essential to the performance of the required construction, provided normal construction procedures are used by the Contractor.

Relocations or adjustments requested by the Contractor on the basis of the use of a particular method of construction or a particular type of equipment shall not be considered as being essential to the construction of the project if other commonly used methods or equipment could be employed without the necessity of relocating or adjusting the utility. The Engineer will determine the responsibility for any such adjustment of utilities.

Relocations or adjustments requested for the Contractor's convenience or because of delivery of materials to the job site shall be the responsibility of and at the expense of the Contractor.

The Contractor shall be required to coordinate its activities with relocation work by the utilities. This schedule may be adjusted to "fit" the Contractor's proposed schedule, but it will include periods during which the Contractor's ability to perform work in the relocation area will be limited, with no additional compensation.

SP-5.04 UNDERGROUND ELECTRICAL

The Contractor shall provide all labor, equipment, and other incidentals necessary to install 2-inch, 4-inch, and 6-inch diameter “SCH 40” PVC pipe and appurtenances at the locations shown on the Utility Adjustment Plans. The material is being furnished by Tampa Electric Company (TECO) including the PVC Conduit Pipe, Couplings, Elbows, Glue, and Mule Tape (aka Pull Tape). The Contractor is required to pick up the material at the TECO storage yard at the NE corner of 78th Street and Palm River Road. TECO is requesting that the contractor provide 45 days’ notice prior to the date the contractor wants the material so they can order it and have it on-site for the day when the contractor desires to pick it up. The cost of transporting the material to the job site shall be included in the unit price for installing the conduit.

Where shown on the plan, the Contractor shall “Stub-out” the conduit runs aboveground at each light pole location and at the locations of future handholes to be installed by TECO. Mule tape shall be installed with compressed air after the complete installation of conduit with the appropriate size mandrel or "rabbit" blown through the conduit with mule tape attached to it. After installation of each stub-out, the pipes shall be supported by tying to a wooden or metal stake and the ends of pipe above ground shall be sealed off from the elements.

The cost for installing the conduits shall also include the capping of existing service conduits indicated in the plans to be abandoned.

Payment shall be made under:

Item No. SP- 5.04-1	2” PVC Conduit (Install only) (Direct Burial)	LF
Item No. SP-5.04-2	4” PVC Conduit (Install only) (Direct Burial)	LF
Item No. SP-5.04-3	6” PVC Conduit (Install only) (Direct Burial)	LF
Item No. SP-5.04-4	Electrical Manhole(Install only)	EA

SP-6.01 USE OF CITY WATER SYSTEM:

A Tampa Water Department portable meter shall be utilized when obtaining water from the City system. The Contractor will be responsible for obtaining the meter from the City and no separate payment will be made for the meter or water usage.

SP-6.02 WATER MAIN CONSTRUCTION:

All materials and workmanship shall be in accordance with the Specific Provisions, Contract Pay Items, Construction Details, & Material Specifications for Water Main Relocation (WR) made a part of these specifications. The Contractor shall also comply with any applicable sections of the City of Tampa Water Department Technical Specifications and Construction Standards and Materials Specifications, latest edition available from the Tampa Water Department, with the exception that pipe joint gaskets shall be made of EPDM Rubber.

Use only brass or cast iron fittings for 3” and less water main tapped connections. Use of galvanized fittings for 3” and less water main tapped connections is not allowed.

SP-7.01 FILLING LOW AREAS WITHIN CITY LIMITS:

The Contractor under Sec. 21-27 (Permit Requirements) of the City of Tampa Code is prohibited from filling any area public or private (except where shown on the construction plans) within the project limits or anywhere within the City limits without a permit.

For filling and/or grading any area, the owner of such area shall obtain a permit from the Stormwater Department, City of Tampa. The owner shall submit existing and proposed contour plans of the area to be filled and the adjacent land for determination if a permit could be issued. Drainage patterns cannot be altered to the detriment of neighboring property owners or public rights-of-way.

Concurrently the permit application will be reviewed by the Parks Department. The Contractor will be required to verify with City of Tampa Transportation Department the extent of the work covered under the Right-of-Way use permit and seek additional permits from the City of Tampa as necessary.

The Contractor shall not deposit any fill material within the City limits without an approved permit. A copy of the permit shall be submitted to the Engineer, by the Contractor prior to any filling or grading operation.

SP-7.02 ENVIRONMENTAL PROTECTION:

The Contractor will be held liable for the violation of any and all environmental regulations. Violation citations carry civil penalties, and in the event of willful violation, could result in criminal penalties. Even though permits are issued to the City does not relieve the Contractor in any way of its environmental obligations and responsibilities associated with environmental protection under the law.

The City will secure the NPDES permit prior to commencement of construction. The contractor will be responsible for compliance with the conditions of the permit. The conditions of the permit may include and are not limited to: installation, maintenance of erosion control devices and other best management practices, and filing a NPDES Stormwater Notice of Termination with the FDEP upon completion of construction and once stormwater discharges associated with construction activity have ceased.

SP-7.03 REINFORCED CONCRETE PIPE/BOX:

All reinforced concrete pipe, storm drain, and sewer pipe, all reinforced concrete elliptical pipe and all pre-cast reinforced concrete box sections shall be inspected and accepted by a testing laboratory approved by the Engineer.

Each pipe/box shall bear the stamp of acceptance of the testing laboratory and the Engineer shall be supplied with a copy of each inspection report, including a certification of "D-load", absorption test and conformance to the dimensional and all other designations of ASTM specifications. The cost of such inspection services shall be included in the unit prices for the respective pipe/box items.

Unless specified otherwise on plans or specifications, or directed by the Engineer, all storm sewer and culvert pipes shall be ASTM Class III, B wall thickness. All steel shall be grade 60.

All joints in elliptical concrete pipe and round R.C.P. shall be provided with filter fabric or concrete jacket as per FDOT Standard Index No. 280 and as directed by the Engineer. Filter fabric shall be provided at all joints, except the last two joints not supported by a structure; these joints shall be provided with a concrete collar.

The cost of the filter fabric jackets and concrete collars shall be included in the unit cost of pipe. No separate payment will be made for such jackets or collars.

All round and elliptical reinforced concrete pipe and all pre-cast concrete box sections shall be manufactured and installed without lift holes. The Contractor shall install the pipe/box with the use of slings, hooks or other methods approved by the Engineer.

All round and elliptical reinforced concrete pipe shall be manufactured without visible corrugations on the internal wall. Any pipe with visible corrugations on the internal wall shall be rejected.

The City does not require stormwater pipes to be televised and/or laser profiled, nor does the City allow resilient connectors.

Prior to any putting the system into operation or allowing the flow of any discharges, the stormwater system shall be cleaned thoroughly of soil, debris, and any fine particles, subject to the Engineer’s approval.

The Contractor shall provide all labor, equipment, and materials to furnish and install the reinforced concrete pipe. The furnish and installation of the reinforced concrete pipe shall include, but may not be limited to:

1. Excavating the trench and removal of excess material if necessary;
2. Maintaining the trench which shall include de-watering and sheeting and bracing as required by OSHA or as directed by the Engineer;
3. Cleaning dirt and foreign material from within pipe and bell;

4. Furnishing and installing approved pipe and pipe shorts as part of the pipeline;
5. Backfilling, compaction and consolidation shall be done in accordance with the requirements of the FDOT Standard Specifications for Road and Bridge Construction;
6. All necessary restoration including but not limited to sod, landscaping, curb, sidewalk, and restoring the roadway or right-of-way in conformance with the Standard Details;
7. Cleaning up and removing excess water main pipe and appurtenances;

Payment shall be made under:

Item No. SP-7.03-1	Pipe Conc. Culv. (Class III)(18" RCP)	LF
Item No. SP-7.03-2	Pipe Conc. Culv. (Class III)(30” x19” ERCP)	LF
Item No. SP-7.03-3	Pipe Conc. Culv. (Class III)(24” RCP)	LF

SP-7.04 DRAINAGE STRUCTURES:

1. All inlets and manholes will be constructed according to the FDOT Standard Specifications, Section 425 and according to the specifications herein. All manholes shall be traffic bearing type.

   a) The minimum distance from the top of the opening for the highest pipe to the bottom of the top slab shall be ten inches (10"); 12"+ from top of pipe to bottom of top slab, before "stack" is used.

   b) The minimum diameter for stacks shall be as follows:

      - Twenty-four inches (24") for four feet (4') heights, Thirty-six inches (36") for four feet (4') to six feet (6') heights, and Forty-eight inches (48") for heights over six feet (6').

      - The stacks shall be symmetrical about the openings, five inches (5") minimum wall thickness, reinforced, and keyed (unless constructed of brick) as per the appropriate FDOT standard.

   c) The minimum distance between pipe openings shall be nine inches (9").

   d. For four-sided structures having openings in one or more corners, individual shop drawings must be submitted for prior approval.

2. If warranted by field conditions and directed by the Engineer, the Contractor shall, at such locations, construct rectangular brick drainage structures (in place of concrete drainage structures), according to the standards specified below:

   Brick construction shall be as follows:

   a. Wall thickness minimum eight inches (8") up to eight feet (8') height, unless specified otherwise.

   b. Wall thickness minimum twelve inches (12") up to twelve feet (12') height, unless specified otherwise.

   c. Brick shall be laid in 1:2 (Portland cement-sand) mortar.

   d. Before laying the bricks in mortar, the bricks shall be thoroughly sprinkled with clean water (not to saturation extent).

e. Brick for manhole and inlet structures shall be laid in stretcher courses, with every sixth course a header course.

f. All brick structures shall be plastered smooth inside and outside with 1/2" thick, 1:2 (Portland cement-sand) mortar.

g. No "unsound" brick shall be used. As a test, if a light hammer blow, with the brick held lightly in hand, does not produce a uniform crisp ringing sound, the brick shall be construed to have crack(s), or otherwise unsound and shall be rejected.

h. All bricks shall be solid clay.

3. No additional compensation shall be paid for brick structures.

4. For all types of manholes, the top and bottom slabs shall be as per applicable FDOT standards, even if brick is allowed to be used in the manhole walls. The following criteria shall apply to slab thicknesses and steel reinforcements:

a. Top and bottom slabs shall have the same thicknesses and reinforcements in any manhole structure.

b. The minimum slab thickness and reinforcement shall be: 8" thick and #6 bars at 6" centers both ways.

c. 4'x6' or larger manholes including circular manholes with inside diameter of 5.0' or larger shall have 10" thick slabs with #7 bars at 6" centers both ways.

d. Unless specified on the plans, four sided structures with both inside dimensions in excess of 8.0' and circular structures with inside diameter in excess of 8.0' shall not be covered by D.O.T. and the above criteria.

5. All grate inlets shall conform to the City of Tampa design standards.

6. Grates on inlets, as well as all other structures, shall be Traffic Bearing Type, unless specified otherwise, and subject to approval of the Engineer. All grate inlets shall be fitted with an approved metal frame at the top to seat the grates.

7. All Type-P and Type-J manholes shall be bid at one average unit price regardless of size and shape unless indicated otherwise in the proposal.

8. Vertical support columns (one in case of Type 5 inlet) shall be constructed by the contractor, as a part of the FDOT Type 5 and 6 curb inlets, where and as directed by the Engineer.

9. Side openings in curb and grate type inlets may be specified in the plans to meet site conditions. The Contractor shall provide such openings as part of the required work and no separate payment shall be made.

10. When precast drainage structures are requested as substitutions for poured in place concrete structures, Contractor shall meet the following additional requirements:

a. Minimum height of the base structure (manhole or inlet barrel) unless restricted by design, shall be 5'-0" before extending the structure height by another precast "barrel". The minimum height of the top (extension) precast "barrel" shall be 1'-6". "Barrel" extensions of less than 1'-6" height shall be cast in place with continuous reinforcement.

b. Four-side structures may be considered as an alternate to circular structures, but not the reverse.

c. For City type curb inlets, unless specified otherwise, directed by the Engineer, or to accommodate larger pipes, the Contractor may use 3'x4' (inside dimensions) substructures. This structure shall have same slab and wall thicknesses and steel reinforcing as specified for "Type E" grate inlet.

d. When circular structures are precast in accordance with ASTM C478, the following limitations will apply:

(i) Maximum inside diameter shall not exceed 96".

(ii) Minimum wall thickness for 42" and 48" diameter substructures shall be 6"; 7" for 72" diameter, 8" for 84" and 96" diameters.

(iii) Vertical reinforcement in walls shall be equal in area to the required circumferential reinforcement area. Reinforcement spacing shall not exceed 12" O.C. in either direction.

e. The location of the pipe holes and adequate basic substructures height, unless directed otherwise by the Engineer, shall be the responsibility of the Contractor.

f. Contractor shall submit shop drawings only as specified below:

(i) One each-typical for different type of structures.

(ii) For structures directed by the Engineer, and/or requiring change with respect to design plans, or as otherwise required by these specifications.

g. No compensation shall be paid to the Contractor for precast drainage structures which are unusable due to site conditions or changes in plans.

h. Provide material testing acceptance reports by a licensed private laboratory verifying:

(i) That the structures were constructed in accordance with detail shown on the plans and/or typical Drawings.

(ii) Specific reference shall be made to the exact design criteria adhered to; if more than one, identify which criteria applies to which structures.

(iii) Identify the project title, project number, file number, date cast, structure, plan sheet number and station.

(iv) Reinforcement size, spacing, amount and cover.

(v) Concrete placement, curing and strength.

(vi) The testing laboratory stamp shall be placed on each structure prior to shipment.

11. All manhole and inlet structures shall be set on a minimum of a six-inch thick layer of compacted # 57 size coarse aggregate unless noted otherwise in the plans or specifications or unless the Engineer determines a thicker layer is required due to soil and/or water conditions. The layer of stone shall be wrapped in a filter fabric in accordance with SP-7.05 of these Specifications. Payment for the stone shall be included in the price of the structure.

12. All excavation for structures is included under these pay items.

Payment shall be made under:

Item No. SP-7.04-1	Drainage Structure Modify	EA
Item No. SP-7.04-2	FDOT Curb Inlet Type P-5<10’	EA
Item No. SP-7.04-3	FDOT Curb Inlet Type J-5<10’	EA
Item No. SP-7.04-4	FDOT MH Type P-7, Partial	EA
Item No. SP-7.04-5	FDOT MH Type P-8<10’	EA

SP-7.05 STANDARD FOR FILTER FABRIC:

Unless specified otherwise on the plans, filter fabric shall be nonwoven fabric per FDOT Standard Specification, Sections 514 and 985. Payment for furnishing and placing the filter fabric shall be included in the contract price for the item or items to which it is incidental.

SP-7.06 CONNECTION TO EXISTING INLET OR MANHOLE:

The Contractor shall provide all labor, equipment and materials necessary to connect the proposed pipeline into an existing inlet or manhole as shown on the Plans, or as specified, and directed by the Engineer.

The work includes all excavation, breaking into the existing structure, closing of the existing slot, removal and disposal of rubble and excess materials, installation of storm sewer pipe, sealing the voids around the pipe, backfilling, compacting and all other work incidental to connection to existing inlet or manhole.

The cost of this work shall be included in the contract unit price for the size of pipe installed and no separate payment shall be made.

SP-7.07 EROSION CONTROL:

The Contractor shall implement erosion control measures as shown on the Construction Plans. The Contractor shall be required to submit an erosion control plan to the Engineer at the time of the pre-construction conference.

The erosion control plan shall indicate in detail all measures proposed by the Contractor to meet its erosion control obligations, including all items required to meet permitting conditions for the project. Any phasing of the erosion control plan shall also be shown.

Inspection reports shall be done by the Engineer in compliance with the SWPPP, and the Contractor will be notified of any activities that are not in compliance. In accordance with the SWPPP, the Contractor is required to initiate any necessary repairs within 24 hours of notification of Non-compliance. If the Contractor does not comply, then the Contractor shall cease work on the project until the repairs are made to the satisfaction of the Engineer.

The cost of providing, revising, updating, implementing the erosion control plan and maintaining of the Best Management Practices for the work on E Madison Street detailed in the plan shall be made under:

Item No. SP-7.07-1 Implementation & Maintenance of Erosion Controls LS

SP-7.08 DRAINAGE STRUCTURE AND PIPE BEDDING:

The Contractor shall furnish and install Bedding Material consisting of compacted FDOT #57 crushed stone material as approved by the Engineer.

For Drainage Structures:

- All manhole and inlet structures shall be set on a minimum of a six-inch thick layer of compacted # 57 size coarse aggregate unless the Engineer determines a thicker layer is required due to soil and/or water conditions. The layer of stone shall be wrapped in a filter fabric.

For Pipe Bedding:

- All pipe shall be set on City of Tampa Class B bedding consisting of a layer of compacted #57 size coarse aggregate the width of the trench at a depth that is a minimum of 4" below the outside diameter of the pipe to a height of one half of the outside diameter of the pipe. The bedding and pipe shall be wrapped in filter fabric and sand shall be placed the width of the trench to a height of 6" above the outside diameter of the pipe.

All filter fabric shall be in accordance with SP-7.05 of these specifications. Payment for the bedding material shall be included with the unit price for the structure or pipe contract item.

SP-8.01 PAVEMENT SURFACES:

Where shown on the plans the Contractor shall meet existing sidewalks, driveways and parking areas (concrete or asphalt) when possible with the proposed street replacement. At locations where existing sidewalks and driveways are not at the same elevations as the new grades, the Contractor may be required to reconstruct a portion of the sidewalk or driveway as directed by the Engineer. There will be no payment if existing sidewalks or driveways must be reconstructed due to negligence of the Contractor.

New pavement surfaces shall meet applicable sections of the FDOT Standard Specifications (2013) and the requirements of Sections 02510 – Saw-Cut Concrete Sidewalk, 02511- Shell Aggregate Concrete Sidewalk. Any areas of impact to existing pavers shall be reinstalled according to the appropriate details on the streetscape design plans.

Payment shall be made under:

Item No. 02511-1	Shell Aggregate Concrete	SF
Item No. 02510-1	Saw-Cut Concrete	SF

SP-8.02 PRIME/TACK COAT:

Refer to applicable sections of the FDOT Standard Specifications (2013).

SP-8.03 BASE MATERIAL:

Refer to applicable sections of the FDOT Standard Specifications (2013).

Payment shall be made under:

Item No. SP-8.03-1	Base Group 9 (LBR-150) (10")	SY

SP-8.04 PEDESTRIAN RAMPS:

Refer to applicable sections of the FDOT Standard Specifications (2013).

Payment shall be made under:

Item No. SP-8.04-1	Concrete Pedestrian Ramp (6”)	EA

SP-8.05 CONCRETE CURB AND CURB AND GUTTER

Refer to applicable sections of the FDOT Standard Specifications (2013).

Payment shall be made under:

Item No. SP-8.05-1	Concrete curb (Type F)	LF
Item No. SP-8.05-2	Concrete curb (Type D)	LF
Item No. SP 8.05-3	Concrete curb (Drop Curb)	LF

SP-8.06 TURNOUTS

Concrete turnouts shall meet FDOT design standards and standard specifications. Refer to applicable sections of the FDOT Standard Specifications (2010).

Payment shall be made under:

Item No. SP-8.06-1	Turnout Construction, Concrete (6”)	SY

SP-9.01 RESTORATION OF LANDSCAPING WITHIN RIGHT-OF-WAY:

Existing landscaping including small trees and shrubbery, walkways, planters, and irrigation systems may need to be removed or relocated to facilitate construction. The Contractor shall make provision for relocating and/or reconstructing any existing landscaping items as directed by the Engineer.

Cost of removing, relocating, and/or reconstructing the above items shall be included in the lump sum price for Clearing and Grubbing, and no separate payment shall be made.

SP-9.02 TREE PROTECTION:

The Contractor shall make provisions for tree protection to the satisfaction of the Engineer prior to any excavation or clearing and grubbing. All applicable site inspections by the City of Tampa Parks Department and all permits required for tree work shall be obtained by the Contractor prior to commencing work.

Tree barricades shall be constructed and maintained at the locations indicated on the Demolition Plan and/or as directed by the Engineer. Generally, barricades are to be placed ten (10) feet from the trunk of each protected tree, but a minimum of six (6) feet is acceptable when in conflict with the proposed construction and when approved by the City.

Barricades shall be constructed of commercially available pine lumber, as follows: Vertical members shall be 2" x 2" or larger, generally spaced six (6) feet apart. Horizontal members shall consist of one (1) 1" x 2" board.

Payment for tree protection shall be included in the lump sum price bid for Clearing and Grubbing and no separate payment shall be made.

SP-9.03 TREE TRIMMING:

The Contractor shall provide the services of an approved Certified Arborist when it is necessary to trim or cut a branch from a tree.

Payment for tree cutting or trimming shall be included in the lump sum price bid for clearing and grubbing and no separate payment shall be made.

SP-9.04 LANDSCAPE INSTALLATION:

The Contractor shall provide all labor, equipment and materials necessary to furnish and install plant material and mulch as shown on the Planting and Irrigation Plans. The work shall be in accordance with City of Tampa Parks Department Specification Section 02900 that is made a part of these specifications.

Any costs associated with the work that is not directly provided for by a bid item, but incidental to completion of the Landscaping, shall be prorated and included in the various contract pay items, and no separate payment shall be made.

Payment shall be made under:

Item No. 02900-1	Bald Cypress	EA
Item No. 02900-2	Sky Climber Live Oak	EA
Item No. 02900-3	Washington Palm (12’ c.t.)	EA
Item No. 02900-4	Indian Hawthorne	EA
Item No. 02900-5	Variegated Flax Lily	EA
Item No. 02900-6	Dwarf Asian Jasmine	EA
Item No. 02900-7	Mulch	CY
Item No. 02900-8	Planting Mix	CY
Item No. 02910-1	Structural Soil	CY

Planting Soil Mix shall be subservient to each individual planting item.

SP-9.05 IRRIGATION SYSTEM CONSTRUCTION:

The Contractor shall provide all labor, equipment and materials necessary to construct irrigation systems as shown on the Landscape and Irrigation Plans. The work shall be in accordance with the City of Tampa Parks Department Specification Section 02440 that is made a part of these specifications.

Payment shall be made under:

Item No. 02440-1	Irrigation System	LS

SP-10.01 EXISTING PUBLIC FACILITIES:

Existing public facilities as defined in G-1.03 that are removed by the Contractor to facilitate construction operations shall be properly stored to protect from damage and returned in good condition to a location designated by the Engineer. These items shall also include, but not be limited to, all public benches, light poles, shelters, roadway signs, etc., and removal/reinstallation of all public facilities shall be considered incidental to the cost of construction and no separate payment will be made.

SP-10.02 WATER FOR DUST CONTROL:

The work specified in this section consists of the application of water within the limits of construction or on streets used as detour routes in connection with the project. All dust control operations shall be performed by the Contractor at the time, location, and in the amount ordered by the Engineer. The application of water shall be under the control of the Engineer at all times. No water will be used to control dust without authorization of the Engineer. Water ordered by the Engineer to be applied on Saturdays, Sundays, or legal holidays will be considered part of the required work and no additional compensation will be allowed therefore.

Water used for dust control shall be free from pollution to the extent that its use will not constitute a nuisance or health hazard to anyone living in close proximity to the areas where it is used.

Cost of providing water shall be considered incidental to the project and included in the lump sum price for Maintenance of Traffic, and no separate payment shall be made.

SP-10.03 RESTORATION OF EXISTING FENCE:

The Contractor shall re-establish any existing fence that was damaged, destroyed, or removed in the course of the construction project, and no separate payment will be made.

SP-10.04 RESTORATION OF MONUMENTATION:

The Contractor shall re-establish any permanent survey or mapping monumentation, which is disturbed or destroyed in the course of the construction project, and no separate payment will be made.

SP-11.00 SIGNAGE:

Refer to applicable sections of the FDOT Standard Specifications (2010). Replace if necessary at locations shown in the Construction Plans.

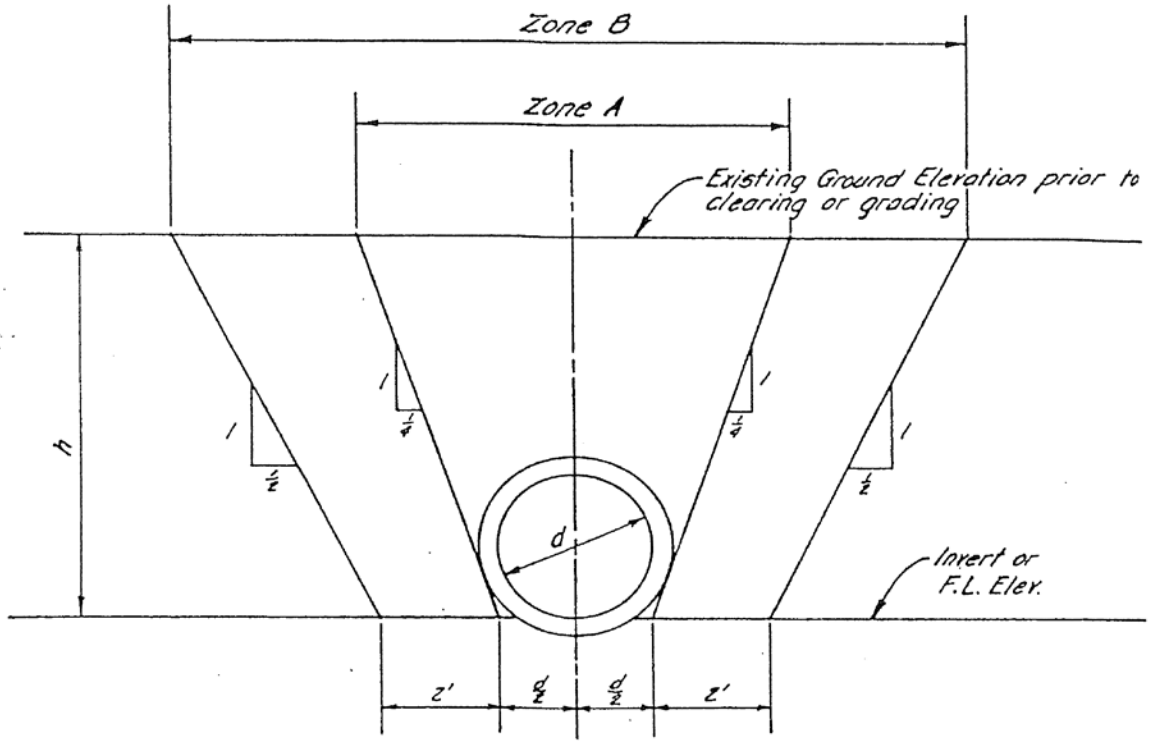
Payment shall be made under:

Item No. 700-20-11	Single Post Sign (F&I)	EA
Item No. 700-20-40	Relocate Existing Sign (Single Post)	EA

SP-12.01 SITE FURNISHINGS

Refer to drawings for specifications. Payment shall be made under:

SP-12.01-1	Bench - LandscapeForms	EA
SP-12.01-2	Trash Receptacle, LandscapeForms	EA
SP-12.01-3	Bicycle Rack, LandscapeForms	EA
SP-12.01-3	Pooch Station, Modern Dog Kit	EA



A = d + 0.5h
B = 4' + d + h

d = Inside diameter of storm sewer pipe or inside width of box culvert.

h = Depth per existing gravel to invert or flow line elevation.

DIAGRAM P

END OF SECTION SPECIFIC PROVISIONS

Geotechnical Engineering Report

EAST MADISON STREET
CHANNELSIDE DISTRICT
Tampa, Florida

August 12, 2013
Terracon Project No. H4135076

Prepared for:
Stantec
Tampa, Florida

Prepared by:
Terracon Consultants, Inc.
Tampa, Florida

August 12, 2013

Terracon

Stantec
2205 North 20th Street
Tampa, FL 33605

Attn: Jose DeJesus, PE, LEED AP
Project Manager, Civil Engineering
P: 813.223.9500
E: Jose.DeJesus@stantec.com

Re: Geotechnical Engineering Report
East Madison Street
Between Meridian Boulevard and Channelside Drive
Tampa, Hillsborough County, Florida
Terracon Project Number: H4135076

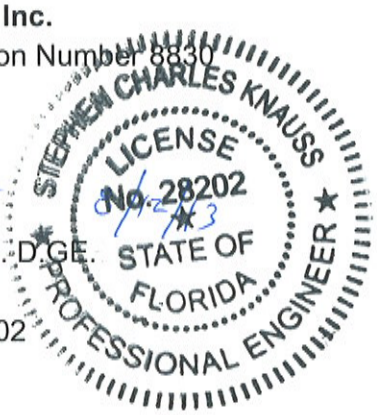
Dear Mr. DeJesus:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. This study was performed in general accordance with our proposal number PH4120390 dated August 13, 2012.

This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of pavements and stormwater management systems for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.
Certificate of Authorization Number 8830



Stephen C. Knauss, P.E., D.GE.
Sr. Project Manager
FL Registration No. 28202

Craig M. Anstett, P.E.
Regional Manager, Principal
FL Registration No. 60850

Enclosures
cc: 1 – Client (PDF)
1 – File

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A geotechnical exploration has been performed for the reconstruction of East Madison Street from Meridian Avenue to Channelside Drive in the Channelside area of Tampa, Florida. Four borings, designated B-1, B-2, A-1 and A-2, were performed to depths between 5 and 15 feet below the existing pavement surface of Madison Street. This report specifically addresses the recommendations for the proposed reconstruction.

Based on the information obtained from our geotechnical exploration, it appears that the site can be developed for the proposed project. The following geotechnical considerations were identified:

- Two layers of undesirable material were encountered by the borings. Silty clay, identified as Strata 2, was encountered as close as 2 feet below the pavement surface to as deep as 7.5 feet and clayey sand, Strata 4, was encountered from 8 to 13 feet below the ground surface. When encountered, these soils should be removed from the site.

- Groundwater was generally encountered at about 4 feet below the ground surface and dewatering will be necessary to allow the utilities to be installed and the backfill to be properly compacted.

- Close monitoring of the construction operations discussed herein will be critical in achieving the necessary placement and compaction of backfill materials.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **GENERAL COMMENTS** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
EAST MADISON STREET
BETWEEN MERIDIAN AVENUE AND CHANNELSIDE DRIVE
TAMPA, FLORIDA

Terracon Project No. H4135076
August 12, 2013

1.0 INTRODUCTION

A geotechnical engineering report has been prepared for the proposed reconstruction of East Madison Street between Meridian Avenue and Channelside Drive in in Tampa, Florida as shown on the Topographic Vicinity Map included as Exhibit A-1 in Appendix A. Four soil borings, designated B-1, B-2, A-1 and A-2, were performed to between 5 and 15.5 feet below the existing ground surface within the existing roadway. Logs of the borings, tests results along with a site location plan, USDA soils map and boring location plans are included in Appendix A of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- earthwork

2.0 PROJECT INFORMATION

2.1 Project Description

Item	Description
Site layout	See Appendix A, Exhibit A-4: Boring Location Plan.
Proposed Construction	Reconstruction of approximately 1,050 feet of roadway and underground utilities.
Finished elevation	No significant grade changes from the existing roadway.
Stormwater management	Not in contract.

2.2 Site Location and Description

Item	Description
Location	East Madison Street, Between Meridian Avenue and Channelside Drive in Tampa, Florida.

Item	Description
Existing improvements	Two lane urban street.
Current ground cover	Asphalt pavement.
Existing topography	Site currently appears nearly level. The USGS topographic quadrangle map Tampa, Florida issued 1995 shows the immediate surrounding area as relatively flat. The site elevation is about +10 feet referencing the National Geodetic Vertical Datum of 1929 (NGVD29). Plans provided to Terracon show the elevation of the roadway is at +13 feet at the west end and +9 feet on the east end.
Surface Water	The USGS topographic quadrangle map Tampa, Florida shows Ybor Channel a couple of hundred feet to the east.

3.0 SUBSURFACE CONDITIONS

3.1 General Potential For Sinkhole Development

The USGS has prepared a map which identifies areas of sinkhole occurrence in Florida. The Sinkhole Type, Development, and Distribution in Florida map (prepared by the USGS, in cooperation with state agencies, 1985), divides Florida into four areas based on the type and thickness of cover overlying soluble rock. These areas, designated I through IV, have varying potentials for sinkhole development as follows:

Area I – Sinkholes are few.
Area II – Sinkholes are few.
Area III – Sinkholes are numerous.
Area IV – Sinkholes are very few.

Review of the map listed above indicates the site is located in Area III. Area III typically has soil cover between 30 and 200 feet thick overlying limestone. The soil cover is generally cohesive clayey sediments of low permeability. Sinkholes are most numerous, of varying size and develop abruptly. Cover-collapse sinkholes dominate in Area III.

The borings were not taken to a sufficient depth to allow for the evaluation of the sinkhole potential for this site. However, the Channelside area is not known to be sinkhole prone. As a result, we do not believe that there is any significant probability of sinkhole development within the project area.

If the sinkhole potential of the site is to be estimated, additional site-specific data must be obtained. This might include using geophysical methods such as Electrical Resistivity tests and additional geotechnical tests such as Cone Penetrometer Test (CPT) soundings, dilatometer (DMT) soundings, and/or more/deeper Standard Penetration Test borings. Interpretation of the

test data should be done by a professional geologist/engineer familiar with the use of these tests under local conditions. If requested, Terracon can assist in assessing the sinkhole potential of the location of the proposed construction.

3.2 Soil Survey

The Soil Survey of Hillsborough County, Florida as prepared by the United States Department of Agriculture (USDA), Soil Conservation Service (now renamed the Natural Resource Conservation Service - NRCS), identifies the soil types at the subject site as Urban land. Urban land represents an area where extensive construction has taken place and the original soil types are not recognizable to due earthwork operations and the placement of fill. As a result soil types are not identified and a seasonal high groundwater table is not provided.

It should be noted that the Soil Survey is not intended as a substitute for site-specific geotechnical exploration; rather it is a useful tool in planning a project scope in that it provides information on soil types likely to be encountered. Boundaries between adjacent soil types on the Soil Survey maps are approximate (included in Appendix as Exhibit A-2). Descriptions of the mapped soil units are included in Appendix A as Exhibit A-3.

3.3 Typical Profile

Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/ Density
Pavement Structure [1]	1 to 3	1 to 2.5 inches asphalt pavement 7 to 32 inches shell base	-
1	2 to 6	Poorly graded fine sand (SP), poorly graded sand with silt (SP-SM), and sitly sand (SM)	Medium dense to loose
2 [2]	Auger boring termination at 5 feet to 7.5 feet	Silty Clay (CH)	Very soft to medium stiff
3	8 to 9.5	Poorly graded sand (SP) and Poorly graded sand with silt (SP-SM)	Very loose to medium dense
4	13	Clayey Sand with slight organics	Very loose
5	15.5 feet boring termination depth	Poorly graded sand (SP)	Medium dense to dense

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/ Density

[1] The pavement structure was 1 foot total thickness in all borings except B-1 where it was found to be 3 feet thick.

[2] Not encountered in boring A-1 before boring terminated at 5 feet.

There was a significant amount of shell base found in boring B-1. It is possible that this represents a location where the pavement was previously repaired. The layer of very soft clay was closer to the ground surface as the borings got closer to Channelside Drive.

Conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in-situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring logs in Appendix A of this report. Descriptions of our field exploration are included as Exhibit A-5 in Appendix A.

3.4 Groundwater

The boreholes were observed during drilling for the presence and level of groundwater. Groundwater was not observed in boring A-1 and at 4 to 4.2 feet in the other borings. This difference in the depth to groundwater elevation is expected because there is a change in ground elevation from about +13 feet at boring A-1, the westernmost boring, to about +9 feet at boring A-2, the eastern most boring, utilizing plans provided by Stantec.

It should be recognized that fluctuations of the groundwater table will occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the boring was performed. In addition, perched water can develop within higher permeability soils overlying less permeable soils. Therefore, groundwater levels during construction or at other times in the future may be higher or lower than the levels indicated on the boring logs.

We estimate that during the normal wet season (typically June through October) with rainfall and recharge at a maximum, groundwater levels will be about 3 to 4 feet below the existing grade. Our estimates of the seasonal groundwater conditions are based on the available survey data, the encountered soil types, recent weather conditions, and the encountered water levels.

These seasonal water table estimates do not represent the temporary rise in water table that occurs immediately during a significant storm event, including adjacent to other stormwater management facilities. This is different from static groundwater levels in wet ponds and/or drainage canals which can affect the design water levels of new, nearby ponds. The seasonal high water table may vary from normal when affected by extreme weather changes, localized or regional flooding, karst activity, future grading, drainage improvements, or other construction that may occur on our around the site following the date of this report.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The borings encountered sands to about 6 feet below the ground surface at the western half of the project but at the eastern end of the project only about 2 feet of sands initially encountered. Below the sands, highly plastic clay (Strata 2) was encountered. This soil will not provide adequate support for the underground construction and should be removed and replaced with satisfactory fill material when encountered within an excavation. A second layer of plastic material, clayey sand, noted as Strata 4, was initially encountered at 8 to 10 feet that will also be problematic for construction and will have to be removed and replaced with satisfactory fill material if encountered in an excavation.

We recommend that Terracon be retained to evaluate the satisfactory preparation of the bearing material for the pavements and underground utilities. Subsurface conditions, as identified by the field and laboratory testing programs, have been reviewed and evaluated with respect to the proposed construction plans known to us at this time.

Design and construction recommendations for foundation systems and other earth connected phases of the project are outlined below.

4.2 Earthwork

4.2.1 Excavation

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. The soils identified as Strata Nos. 1, 3 and 5 may be utilized as backfill for the excavation. However soils identified as Strata Nos. 2 and 4 should be removed and replaced by suitable backfill material as listed below. Contractors should be cautioned that the soils of Strata Nos. 2 and 4 will tend to move into an excavation and this should be considered when designing their temporary shoring of the excavations because it will increase the loads on a shoring system.

As a minimum, all temporary excavations should be sloped or braced as required by Occupational Health and Safety Administration (OSHA) regulations to provide stability and safe working conditions. Temporary excavations will probably be required during grading operations. The grading contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required, to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

4.2.2 Backfill Material Requirements

Engineered fill should meet the following material property requirements:

Fill Type	USCS Classification	Acceptable Location for Placement
General [1]	SP, SP-SM, SP-SC or GP, GP-GM (fines content < 12 percent, maximum particle size < 2 inches, organic content < 5 percent)	All locations and elevations

1. Much of Strata 1, Strata 3 and Strata 5 soils at this site appear to meet this criterion. Soils with fines content > 5 percent may retain moisture and be difficult to compact and achieve specified density and stability. These soils may need to be maintained dry of optimum to properly compact.

4.2.3 Compaction Requirements-Trench Backfill

ITEM	DESCRIPTION
Fill Lift Thickness	12 inches or less in loose thickness when heavy vibratory compaction equipment is used. Maximum particle size should not exceed 2 inches in a 12-inch lift. 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used. Maximum particle size should not exceed 1inch in a 4- to 6-inch lift.
Minimum Compaction Requirements	To a minimum of one foot below pavement subgrade elevation should be compacted to at least 100 percent of the maximum dry density as determined by the Standard Proctor Test (ASTM D-698). The upper one foot of pavement subgrades should be compacted to at least 98 percent of the maximum dry density as determined by the Modified Proctor Test (ASTM D-1557).
Moisture Content [1]	Within ±3 percent of optimum moisture content as determined by the Modified Proctor test, at the time of placement and compaction
Minimum Testing Frequency	One field density test per lift for each day's pipe run in accordance with FDOT or City of Tampa requirements.

1 We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate compaction limits have not been met, the area represented by the test should be reworked and retested as required until the compaction requirements are achieved.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations into the completed subgrade, and just prior to construction of building floor slabs.

4.3 Temporary Dewatering

Dewatering will likely be needed to facilitate the and underground utility installation operations for this project. The necessity for dewatering will be dependent on the depth of

excavation below existing grade and the groundwater levels at the time of construction. During general earthwork operations, it may be necessary to utilize ditches to lower the groundwater. Actual dewatering means and methods should be left up to a contractor experienced in installation and operation of dewatering systems. The contractor should provide a dewatering plan for review and approval by the engineer prior to the installation of the dewatering systems.

5.0 GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

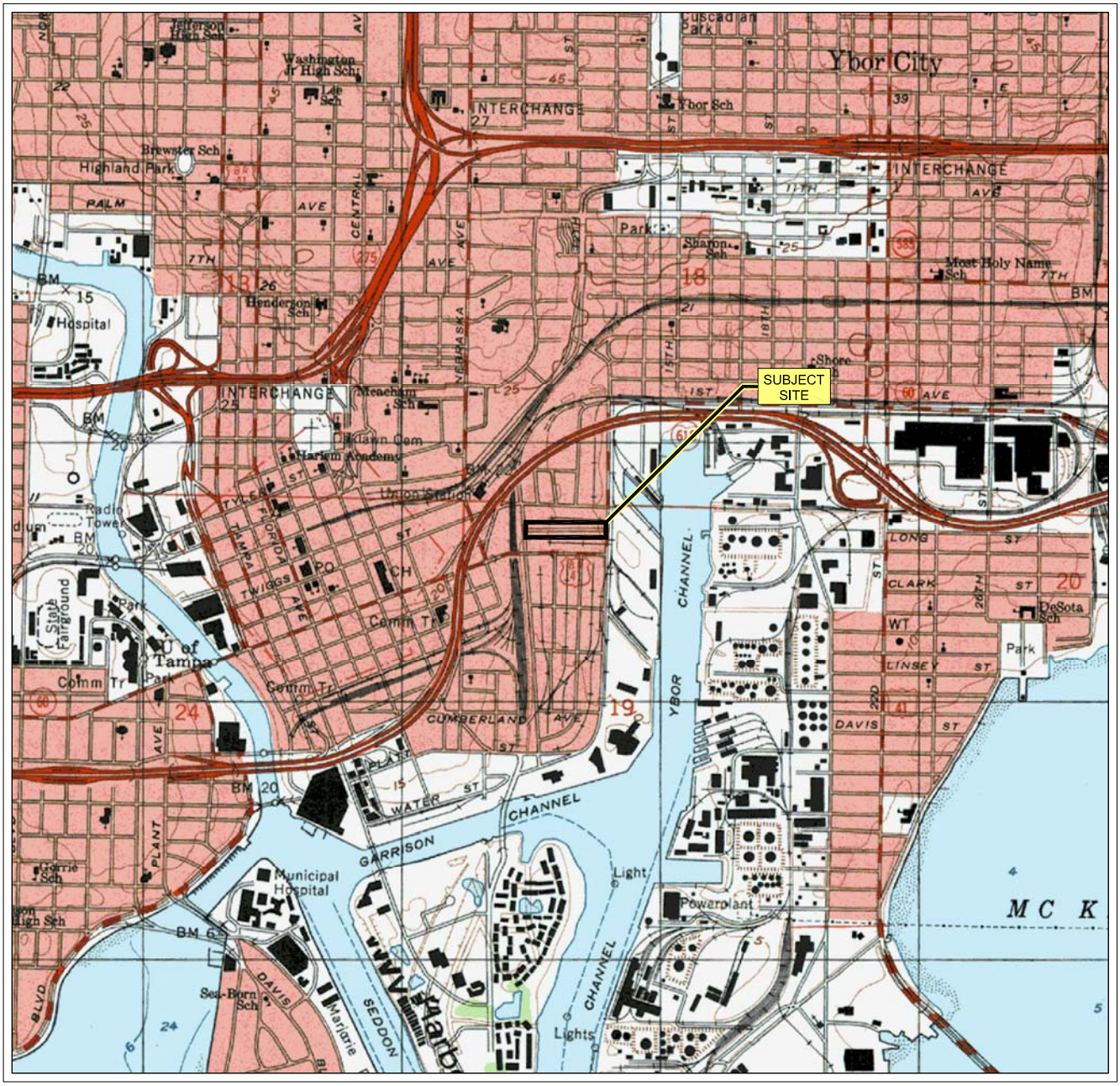
The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

KILOMETERS 1 .5 0 1 2

MILES 1000 0 1000 2000

FEET 1 .5 0 1

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

SECTION: 19
TOWNSHIP: 29 SOUTH
RANGE: 19 EAST

TAMPA, FLORIDA
ISSUE: 1995
7.5 MINUTE SERIES (QUADRANGLE)

N:\Projects\2013\H4135076\Cad\H4135076-EXHIBIT-A-1.dwg

Project Mngr:	SCK
Drawn By:	TMB
Checked By:	SCK
Approved By:	SCK

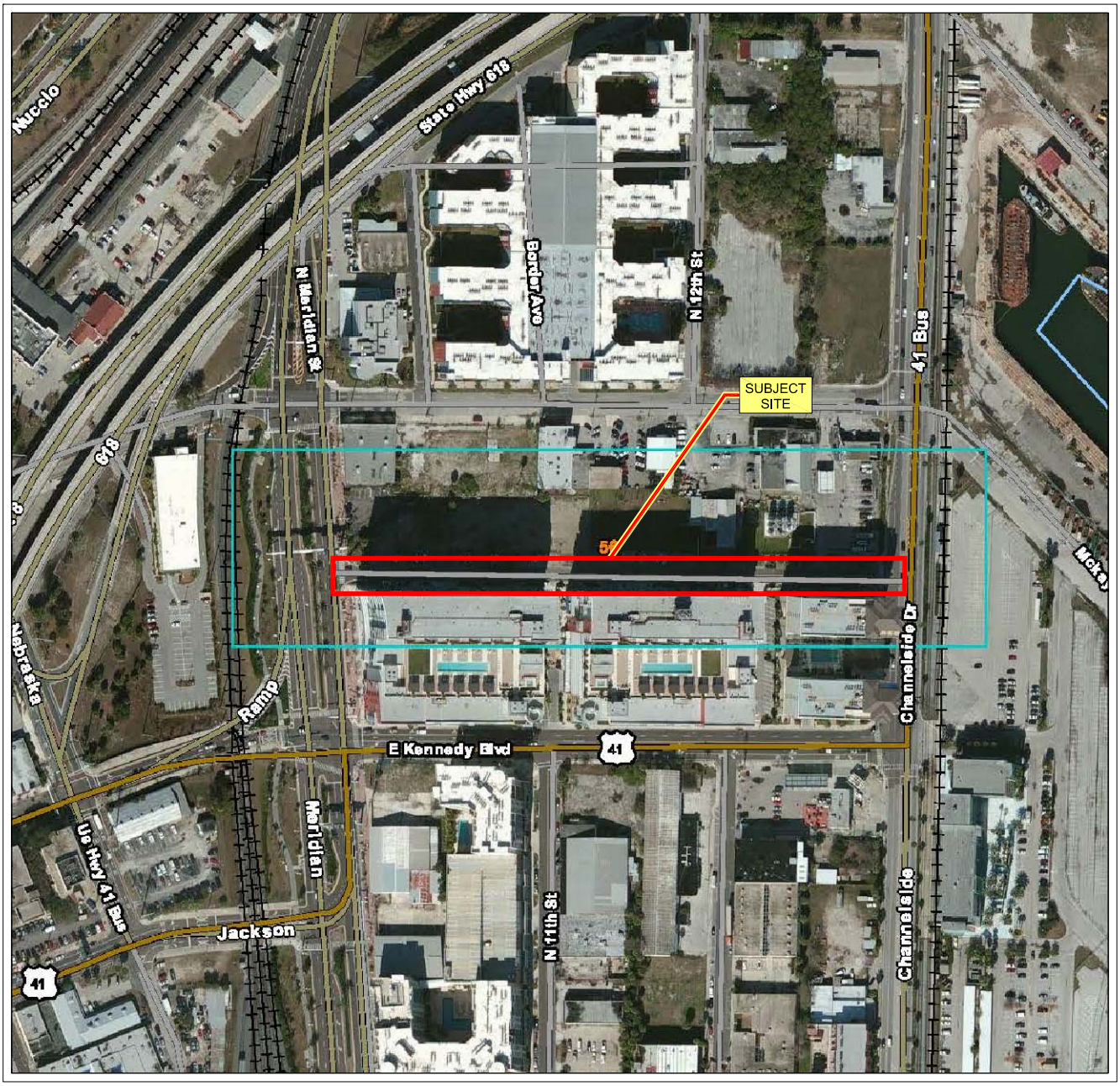
Project No.	H4135076
Scale:	AS SHOWN
File No.	H4135076
Date:	08-01-13

Terracon
Consulting Engineers and Scientists
504 E. TYLER STREET TAMPA, FLORIDA 33602
PH. (813) 221-0050 FAX. (813) 221-0051

TOPOGRAPHIC VICINITY MAP

GEOTECHNICAL ENGINEERING REPORT
EAST MADISON STREET
BETWEEN MERIDIAN AND CHANNELSIDE
TAMPA, HILLSBOROUGH COUNTY, FLORIDA

EXHIBIT
A-1



U.S.D.A. SOIL SURVEY FOR HILLSBOROUGH COUNTY, FLORIDA
ISSUED: FEBRUARY 2010 - MARCH 2011

SECTION: 19
TOWNSHIP: 29 SOUTH
RANGE: 19 EAST

SOIL LEGEND	
56	URBAN LAND

N

N:\Projects\2013\H4135076\Cad\H4135076-EXHIBIT-A-2.dwg

Project Mngr:	SCK
Drawn By:	TMB
Checked By:	SCK
Approved By:	SCK

Project No.	H4135076
Scale:	NTS
File No.	H4135076
Date:	08-01-13

Terracon
Consulting Engineers and Scientists
504 E. TYLER STREET TAMPA, FLORIDA 33602
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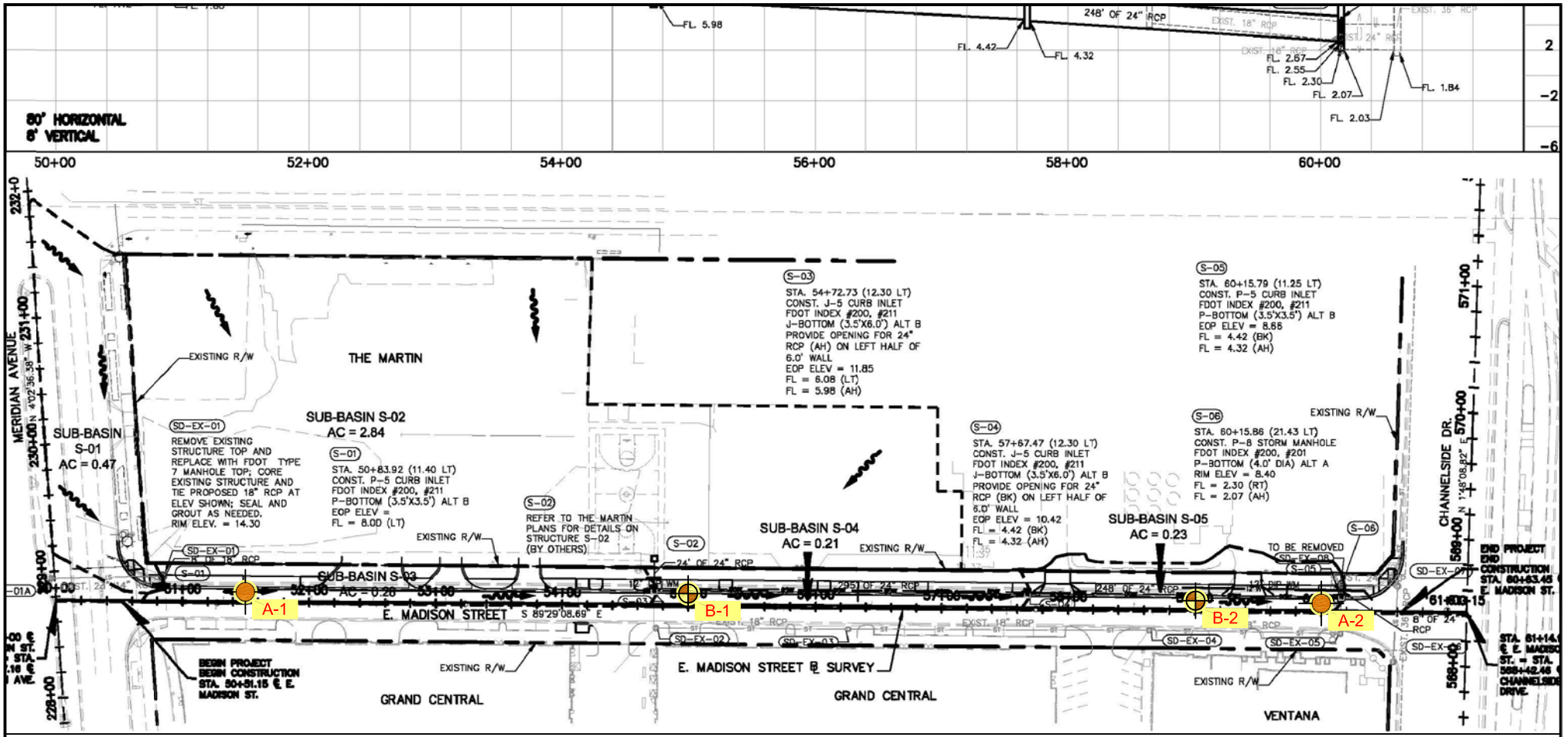
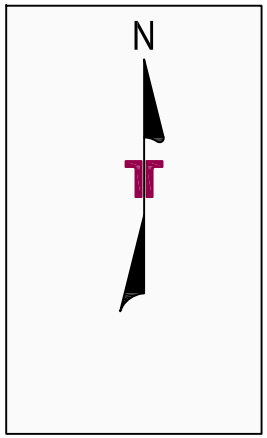
SOILS MAP
GEOTECHNICAL ENGINEERING REPORT
EAST MADISON STREET
BETWEEN MERIDIAN AND CHANNELSIDE
TAMPA, HILLSBOROUGH COUNTY, FLORIDA

EXHIBIT
A-2

Soil Survey Descriptions

56 –Urban land. This map unit consists of miscellaneous areas where significant construction has taken place and they are now covered by concrete, asphalt, buildings and other impervious surface. Generally, the slopes are less than 2 percent. Because the land is covered, no soil description is provided. Due to extensive stormwater management systems in these areas, no attempt is made to describe the depth the water table.





LEGEND

APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

APPROXIMATE LOCATION OF AUGER BORING

Project Mngr: SCK	Project No. H4135076
Drawn By: TMB	Scale: NTS
Checked By: SCK	File No. H4135076
Approved By: SCK	Date: 08-01-13

Terracon
Consulting Engineers and Scientists
504 E. TYLER STREET TAMPA, FLORIDA 33602
PH. (813) 221-0050 FAX. (813) 221-0051

BORING LOCATION PLAN

GEOTECHNICAL ENGINEERING REPORT
EAST MADISON STREET

BETWEEN MERIDIAN AND CHANNELSIDE
TAMPA, HILLSBOROUGH COUNTY, FLORIDA

EXHIBIT A-4

Field Exploration Description

The boring locations were laid out at the project site by a Terracon technician. The locations indicated on the attached diagram are approximate and were measured by pacing distances and estimating right angles, across vegetated/wooded terrain. The locations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

The SPT soil borings were drilled with an truck-mounted, rotary drilling rig equipped with a rope and cathead-operated safety hammer. The boreholes were advanced with a cutting head and stabilized with the use of bentonite (drillers' mud). Soil samples were obtained by the split spoon sampling procedure in general accordance with the Standard Penetration Test (SPT) procedure. In the split spoon sampling procedure, the number of blows required to advance the sampling spoon the last 12 inches of an 18-inch penetration or the middle 12 inches of a 24-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring logs.

Portions of the samples from the borings were sealed in jars to reduce moisture loss, and then the jars were taken to our laboratory for further observation and classification. Upon completion, the boreholes were backfilled with soil cuttings.

Field logs of each boring were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. The boring logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation of the samples.

BORING LOG NO. A-1

PROJECT: Madison Street

CLIENT: Stantec
Tampa, Florida

SITE: Madison Street Btwn Meridian & Channelside
Tampa, Florida

GRAPHIC LOG	LOCATION Exhibit A-4 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT (%)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.4 **5 INCHES ASPHALT PAVEMENT**								
	1.0 **7 INCHES SHELL BASE**, medium dense								
	POORLY GRADED SAND (SP), fine grained, light brown, medium dense				16-12-9-6 N=21				
	3.0 **POORLY GRADED SAND WITH SILT (SP-SM)**, fine grained, black, medium dense				5-7-11-10 N=18				
	5.0 ***Boring Terminated at 5 Feet***	5							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud-rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-5 for description of field procedures

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
504 East Tyler Street
Tampa, Florida

Boring Started: 7/29/2013 | Boring Completed: 7/29/2013

Drill Rig: CME 45 | Driller: R Swint, Jr.

Project No.: H4135076 | Exhibit: A-6

BORING LOG NO. A-2

PROJECT: Madison Street

CLIENT: Stantec
Tampa, Florida

SITE: Madison Street Btwn Meridian & Channelside
Tampa, Florida

GRAPHIC LOG	LOCATION Exhibit A-4 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT (%)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.2 **2.5 INCHES ASPHALT PAVEMENT**								
	9.5 INCHES SHELL BASE 1.0								
	POORLY GRADED SAND (SP), fine grained, light brown with orange seams 2.0								
	SILTY CLAY (CH), black to dark gray		▽						
	5.0	5							
	Boring Terminated at 5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: N/A

Advancement Method:
Hand auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-5 for description of field procedures

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water initally observed at 4'*

Terracon
504 East Tyler Street
Tampa, Florida

Boring Started: 7/29/2013 | Boring Completed: 7/29/2013

Drill Rig: N/A | Driller: H Peach

Project No.: H4135076 | Exhibit: A-7

BORING LOG NO. B-1

PROJECT: Madison Street

CLIENT: Stantec
Tampa, Florida

SITE: Madison Street Btwn Meridian & Channelside
Tampa, Florida

GRAPHIC LOG	LOCATION Exhibit A-4 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT (%)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.3 **4 INCHES ASPHALT PAVEMENT**								
	2.7 FEET SHELL BASE, with limerock, medium dense				21-14-12-10 N=26				
	3.0 **POORLY GRADED SAND (SP)**, fine grained, light brown, medium dense				9-8-6-6 N=14				
	4.0 **SILTY SAND (SM)**, fine grained, dark gray, loose	5	▽		2-2-2-2 N=4				
	6.0 **SILTY CLAY (CH)**, gray, very soft to medium stiff				1-1-5-5 N=6				
	7.5 **POORLY GRADED SAND WITH SILT (SP-SM)**, fine grained, light brown, loose to very loose				2-1-1-1 N=2	5.8	35		
	9.5 **CLAYEY SAND (SC)**, with organics, fine grained, black, very loose	10							
	13.0 **POORLY GRADED SAND (SP)**, fine grained, gray/brown, dense				14-20-24 N=44				
	15.5 ***Boring Terminated at 15.5 Feet***	15							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud-rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-5 for description of field procedures

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water initally observed at 4.2'*

Terracon
504 East Tyler Street
Tampa, Florida

Boring Started: 7/29/2013 | Boring Completed: 7/29/2013

Drill Rig: CME 45 | Driller: R Swint, Jr.

Project No.: H4135076 | Exhibit: A-8

BORING LOG NO. B-2

PROJECT: Madison Street

CLIENT: Stantec
Tampa, Florida

SITE: Madison Street Btwn Meridian & Channelside
Tampa, Florida

GRAPHIC LOG	LOCATION Exhibit A-4 / DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT (%)	WATER CONTENT (%)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	0.1 **1 INCH ASPHALT PAVEMENT**								
	11 INCHES SHELL BASE, dense 1.0				23-16-13-7 N=29				
	POORLY GRADED SAND (SP), fine grained, tan, medium dense 2.0								
	2.5 **POORLY GRADED SAND (SP)**, with shell fragments, fine grained, light brown, loose				3-3-3-4 N=6				
	SILTY CLAY (CH), dark gray, medium stiff to very soft 5.5	5	▽		WH-WH-3-8 N=3		103	91-36-55	98
	POORLY GRADED SAND (SP), fine grained, gray to light brown, medium dense 8.0				2-5-5-3 N=10				
	CLAYEY SAND (SC), with organics, black, very loose 13.0	10			WH-WH-WH-1 N=WH		75	38-22-16	41
	POORLY GRADED SAND (SP), fine grained, gray, medium dense 15.5	15			8-11-13 N=24				
	Boring Terminated at 15.5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud-rotary

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

See Exhibit A-5 for description of field procedures

See Appendix B for description of laboratory procedures and additional data (if any).

See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Water initally observed at 4.2'*

Terracon
504 East Tyler Street
Tampa, Florida

Boring Started: 7/29/2013	Boring Completed: 7/29/2013
Drill Rig: CME 45	Driller: R Swint, Jr.
Project No.: H4135076	Exhibit: A-9

APPENDIX B – LABORATORY TESTING

Laboratory Testing

During the field exploration, a portion of each recovered sample was sealed in a jar and transported to our laboratory for further visual observation and laboratory testing. The soil samples were classified in general accordance with the appended General Notes and the Unified Soil Classification System based on the material's texture and plasticity. The estimated group symbol for the Unified Soil Classification System is shown on the boring logs and a brief description of the Unified Soil Classification System is included in Appendix B.

Laboratory tests conducted for this project included moisture content, Atterberg limits, organic content and determination of the amount passing a No. 200 sieve. The results are on the following table and on the boring logs in Appendix A.

SUMMARY OF LABORATORY RESULTS
MADISON STREET
BETWEEN MERIDIAN & CHANNELSIDE
TAMPA, FLORIDA

Terracon Project No. H4135076

Boring Number	Sample Depth (ft)		Soil Description	USCS ID	Stratum No.	Sieve Analysis (Percent Passing) #200	Natural Moisture (%)	Organic Content (%)	Atterberg Limits	
	From	To							LL	PI
B-1	8	10	Black clayey sand with organics	SC	4	-	35	5.8		
B-2	4	6	Black silty clay	CH	2	98	103	-	91	55
B-2	8	10	Black clayey sand with organics	SC	4	41	75	-	38	16

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING


Auger


Split Spoon


Shelby Tube


Macro Core


Ring Sampler


Rock Core


Grab Sample


No Recovery

WATER LEVEL


Water Initially Encountered


Water Level After a Specified Period of Time


Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

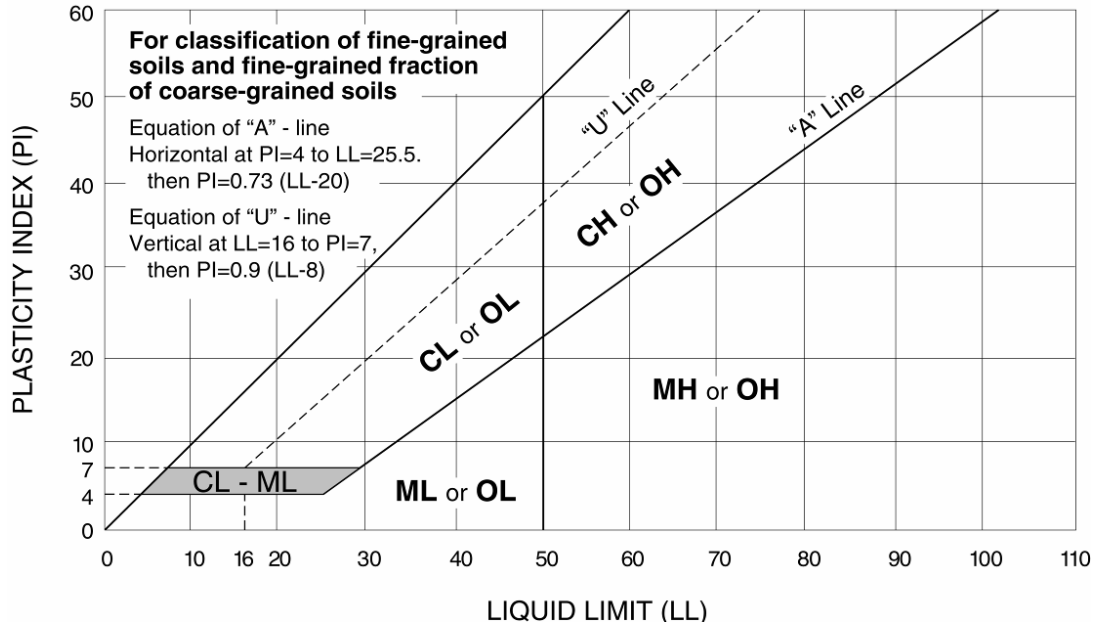
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



Terracon

Exhibit C-2

City of Tampa – DMI Sub-(Contractors/Consultants/Suppliers) Payments

(FORM MBD-30)

[ ] Partial [ ] Final

Contract No.: _____ WO#,(if any):_____ Contract Name:_____

Contractor Name:_____ Address:_____

Federal ID:_____ Phone:_____ Fax:_____ Email:_____

GC Pay Period:_____ Payment Request/Invoice Number:_____ City Department:_____

Total Amount Requested for pay period: $_____ Total Contract Amount(including change orders):$_____

-Type of Ownership - (F=Female M=Male), BF BM = African Am., HF HM = Hispanic Am., AF AM = Asian Am., NF NM = Native Am., CF CM = Caucasian S = SLBE

Type Trade/Work Activity []Sub []Supplier Federal ID	Company Name Address Phone & Fax	Total Sub Contract Or PO Amount	Amount Paid To Date Amount Pending Previously Reported	Amount To Be Paid For This Period Sub Pay Period Ending Date
			$	$
			$	$
			$	$
			$	$
			$	$
			$	$

(Modifying This Form or Failure to Complete and Sign May Result in Non-Compliance)

Certification: I hereby certify that the above information is a true and accurate account of payments to sub – contractors/consultants on this contract.

Signed:_____ Name/Title:_____ Date:_____

Note: Detailed Instructions for completing this form are on the next page

Page 2 of 2 – DMI Payment

Instructions for completing The DMI Sub-(Contractors/Consultants/ Suppliers) Payment Form (Form MBD-30)

This form must be submitted with all invoicing or payment requests where there has been subcontracting rendered for the pay period. If applicable, after payment has been made to the subcontractor, "Waiver and Release of Lien upon Progress Payment", "Affidavit of Contractor in Connection with Final Payment", or an affidavit of payment must be submitted with the amount paid for the pay period. The following will detail what data is required for this form. The instructions that follow correspond to the headings on the form required to be completed. **(Modifying or omitted information from this form my result in non-compliance).**

- **Contract No.** This is the number assigned by the City of Tampa for the bid or proposal.
- **W.O.#** If the report covers a work order number (W.O.#) for the contract, please indicate it in that space.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business.
- **Address.** The physical address of your business.
- **Federal ID.** A number assigned to a business for tax reporting purposes.
- **Phone.** Telephone number to contact business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **Pay Period.** Provide start and finish dates for pay period. (e.g. 05/01/13 – 05/31/13)
- **Payment Request/Invoice Number.** Provide sequence number for payment requests. (ex. Payment one, write 1 in space, payment three, write 3 in space provided.)
- **City Department**. The City of Tampa department to which the contract pertains.
- **Total Amount Requested for pay period.** Provide all dollars you are expecting to receive for the pay period.
- **Total Contract Amount (including change orders).** Provide expected total contract amount. This includes any change orders that may increase or decrease the original contract amount.
- **Signed/Name/Title/Date**. This is your certification that the information provided on the form is accurate.
- **See attached documents.** Check if you have provided any additional documentation relating to the payment data. Located at the bottom middle of the form.
- **Partial Payment.** Check if the payment period is a partial payment, not a final payment. Located at the top right of the form.
- **Final Payment.** Check of this period is the final payment period. Located at the top right of the form.

The following instructions are for information of any and all subcontractors used for the pay period.

- **(Type) of Ownership.** Indicate the Ethnicity and Gender of the owner of the subcontracting business or SLBE.
- **Trade/Work Activity.** Indicate the trade, service, or material provided by the subcontractor.
- **SubContractor/SubConsultant/Supplier.** Please indicate status of firm on this contract.
- **Federal ID.** A number assigned to a business for tax reporting purposes. This information is critical in proper identification of the subcontractor.
- **Company Name, Address, Phone & Fax**. Provide company information for verification of payments.
- **Total Subcontract Amount.** Provide total amount of subcontract for subcontractor including change orders.
- **Amount Paid To Date.** Indicate all dollars paid to date for the subcontractor.
- **Amount Pending, Previously Reported.** Indicate any amount previously reported that payments are pending.
- **Amount To Be Paid for this Period.** Provide dollar amount of dollars requested for the pay period.
- **Sub Pay Period Ending Date.** Provide date for which subcontractor invoiced performed work.

Forms must be signed and dated or will be considered incomplete. The company authorized representative must sign and certify the information is true and accurate. Failure to sign this document or return the document unsigned can be cause for determining a company is in non-compliance of Ordinance 2008-89.

If any additional information is required or you have any questions, you may call the Minority Business Development Office at (813) 274-5522.

SIGN EXAMPLE ONLY GRAPHIC TO BE DEVELOPED BY CONTRACTOR

3"

scale: 3"

Sign Information

Building a Better Tampa

Downtown Riverwalk

Creates a waterfront pedestrian walkway connecting the south edge of the CapTrust building with MacDill Park.

$1.5 Million investment
Scheduled for completion in October 2012

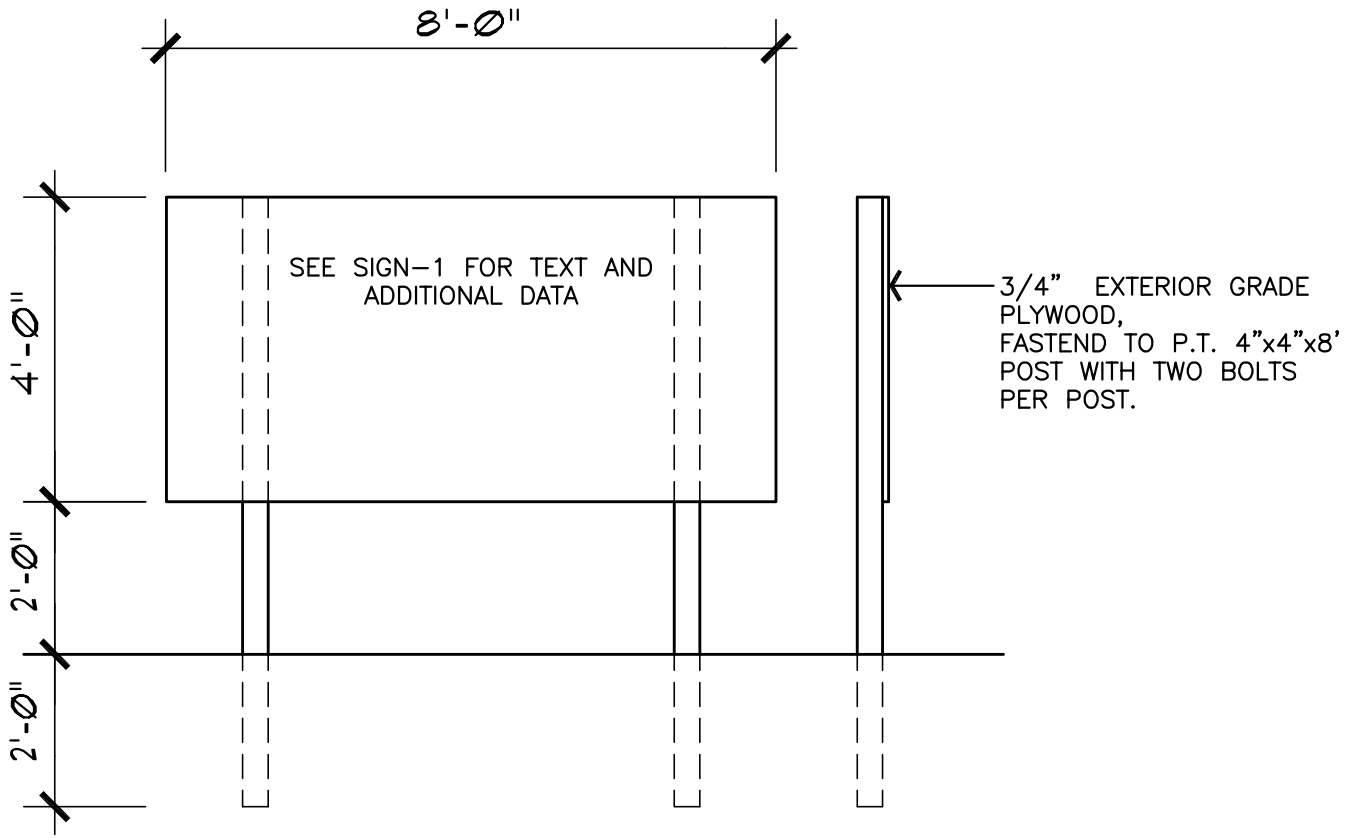
Orion Marine
Construction, Inc.

Colors

Blue: Sherwin Williams Naval SW6244
Green: Sherwin Williams Center Stage SW6920
White: Sherwin Williams Pure White SW7005

Font

Franklin Gothic



Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

October 31, 2013

City of Tampa - Stormwater Division
Attn: Al Hoel, P.E.
306 East Jackson Street, 6N
Tampa, FL 33602

Subject: **Notice of Intended Agency Action**
ERP Individual Construction Major Modification

Project Name:	Madison Street Improvements
App ID/Permit No:	684931 / 43001660.051
County:	HILLSBOROUGH
Sec/Twp/Rge:	S19/T29S/R19E

Dear Permittee(s):

Your Environmental Resource Permit modification has been approved contingent upon no objection to the District's action being received by the District within the time frames described in the enclosed Notice of

If approved construction plans are part of the permit, construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of intended agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of intended agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of intended agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notice of intended agency action, as well as a noticing form that can be used is available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of intended agency action, a copy of the affidavit of publishing provided by the newspaper should be sent to the District's Tampa Service Office, for retention in the File of Record for this agency action.

If you have questions, please contact Chris Kuzlo, at the Tampa Service Office, extension 2108.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Approved Permit w/Conditions Attached
Statement of Completion
Notice of Authorization to Commence Construction
Notice of Rights
cc: Jose DeJesus, P.E., Stantec Consulting Services, Inc.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE

INDIVIDUAL CONSTRUCTION MAJOR MODIFICATION
PERMIT NO. 43001660.051

EXPIRATION DATE: October 31, 2018 **PERMIT ISSUE DATE:** October 31, 2013

This permit is issued under the provisions of Chapter 373, Florida Statutes, (F.S.), and the Rules contained in Chapter 62-330, Florida Administrative Code, (F.A.C.). The permit authorizes the Permittee to proceed with the construction of a surface water management system in accordance with the information outlined herein and shown by the application, approved drawings, plans, specifications, and other documents, attached hereto and kept on file at the Southwest Florida Water Management District (District). Unless otherwise stated by permit specific condition, permit issuance constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341. All construction, operation and maintenance of the surface water management system authorized by this permit shall occur in compliance with Florida Statutes and Administrative Code and the conditions of this permit.

PROJECT NAME:	Madison Street Improvements
GRANTED TO:	City of Tampa - Stormwater Division Attn: Al Hoel, P.E. 306 East Jackson Street, 6N Tampa, FL 33602
OTHER PERMITTEES:	N/A

ABSTRACT: This modification of Environmental Resource Permit (ERP) No. 49001660.040 authorizes the construction of roadway and drainage improvements to a 1.00-acre portion of existing Madison Street, which is located within the boundary of the Channel District Community Redevelopment Area. The improvements will include replacement of the existing roadway, the installation of additional parallel parking spaces, construction of sidewalks, and upgrading the existing stormwater collection and conveyance system. Water quality treatment for the project will be provided by compensatory treatment, utilizing 1.00-acre of water quality treatment credit from the total credits conceptually approved under ERP No. 49001660.041. With the construction of this project the credit available for future projects is reduced to 14.36-acres. The proposed project discharges to an impaired water body (Ybor City Drain, WBID-1584A); therefore water quality certification is waived as a condition of this permit. Water quantity attenuation is not required since the project will outfall directly to Garrison Channel via an existing storm sewer system. The site is located between North Meridian Avenue and Channelside Drive, in the City of Tampa.

OP. & MAIN. ENTITY:	City of Tampa - Stormwater Division
OTHER OP. & MAIN. ENTITY:	N/A
COUNTY:	HILLSBOROUGH
SEC/TWP/RGE:	S19/T29S/R19E
TOTAL ACRES OWNED OR UNDER CONTROL:	199.26
PROJECT SIZE:	1.00 Acres
LAND USE:	Road Projects
DATE APPLICATION FILED:	August 05, 2013
AMENDED DATE:	N/A

I. Water Quantity/Quality

Water Quality/Quantity Comments:
Water quality treatment for the proposed project is provided by compensatory treatment in accordance with the drainage design conceptually approved under ERP No.49001660.041 and as constructed under ERP No. 49001660.040. Water quantity attenuation is not required since the project will outfall directly to Garrison Channel via an existing storm sewer system.

A mixing zone is not required.
A variance is not required.

II. 100-Year Floodplain

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type	Encroachment Result* (feet)
0.00	0.00	No Encroachment	N/A

Floodplain Comments:
No floodplain impacts.

*Depth of change in flood stage (level) over existing receiving water stage resulting from floodplain encroachment caused by a project that claims Minimal Impact type of compensation.

III. Environmental Considerations

No wetlands or other surface waters exist within the project area.

Specific Conditions

1. If the ownership of the project area covered by the subject permit is divided, with someone other than the Permittee becoming the owner of part of the project area, this permit may be terminated, unless the terms of the permit are modified by the District or the permit is transferred pursuant to Rule 40D-1.6105, F.A.C. In such situations, each land owner shall obtain a permit (which may be a modification of this permit) for the land owned by that person. This condition shall not apply to the division and sale of lots or units in residential subdivisions or condominiums.

2. The Permittee shall retain the design professional registered or licensed in Florida, to conduct on-site observations of construction and assist with the as-built certification requirements of this project. The Permittee shall inform the District in writing of the name, address and phone number of the design professional so employed. This information shall be submitted prior to construction.

3. This modification, Construction Permit No. 49001660.051, amends the previously issued Construction Permit No. 49001660.040, and adds conditions. All other original permit conditions remain in effect.

4. Certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341 is waived.

5. If limestone bedrock is encountered during construction of the surface water management system, the District must be notified and construction in the affected area shall cease.

6. The Permittee shall notify the District of any sinkhole development in the surface water management system within 48 hours of discovery and must submit a detailed sinkhole evaluation and repair plan for approval by the District within 30 days of discovery.

7. The Permitted Plan Set for this project includes: the set received by the District on October 16, 2013.

8. District staff must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must either have been submitted and approved with the permit application or submitted to the District as a permit prior to the dewatering event as a permit modification. A water use permit may be required prior to any use exceeding the thresholds in Chapter 40D-2, F.A.C.

9. Off-site discharges during construction and development shall be made only through the facilities authorized by this permit. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream stages. Stages may be subject to operating schedules satisfactory to the District.

10. The following shall be properly abandoned and/or removed in accordance with the applicable regulations:

    a. Any existing wells in the path of construction shall be properly plugged and abandoned by a licensed well contractor.
    b. Any existing septic tanks on site shall be abandoned at the beginning of construction.
    c. Any existing fuel storage tanks and fuel pumps shall be removed at the beginning of construction

GENERAL CONDITIONS

1. The general conditions attached hereto as Exhibit "A" are hereby incorporated into this permit by reference and the Permittee shall comply with them.

Michelle K. Hopkins, P.E.

Authorized Signature

EXHIBIT A

GENERAL CONDITIONS:

1 The following general conditions are binding on all individual permits issued under this chapter, except where the conditions are not applicable to the authorized activity, or where the conditions must be modified to accommodate, project-specific conditions.

a. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C., or the permit may be revoked and the permittee may be subject to enforcement action.

b. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

c. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(8)(b)5, F.A.C., unless a projectspecific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

d. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice,"[effective date], incorporated by reference herein (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

e. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

f. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or

2. For all other activities - "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].

3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

g. If the final operation and maintenance entity is a third party:

1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction

needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

2. Within 30 days of submittal of the as- built certification, the permittee shall submit “Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity” [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

h. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

i. This permit does not:

1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

2. Convey to the permittee or create in the permittee any interest in real property;

3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

j. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

k. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

l. The permittee shall notify the Agency in writing:

1. Immediately if any previously submitted information is discovered to be inaccurate; and

2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

m. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

n. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification

shall be provided in accordance with Section 872.05, F.S. (2012).

o. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

p. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

q. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

r. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

2. In addition to those general conditions in subsection (1) above, the Agency shall impose any additional project-specific special conditions necessary to assure the permitted activities will not be harmful to the water resources, as set forth in Rules 62-330.301 and 62-330.302, F.A.C., Volumes I and II, as applicable, and the rules incorporated by reference in this chapter.

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

NOTICE OF
AUTHORIZATION
TO COMMENCE CONSTRUCTION

Madison Street Improvements
PROJECT NAME

Road Projects
PROJECT TYPE

HILLSBOROUGH
COUNTY

S19/T29S/R19E
SEC(S)/TWP(S)/RGE(S)

City of Tampa - Stormwater Division
PERMITTEE

APPLICATION ID/PERMIT NO: 684931 / 43001660.051

DATE ISSUED: October 31, 2013

Michelle K. Hopkins, P.E.
Issuing Authority

THIS NOTICE SHOULD BE CONSPICUOUSLY DISPLAYED AT THE SITE OF THE WORK

Notice of Rights

ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.

2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of state-owned submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.

3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.

4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.

5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.

6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28-106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/rules.

7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North,Tampa,FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 987-6746. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

JUDICIAL REVIEW

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.

2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9. 110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

Jose DeJesus, P.E.
Stantec Consulting Services, Inc.
2205 North 20th Street
Tampa, FL 33605

SECTION 01010 - SUMMARY OF WORK

1.0 GENERAL:

The work shall consist of furnishing all materials, labor, equipment, tools, and all items and services required for the complete construction in conformity with Contract Documents of:

Channel District
East Madison Street Improvements
for the
City of Tampa

All construction work and materials, in addition to complying with requirements of Contract Documents, shall fully comply with all requirements of local building codes, all ordinances, and regulations of other Federal, State and public authorities having jurisdiction over this type of work in the given area.

2.0 SCOPE:

The work shall include but not be limited to, providing improvements to East Madison Street in the Channel District, including roadway, stormwater, wastewater, and water main construction, signing and pavement markings, specialty concrete and sawcut concrete walks, site furnishings, landscaping and irrigation, underground electrical, with all associated work required for a complete project, as shown and indicated on the Drawings and in the Specifications.

3.0 LEGAL DESCRIPTION OF PROJECT SITE:

Legal description as shown on the drawings, Sheet No. 01 (Cover Sheet).

4.0 VERIFICATION OF OWNER'S SURVEY DATA:

Prior to commencing any work, the Contractor shall satisfy himself as to accuracy of all survey data which shall affect his work as indicated in these plans and specifications and/or provided by the City.

Should the Contractor discover any inaccuracies or errors which will affect his work, he shall notify the Engineer and/or Architect in order that proper adjustments can be ordered.

The exact location of the building and related items shall be determined on site jointly by the Contractor and the Engineer and/or Architect. NO work shall commence until said final approval of the locations is made by the Engineer and/or Architect.

5.0 CONTRACT DOCUMENTS:

a. BIDDING REQUIREMENTS

b. CONTRACT FORMS

c. GENERAL PROVISIONS, SUPPLEMENTARY GENERAL PROVISIONS, AND SPECIAL, CONDITIONS

6.0 SPECIFICATIONS: (DATED: November 2013)

Divisions: 1, and Sections WR, SS, 330, 331, 334, 02208, 02440, 02510, 02511, 02580, 02900, 02910, 02935, and 03000.

7.0 DRAWINGS: (DATED: November 2013)

Sheet No's: Cover Sheet 01 through 44.

8.0 ADDENDA AND LETTERS OF CLARIFICATION:

All addenda and letters of clarification issued prior to bid opening time date.

END OF SECTION 01010

SECTION 01020 - ALLOWANCES

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

SUMMARY

This Section includes administrative and procedural requirements governing allowances.

Types of allowances include the following:

Contingency allowances.

SELECTION AND PURCHASE

SUBMITTALS

Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

CONTINGENCY ALLOWANCES

Use the contingency allowance only as directed by the Owner.

The Contractor's related costs for services, products and equipment ordered by the Owner under the contingency allowance are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

Work Directive Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

At Project closeout, credit unused amounts remaining in the contingency allowance to the Owner by Change Order.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

EXAMINATION

Examine products covered by an allowance promptly upon delivery for damage or defects.

PREPARATION

Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

SCHEDULE OF ALLOWANCES

Allowance No. 1: Include a contingency allowance of $130,000 for use according to the Owner's instructions. THIS ALLOWANCE SHALL BE INCLUDED IN THE BID.

END OF SECTION 01020

City of Tampa Water Department

**SPECIFIC PROVISIONS,
CONTRACT PAY ITEMS,
CONSTRUCTION DETAILS,
& MATERIAL SPECIFICATIONS**

FOR

"Water Main Relocation"

ON

Madison Street Improvements

From Meridian Avenue to Channelside Drive

SPECIFIC PROVISIONS

S1.01 WATER METER SERVICE TRANSFERS

Existing water meters and meter boxes shall be relocated as shown on the plans or as directed by the Engineer with technical assistance from the City of Tampa Water Department. New taps and HDPE tubing shall be provided for each meter service, per Water Department Standard Details in the plans.

S1.02 ACRONYM DEFINITIONS

ASTM – American Society for Testing and Materials
ANSI – American National Standards Institute
AWWA – American Water Works Association
CIP - Cast Iron Pipe
D, S, DCV – Double, Single Detector Check Valve
DIP - Ductile Iron Pipe
DIPRA - Ductile Iron Pipe Research Association (formerly CIPRA)
DOH – Department of Health
EA -Each
EPDM – Ethylene propylene diene
FDEP – Florida Department of Environmental Protection
FDOT - Florida Department of Transportation
F&I – Furnish and Install
FM – Association of Factory Mutual Insurance Company
HDPEP - High Density Polyethylene Pipe
LF- Lineal Foot
LS – Long Side (15’ - 80’)
mg/l - Milligrams Per Liter
MJ - Mechanical Joint
NSF - National Sanitation Foundation
NPDES – National Petroleum Discharge Elimination System
NST – Non Standard Tap
OSHA - Occupational Safety and Health Administration
OSS – Office Support Staff
PO – Push On
PPI – Polyethylene Pipe Institute
ppm -Parts Per Million
psi - Pounds per Square Inch
SDR – Standard Dimension Ratio
SF - Square Feet
SS – Short Side (0’ – 15’)
SY - Square Yards
TN-Ton
UL – Underwriters Laboratories

S1.03 TEMPORARY FACILITIES AND CONTROLS

All reasonable amounts of water required by the Contractor **for the construction of water mains and appurtenances** under this Contract will be furnished by the City of Tampa Water Department from the existing water system at the Contractor's expense. Billing will be issued for subsequent water use. The Contractor must obtain a temporary hydrant meter from the City of Tampa Water Department to utilize City water for this purpose. Deposit fees will be charged and refunded to the Contractor when the meter is returned to the City of Tampa. The Contractor shall make any necessary water supply connections at his own expense at a point designated by the Engineer with technical assistance from the City of Tampa Water Department. These connections shall be maintained by the Contractor, who shall furnish all pipe, valves, and such other equipment necessary or required. Temporary piping may be run above ground when there is no possibility of impact to or from traffic, and it can be done safely. Otherwise, it must run underground and in such manner as to meet the approval of the Engineer with technical assistance from the City of Tampa Water Department. No water shall be wasted. Unnecessary waste of water after notification of same will, at the discretion of the Engineer with technical assistance from the City of Tampa Water Department, be cause for use of water to be discontinued. After temporary lines have served their purpose, the Contractor shall remove them and all connections will be plugged to the satisfaction of the Engineer with technical assistance from City of Tampa Water Department.

The Contractor must obtain a second temporary water meter, at no extra cost to the City, for water use in other areas of the Contract. The Contractor must pay a refundable deposit and will also be billed for consumption.

S1.04 MAINTENANCE OF CONTINUOUS WATER SERVICE

Maintaining continuous water service means that water flows through a water main 24 hours a day, 7 days a week.

The intent of this project's Plans and Technical Special Provisions is for all Water Mains to be installed as a continuous project. Connections to existing water mains shall be done in a timely manner. At no time shall the flow of water running the length of the project be stopped except to reconnect to water mains that have been tested and cleared for potable water use. Stoppages such as this shall be kept to a minimum in frequency and duration. Water mains that are back fed shall not be cut and plugged without permission from the Engineer with technical assistance from the City of Tampa Water Department. Water mains that are not back fed shall not be cut and plugged unless temporary service is provided or service is transferred to another new main and only with permission from the Engineer with technical assistance from the City of Tampa Water Department. When necessary, temporary services will be installed by the Contractor at no cost to the City of Tampa Water Department.

Whenever the Engineer with technical assistance from the City of Tampa Water Department agrees to allow the Contractor to temporarily shut down a water main that is back-fed, the Contractor shall maintain water quality. To maintain water quality, the Contractor shall provide flushing hydrants or blow-offs at each dead-end and shall flush the affected mains at intervals not to exceed 3 calendar days in length or as may be required to satisfy FDEP regulations. The water mains shall be flushed for a duration required to remove 2 volumes of water from the dead end section. The Contractor shall obtain water samples as required to satisfy FDEP shutdown requirements (FL Rule 62.555.330). All costs for temporarily cutting and plugging, costs for all required testing of water mains and costs to maintaining water quality shall be at the expense of the Contractor at no additional cost to the City of Tampa Water Department.

S1.05 SHUTDOWNS AND PRECAUTIONARY BOIL WATER NOTICES

The City of Tampa Water Department requires that its customers be kept in service at all times. The Contractor must provide Temporary Service to customers whose service will be affected by a shutdown. The City of Tampa Water Department will allow shut down of Customer services only when requested in writing from the Engineer at least 10 working days in advance of the required shutdown. If Customers are impacted by the shutdown, then the request must include why temporary services cannot be provided to customers. Scheduled shutdowns may only take place on Monday, Tuesday or Wednesdays and provided these days do not fall on a scheduled City holiday.

When a shutdown is authorized by the City of Tampa Water Department and customers must have their water service interrupted, the Contractor must have pre-assembled all new piping and services except at the point of the tie-in including service lines being transferred to the new main. The entire pre-assembly shall be pressure tested and Bac-T tested before the City will initiate the shutdown. The Contractor shall have sufficient crews on site to accomplish all tie-ins in less than 4 hours once the shutdown is completed.

Listed below are the City of Tampa Water Department official policies and procedures for scheduled service interruptions and emergency shutdowns. The Contractor must provide 10 working days notice in writing with a copy of the plans sheet which delineates the area where the water main is to be shutdown. If a shutdown cannot be performed as scheduled, then the Contractor must notify the City of Tampa Water Department at least 5 working days in advance of the rescheduled shutdown so that the City can provide customers the full 3-working day advance notification of the shutdown. If a shutdown is cancelled by the contractor once the 3-working day notice has been issued, the Contractor shall be invoiced for the City's time spent on issuing the notices and their cancellation. Failure to make immediate payment for this invoice shall result in postponement of all future shutdowns until payment is made in full to the City. The Contractor shall not request claims for delay due to postponement of scheduled shutdowns which result from non-payment of City invoices.

The contractor shall utilize a City-approved laboratory for all samples and bacteriological testing. Sampling and testing shall be at the Contractor's expense. To minimize the days that customers are under boil water conditions, the Contractor shall provide required sampling immediately following placing the water main back in service. This shall include sampling and testing at night or on holidays or on weekends. All samples must pass two consecutive days of sampling to be approved. In order to issue rescind boil water notices, the City of Tampa must be provided with copies of all test results immediately after testing. This shall be handled by fax machine. Final testing results shall be kept in the job file and made available upon request to the Hillsborough County Health Department.

A23. Customer Notification for Service Interruptions

PURPOSE

Water policy notification guidelines to be followed when a system shutdown of water flow in an isolated area can be performed to cause minimum inconvenience to the customer.

POLICY

A. Scheduled shutdowns may only be made on Mondays, Tuesdays and Wednesdays.

B. All Customers known to be affected by a scheduled water service interruption will be notified of the service interruption at least 3 working days in advance. Work causing the service interruption will be completed as rapidly as possible. Service will re restored

promptly when the work is complete to minimize the inconvenience to Water Department customers.

C. Residential customers will be notified in writing, and in person, if possible, of any scheduled service interruptions a minimum of 3 working days in advance of the shutdown.

D. Unless approved in advance, medical facilities (doctor's offices, dentists' offices, hospitals, clinics, nursing homes, etc…) shall have no scheduled service interruptions during their regular working hours. In certain cases, temporary service may be provided as necessary.

E. All other customer classes, such as commercial and industrial, will be personally notified of the proposed interruption to schedule a date and time which would cause minimal inconvenience to the customer. A final service outage schedule (notification) will be provided in writing to each customer a minimum of 3 working days in advance of the service outage.

F. When notifications made in writing, it shall include the date and time the interruption will begin and end, the area affected, who is performing the work and telephone numbers to call for information and emergencies.

G. Written notification, approved by the Consumer Affairs Division, will be in a form which is easily affixed to a door, etc., such as a "hang tag", or other form which can be noticed with ease.

H. The Triage Section of the consumer Affairs Division will be notified of scheduled water service interruptions prior to distribution of "hang-tags".

BOIL WATER NOTIFICATION PROCEDURE
Planned Shutdown

1. Valve and Hydrant crew receives request with two weeks advanced notice in writing with copy of atlas.
2. Valve Crews/Inspector conduct preliminary field analysis. This includes determining critical customers such as hospitals, doctor's offices, restaurants, commercial, and residential high rises.
3. Valve Crew notifies Triage.
4. Exercise valves and document the valves that are operable.
5. Valve Crews determine the affected area of shutdown.
6. Valve Crew develop list of affected customers addresses. (Use GIS if applicable)
7. Valve Crew determines time frame based on field conditions and feedback from critical customers.
8. Supervisor reviews findings and approves the time for shutdown.
9. Provide time frame and feedback to the requestor.
10. OSSII needs to be notified at least 24 hours prior to actual notification.
11. Schedule shutdown and notify in writing using yellow boil water notice letter at least three days in advance. Notify in person if possible. This includes Fax procedure.
12. Perform the shutdown.
13. If the shutdown does not go as planned, stop the work, issue cancellation letter, and reschedule the work.
14. Notify laboratory to take samples.
15. Hand deliver the rescind letter from the laboratory to each listed customer.

BOIL WATER NOTIFICATION PROCEDURE
Emergency Shutdown

1. Triage calls emergency (If emergency call does not originate in Triage, call triage.)
2. Valve Crews/Inspector conducts preliminary field analysis. This includes determining critical customers such as hospitals, doctor's offices, restaurants, commercial and residential high rises.
3. Exercise valves and document the valves that are inoperable.
4. Valve Crews determine the affected area of shutdown.
5. Valve Crews develop list of affected customers address by address (Use GIS if applicable).
6. City crews perform the shutdown.
7. City crews notify the customers with fluorescent-orange boil water notice door hanger and in person if possible.
8. OSS III types and faxes boil water letter to DOH as soon as possible.
9. Contractor performs the necessary work.
10. Notify laboratory to take samples
11. Hand deliver the rescind letter from the laboratory to each listed customer.

S1.06 INSPECTION AND TESTING

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Project Documents. Six copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer with Technical Assistance of the City of Tampa Water Department as a prerequisite for the acceptance of any material or equipment.

S1.07 ACCESS TO PUBLIC SERVICES

Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes by City forces at all times.

S1.08 EXISTING WATER MAIN CONDITION

Removing pavement may compromise the structural integrity of the roadway. Use of heavy equipment in these areas could cause damage and/or leaks to the water mains. Excavating beneath these mains at their joints and disturbing these mains could cause leaks. The Contractor shall be responsible for scheduling work such that the main is replaced prior to drainage and roadwork. Contractor is responsible for repairing damages to water mains, at no extra cost to the Department.

CONTRACT PAY ITEMS

C1.00 GENERAL

No separate payment will be made for the following items and the cost of such work shall be included in the applicable contract pay items of work for water main relocation.

1. Mobilization/demobilization to accommodate roadwork phasing.
2. Clearing and grubbing.
3. Excavation, including necessary pavement/slab removal.
4. Shoring and sheeting as required by OSHA trench excavation safety standards.
5. Dewatering and proper disposal of surplus water.
6. Repairing water mains damaged by heavy equipment or by the Contractor's operation.
7. Restraining existing water main while constructing another agency's facility;
8. Obtaining permits for de-watering per NPDES.
9. Backfill and proper compaction, including suitable fill and density testing.
10. Grading.
11. Temporary facilities and controls during construction such as stormwater/sanitary facilities, traffic control, informational signs and environmental protection, unless specifically provided for in a pay item.
12. Removing and disposing of waste material due to construction, including but not limited to all pipe and appurtenances that need to be removed from abandoned water mains.
13. Cleanup.
14. Refill materials, including suitable fill except as hereinafter specified.
15. Testing and placing system in operation including all temporary installations for sample taps, chlorine injection points, all hydrostatic and pressure testing materials, tools and equipment and any required re-mobilization for FDEP testing.
16. All material and equipment required to be installed and used for the testing.
17. Maintaining the existing quality of service during construction.
18. Repair of any water services damaged during construction.
19. Adjusting water meter boxes to grade, which are affected by water main construction.
20. Adjusting valve covers, fire hydrants and manhole covers to grade, which are affected by water main construction.
21. Appurtenant work as required for a complete and operable system.
22. Cutting of existing or new pipe for purposes of abandonment or installation of new pipe, valves, or fittings.
23. Verification of pipe location and elevation.
24. Repair of private irrigation systems damaged during construction.
25. Repair of any utility service that may be damaged during construction.
26. Pipe Bedding material, including clean sand, clean gravel, etc. in accordance with these Technical Special Provisions.
27. Maintenance of traffic for water work.
28. Roadway restoration in conformance with the details shown in these documents.

All work performed and materials provided shall be in accordance with these Technical Special Provisions and the Standard Details.

C2.00 PIPELINE INSTALLATION

C2.01 PIPE (Plug and Place Out of Service) (N/A)

C2.02 PIPE (Removal)

The Contractor shall provide all labor, equipment and materials to remove the abandoned pipeline and appurtenances (such as valves, fire hydrant, casing, fittings, and other materials) as designated on the plans or directed by the Engineer, with technical assistance from the City of Tampa Water Department.

The removal of the abandoned pipe shall include, but may not be limited to:

1. Removing the abandoned pipeline and appurtenances;
2. Furnishing and installing plug or cap to in-service open-ended pipe;
3. Furnishing and installing restraints to adequately to withstand a working pressure of 150 psi, on all in-service open-ended pipe;
4. Contractor shall properly/legally dispose of removed materials at his expense;
5. Cutting of any existing pipe to accommodate removal;
6. Removing all concrete vaults as required;
7. Backfilling and compacting the trench including regrading the terrain and restoring the roadway or right-of-way and all necessary restoration in conformance with the Standard Details;
8. Cleaning up and removing excess water main pipe and appurtenances and proper and safe disposal of those items;

Payment shall be made based on the size and horizontal distance in feet of pipeline removed measured along the top centerline.

Payment shall be made under:

Item No.	Description	Unit
C2.02-1	Water Main Pipe Removal (8”DI)	LF
C2.02-2	Water Main Pipe Removal (12”DI)	LF

C2.03 VALVE ASSEMBLY, GATE AND BUTTERFLY (N/A)

C2.04 PIPE (Ductile Iron, Cement Lined)

The Contractor shall provide all labor, equipment, and materials to furnish and install the ductile iron pipe. The furnishing and installation of the ductile iron pipe shall include, but may not be limited to:

1. Excavating the trench;
2. Maintaining the trench which shall include de-watering and sheeting and bracing as required by OSHA or as directed by the Engineer;
3. Cleaning dirt and foreign material from within pipe and bell;
4. Beveling field-cut joints and pipe shorts;
5. Furnishing and installing approved pipe and pipe shorts as part of the pipeline;

6. Furnishing and installing approved restrained joints as specified in Tampa Water Department Standard Details shown in the plans;
7. Furnishing and installing approved pipe in steel casing pipe when shown on the plans;
8. Furnishing and installing push-on restraints for DIP water mains 16-inch and smaller;
9. Furnishing and installing manufactured restrained joint pipe for water mains 20 in. and larger;
10. Furnishing and installing blue polyethylene corrosion protection on all water mains per Tampa Water Department Standard Detail;
11. Backfilling, compaction and consolidation shall be done in accordance with the requirements of the FDOT Standard Specifications for Road and Bridge Construction;
12. All necessary restoration including but not limited to sod, landscaping, curb, sidewalk, and restoring the roadway or right-of-way in conformance with the Standard Details;
13. Cleaning up and removing excess water main pipe and appurtenances;
14. Pressure testing the water main pipe, including installation and/or removal of all materials and equipment, temporary or otherwise necessary to complete this activity; and
15. Disinfecting, sampling and testing the water lines using a City of Tampa Water Department approved laboratory including installation and/or removal of all materials and equipment, temporary or otherwise necessary to complete this activity.

Cover over pipe shall be defined as the vertical distance from the top of the pipe to the surface grade over the water main. Payment for connecting new water mains to existing water mains will be made utilizing the contract unit price for installing the fittings or valves used in the connection.

The cost of hydrostatic testing and disinfecting the ductile iron water mains shall be prorated and included in the pipeline construction unit prices. The prorated cost should include, but may not be limited to furnishing and installing all of the following:

1. Material
2. Labor
3. Necessary pumps
4. Recorder charts
5. Gages (300 psi Gage limit, oil filled)
6. Chemicals
7. Temporary valves
8. Temporary plugs
9. Sample taps, (Including installation of brass dry main plugs after removal)
10. Blow off assemblies (Including removal after disinfection is complete)
11. Dry main plugs to pressure test and disinfect various sizes and depths of ductile iron pipe.

Furthermore, no extra compensation shall be paid to the Contractor for:

1. Furnishing and installing brass, dry main plugs at the locations of all removed sample taps, or
2. Removing existing “end of line” or blow-off valves after the pipeline has been disinfected and prior to connecting the newly installed pipeline to the existing water main.
3. Furnishing, installing, and removing temporary service lines, connecting the existing meters to the temporary service lines and reconnecting the meters to the new mains.

All temporary materials or materials not remaining in the ground after the completion of the disinfection and pressure testing shall remain the property of the Contractor.

The pipe quantities to be paid for under this section shall be based on the size and the horizontal distance in feet of ductile iron pipe along the top centerline of the pipe in place complete and acceptable to the Engineer, with technical assistance from the City of Tampa Water Department.

Payment shall be made under:

Item No.	Description	Unit
C2.04-1	Pipe, DI, F&I, Push On, Cement-Lined, 350 psi, 6 in.	LF
C2.04-2	Pipe, DI, F&I, Push On, Cement-Lined, 350 psi, 8 in.	LF
C2.04-3	Pipe, DI, F&I, Push On, Cement-Lined, 350 psi, 12 in.	LF

C2.05 FITTINGS (Ductile Iron, Cement Lined)

The Contractor shall provide all labor, equipment and materials to completely install bends, sleeves, reducers, tees, and crosses. The installation of ductile iron fittings shall include, but not be limited to:

1. Excavating the trench;
2. Maintaining the trench, which shall include de-watering and bracing and sheeting where required or as directed by the Engineer, with technical assistance from the City of Tampa Water Department;
3. Cutting any pipe to accommodate the fitting;
4. Furnishing and installing appropriate fittings with restraints as required by plans; and
5. Backfilling and compacting the trench, regarding the terrain and restoring the roadway or right-of-way and all required restoration in conformance with the Standard.

Payment will be made for each size and type of fittings when installed and incorporated into the piping system is complete, is working and is operating to the satisfaction of the Engineer with technical assistance from the City of Tampa Water Department. Restraints shall be paid for under the appropriate line item.

Payment shall be made under:

Item No.	Description	Unit
C2.05- 1	6” Fittings (bends, sleeves, or reducers), DI, MJ, AWWA C-153, F&I	EA
C2.05- 2	8” Fittings (bends, sleeves, or reducers), DI, MJ, AWWA C-153, F&I	EA
C2.05- 3	12” Fittings (bends, sleeves, or reducers), DI, MJ, AWWA C-153, F&I	EA

C2.06 TAPPING SLEEVE AND LINE STOP (N/A)

C2.07 FIRE HYDRANT (INSTALL)

The Contractor shall provide all labor, equipment and specified materials to completely furnish and/or install full and complete fire hydrant assemblies; including protection posts where shown on the Plans, on new and existing water mains as shown on the construction plans, or as directed by the Engineer, with technical assistance from the City of Tampa Water Department.

Hydrant assembly installation shall include, but may not be limited to:

1. Excavation of hydrant assembly trench;

2. Maintaining the trench, including dewatering, bracing and sheeting where required or as directed by the Engineer, with technical assistance from the City of Tampa Water Department;
3. Anchoring the hydrant to existing or new main;
4. Furnishing and installing of up to and including 10-feet of 6-inch ductile iron pipe; additional piping shall be paid for under the pay item for ductile iron pipe.
5. Removing any plugs, caps, restraining devices, etc. from existing water mains;
6. Furnishing and installing the hydrant;
7. Furnishing and installing all mechanical thrust restraint as required in the Technical Special Provisions or as directed by the Engineer, with technical assistance from the City of Tampa Water Department;
8. Install hydrant plumb;
9. Furnishing and installing concrete thrust collars around the barrel of the hydrant.
10. Furnishing and installing of a concrete "support block" under each hydrant;
11. Furnishing and installing of a concrete support cradle under each hydrant tee on PVC mains;
12. Backfilling and compacting hydrant assembly trench, regrading the terrain and restoring the roadway or right-of-way and all required restoration in conformance with the Standard Details;
13. Furnishing paint and painting fire hydrant yellow and the bonnet green as required in these Technical Special Provisions

The Contractor shall do all things necessary to completely install a fire hydrant assembly in accordance with these Technical Special Provisions, the City of Tampa Water Department Standard Details 4.01and 4.02 as shown in the Plans or as directed by the Engineer with technical assistance provided by the City of Tampa Water Department.

In addition, it shall be the Contractor's responsibility to determine the correct size (bury depth) of each hydrant installed so that the requirements of these Technical Special Provisions are satisfied. Any hydrant not conforming to the proper final grade shall be replaced with one of the correct size and grade by the Contractor at his expense prior to final approval and acceptance.

Fittings required because of contractor convenience, (i.e. installed because the contractor elected to install a shallow bury hydrant) shall be furnished and installed at the contractor's expense.

Payment shall be made under:

Item No.	Description	Unit
C2.07-1	Fire Hydrant (RELOCATE)	EA

C2.08 FIRE HYDRANT (REMOVE & SALVAGE) (N/A)

C2.09 RESTRAINED JOINTS

No separate payment shall be made for the installation of push-on joint gasket-type restraints as required.

1. **Restraints on new mechanical joint fittings** shall include, but may not be limited to:

1. Furnishing and installing EPDM gaskets.
2. Furnishing and installing wedge-action mechanical joint restraints on pipes for fittings.
3. Furnishing all labor, equipment, and materials to furnish and install fitting restraints;

4. Cleaning up and restoring the job site including regrading terrain, backfilling and compacting the excavation, and restoring the roadway or right-of-way and all required restoration in conformance with the Standard Details.

Payment for restraints on mechanical joint fittings on new pipe shall be made under:

Item No.	Description	Unit
C2.09-1	Mechanical Joint Restraints, Wedge-action, 6 in. (F&I)	LF
C2.09-2	Mechanical Joint Restraints, Wedge-action, 8 in. (F&I)	LF
C2.09-3	Mechanical Joint Restraints, Wedge-action, 12 in. (F&I)	LF

C2.10 SERVICE CONNECTIONS-WATER

The Contractor shall provide all labor, equipment, and materials to furnish and install the water service connections pipe. The furnishing and installation of water mater service connections shall include, but may not be limited to:

1. Excavating and maintaining the trench;
2. Cleaning dirt and foreign material from within pipe and bell;
3. Making the appropriate size tap via corporation stop;
4. When directed by the Engineer or as indicated in the standard details, furnish and install an appropriately sized steel, PVC or HDPE sleeve under paved areas for long-side meter service by open cut, horizontal directional drilling/directional bore or "moling" as directed by the Engineer or as indicated in the standard details;
5. For use on DIP, CIP, or PVC, furnish and install the appropriate size and type of corporation stop, high density polyethylene, PVC pipe, any required service fittings, curb stop, meter box, and tail piece extension as designed by the Tampa Water Department's Technical Specifications. For use on HDPE pipe, furnish and install all appropriate size and type of electrofusion tapping tee or electrofusion corporation, HDPE tubing or pipe, any required service fittings, curb stop, meter box and tail piece extension as designated by the Tampa Water Department's Technical Specifications;
6. On all long-side HDPE service lines, furnishing and installing, two continuous 12 gauge wires along the top of the pipe, inside the sleeve. There shall be no dead ends and each locator wire shall be routed from the corporation to the meter box. Connections between wire ends shall be made using an approved connection at each end as shown in the standard details;
7. Installation of the appropriate sized, furnished, meter or transferring an existing meter to the new service line;
8. Relocating existing meters and adjusting existing meters to grade;
9. Backfilling and compacting of all excavations;
10. Cleaning up and restoring the jobsite to its original condition which includes but is not limited to restoring the elevation of surface to its original grade;
11. Removing and legally disposing of all waste materials.

Cover over pipe shall be defined as the vertical distance from the top of the pipe to the surface grade over the water main. Payment for connecting new water mains to existing water mains will be made utilizing the contract unit price for installing the fittings or valves used in the connection.

The cost of hydrostatic testing and disinfecting the water service connections shall be prorated and included in the pipeline construction unit prices. The prorated cost should include, but may not be limited to furnishing and installing all of the following:

1. Material

2. Labor
3. Necessary pumps
4. Recorder charts
5. Gages (300 psi Gage limit, oil filled)
6. Chemicals
7. Temporary valves
8. Temporary plugs
9. Sample taps, (Including installation of brass dry main plugs after removal)
10. Blow off assemblies (Including removal after disinfection is complete)
11. Dry main plugs to pressure test and disinfect various sizes and depths of HDPE pipe. Furthermore, no extra compensation shall be paid to the Contractor for:

    1. Furnishing and installing brass, dry main plugs at the locations of all removed sample taps, or
    2. Removing existing "end of line" or blow-off valves after the pipeline has been disinfected and prior to connecting the newly installed pipeline to the existing water main.
    3. Furnishing, installing, and removing temporary service lines, connecting the existing meters to the temporary service lines and reconnecting the meters to the new mains.

All temporary materials or materials not remaining in the ground after the completion of the disinfection and pressure testing shall remain the property of the Contractor.

Payment shall be made under:

Item No.	Description	Unit
C2.10-1	Water Service Connections (Irrigation) (F&I) (2")	EA

C2.11 POLYETHYLENE ENCASEMENT

Polyethylene encasement conforming to the requirements of AWWA C-105 Method-A, 8-mil thick, shall be installed on all buried ductile iron pipe, fittings, valves, and appurtenances where shown on the drawings, as directed by the Department, or as dictated by field conditions. Polyethylene encasement shall be installed in accordance with Department Standard Detail "Installation of Polyethylene Encasement". Polyethylene encasement installation shall be required where soils or the soil environments are deemed to be corrosive, or at the direction of the Department.

Item No.	Description	Unit
C2.11-1	Polyethylene Wrap, 6", D.I. (F&I)	LF
C2.11-2	Polyethylene Wrap, 8", D.I. (F&I)	LF
C2.11-3	Polyethylene Wrap, 12", D.I. (F&I)	LF

C2.12 PIPE (HDPE) (N/A)

C2.13 FITTINGS (HDPE) (N/A)

CONSTRUCTION DETAILS

T1.00 GENERAL REQUIREMENTS

T1.01 SUMMARY OF WORK

The work shall include the furnishing of all services, labor, equipment, materials and necessary appurtenances for the construction of complete and operating mater mains, offsets, and appurtenances. Work associated with the City of Tampa Water Main Relocation shall be performed in a thorough and workmanlike manner.

T1.02 COORDINATION

The Contractor shall provide for the complete coordination of the construction effort including the work of subcontractors, the effort of independent testing agencies and the interrelated work with the City where tie-ins to existing facilities are required.

It shall be the Contractors responsibility to alert the Engineer at least 48 hours in advance of construction, to any conflicts or potential conflicts with the proposed work.

Working adjacent to and crossing other utilities can be expected to be commonplace on this project. The Contractor shall coordinate his construction schedule with the various utility companies as well as affected local agencies involved prior to starting the project along with a minimum of 48 hours notice to when construction will commence in an area, in order to permit field location of utility lines prior to construction. A toll free number, 1-800-432-4770 is available to assist in such coordination efforts. This number is for the Utility Notification Center, a program commonly referred to as "Sunshine State One-Call of Florida, Inc.", but does not totally represent all utilities involved in the construction area. The Contractor is responsible for contacting the Utility Notification Center and to immediately notify the Engineer of the "Location Request Number" obtained.

All utilities shall be kept in operation except with the express written consent of the utility owner. It will be the Contractors responsibility to preserve existing utilities.

Where connections are made to existing mains or other shutdowns are necessary, permission must be obtained and arrangements must be made with the Engineer with technical assistance from the City of Tampa for removing from service those mains that will be affected in conformance with these documents. Shutdowns must be held to a minimum in both number and duration, and accomplished at times acceptable to the Engineer with technical assistance from the City of Tampa Water. The Contractor must reactivate the water main or provide temporary service at the end of a shift. The Contractor shall operate no valve or other control device on the existing system. The Contractor shall provide notification as required in S-1.05 when valve operation or other control device operation is needed. Additionally, any service meter that is temporarily removed, after being approved by the Engineer with technical assistance from the City of Tampa Water, shall be returned to the original service address from which it was removed. No notifications or shutdowns will be allowed for days designated as City of Tampa holidays that are not also FDOT holidays.

T1.03 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

Shop drawings or product data shall be submitted for, but shall not be necessarily limited to, the following:

Ductile iron pipe and fittings,
Butterfly valves,
Gate valves,
Tapping valves and sleeves, and valve boxes,
Fire hydrants,
Polyethylene Encasement,
HDPE service lines and couplings,
Service Fittings (Brass)

Whenever a standard of quality is established by a reference specification, the Contractor shall submit a certificate by the manufacturer that the material supplied meets the requirements of both these Technical Special Provisions and the referenced specifications and standards.

T1.04 MATERIALS AND EQUIPMENT

Materials and equipment incorporated into the work shall meet the requirements of these Technical Special Provisions. The Contractor shall furnish satisfactory evidence of the quality and kind of materials and equipment as well as guarantees or warranties provided by the manufacturer.

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, finished and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processor except as otherwise provided in these Technical Special Provisions.

T2.00 CONSTRUCTION OF WATER MAINS AND APPURTENENCES

T2.01 SITE PREPARATION

The construction site shall be cleared of all obstructions, stumps, roots and vegetation within the limits required for proper execution of the work in accordance with Section 110, FDOT Standard Specifications for Road and Bridge Construction and Section 02208 Roadway Excavation And Embankment, Technical Specifications.

T2.02 DEWATERING

If subsurface water is encountered in trenching or structural excavation work, the Contractor shall adequately de-water the excavation at no additional cost to the City.

The contractor will be required to permit dewatering and do any and all sampling that may be required to be in conformance with the NPDES discharge permit requirements, at no expense to the Department.

Subsurface water shall be kept 2-feet or more below the working area until there is no danger of displacement of pipes or structures. All water collected and pumped shall be disposed of in a manner causing no health hazard, flooding or nuisance to the surrounding area and in a manner so as not to degrade the water quality of surrounding water or violate any environmental ordinances or requirements. Water containing debris, sand or heavy sediment shall not be discharged into the storm water system. All permits for the discharge of this water shall be obtained by the Contractor from the appropriate regulatory agency.

T2.03 TRENCHING, BACKFILLING AND COMPACTING

Trenching, backfilling, compaction and consolidation shall be done in accordance with the requirements of the FDOT Standard Specifications for Road and Bridge Construction.

Dewatering operations shall be maintained until pipe placement is complete and the trench back-filled sufficiently to prevent movement or flotation of the pipe, including passing density tests if required.

The trench width and trenching method may vary with and depend upon the depth of the trench and the nature of the excavated material encountered, but in any case shall be of ample width to permit the pipe to be laid and jointed and the backfill properly placed and compacted. The minimum width of unsheeted trench, at the bottom where the pipe is to be laid, shall be two foot greater than the nominal diameter of the pipe, except by consent of the Department. The maximum clear width of trench and the trench support system shall be in accordance with OSHA requirements.

Backfilling and compaction shall be conducted in a manner as to prevent subsequent settlement and provide adequate support for the surface treatment, pavement, or structures to be placed thereon.

Backfill material shall be free from cinders, clay, ashes, refuse, organic matter, boulders, rocks or stones exceeding 2-inch diameter, or other material that in the opinion of the Engineer is unsuitable.

T3.00 PIPELINE INSTALLATION

T3.01 GENERAL

During shipping, delivery and installation of pipe and accessories, materials shall be handled in such a manner as to prevent any damage. Particular care shall be taken not to injure pipe coatings. All pipe, fittings, valves and other material shall be subject to inspection and acceptance by the Engineer with technical assistance from the City of Tampa Water Department after delivery and no broken, cracked, misshapen, imperfectly coated, or otherwise damaged or unsatisfactory material shall be used. When a defect is discovered, the damaged portion shall not be installed. With the Engineer's approval with technical assistance from the City of Tampa Water Department, cracked pipe shall have the defect cut off at least 12 in. from the break in the sound section of the barrel.

Installation shall be according to AWWA Standard C600, manufacturer recommendations, and as described in these Technical Special Provisions.

All connections to existing piping systems shall be made as shown or indicated on the plans after consultation and cooperation with the City of Tampa Water Department Engineer. The Contractor shall pre-assemble all water mains and fittings and restrain all existing mains required prior to the shutdown. No such connection shall be made until all requirements of these Technical Special Provisions as to tests, cleaning, flushing and disinfection of new work have been met, and the planned cut-in to the existing line has been approved by the Engineer with technical assistance from the City of Tampa Water Department. Where connections are made between new work and existing work, the connections shall be made in a thorough and workmanlike manner using proper fittings and specials (i.e. service lines, meters, valves etc... as specified in the City of Tampa Water Department Standard Details as shown in the plans). Some such connections may have to be made during off-peak hours if required by the Engineer. Contractor must schedule the proper number of crews and equipment to accomplish the shutdown within the time allotted.

Under no circumstance shall the water mains be shutdown in sections for longer than it takes to tie in new water mains. New mains must be pre-assembled, pressure tested and pass 2 consecutive day Bac-T testing before the meters can be transferred to the new mains.

T3.02 UNDERGROUND PIPELINES

Proper implements, tools and facilities satisfactory to the Engineer with technical assistance from the City of Tampa Water Department shall be provided and used. Pipe, fittings, valves and appurtenances shall be carefully lowered into the trench piece by piece. Under no circumstances shall piping materials be dropped or dumped into the trench. Pipe and fittings shall be carefully examined for cracks and other defects while suspended above the trench immediately before installation in final position. If damage occurs to any pipe, fitting, valve or piping accessory in handling, the damage shall be immediately brought to the Engineer's attention; the Engineer shall notify the City of Tampa Water Department. The Engineer with technical assistance from the City of Tampa Water Department shall prescribe corrective repairs or rejection of the damaged items.

Lumps, blisters and excess coating shall be removed from the bell-and-spigot end of each pipe. The outside of the spigot and the inside of the bell shall be wire brushed and wiped clean, dry and free from oil and grease before the pipe is laid. Pipe joints shall be made up in accordance with manufacturer recommendations.

Upon satisfactory excavation of the pipe trench and completion of the pipe bedding, a continuous trough for the pipe barrel and recesses for the pipe bells, or couplings, shall be excavated by hand digging. When the pipe is laid in the prepared trench, true to line and grade, the pipe barrel shall receive continuous, uniform support and no pressure will be exerted on the pipe joints from the trench bottom.

Pipe manufactured from materials that are classed as flexible for purpose of pipe design shall be bedded true to line and grade with uniform and continuous support from a firm base and installed in accordance with manufacturer recommendations. Blocking shall not be used to bring the pipe to grade. Backfill material shall be properly placed and compacted to provide lateral restraint against deflection in the pipe diameter. Care shall be exercised to avoid contact between the pipe and compaction equipment.

The interior of the pipe shall be thoroughly cleaned of all foreign matter before being gently lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. Pipe 12 in. in diameter and smaller may be cleaned by flushing in place under the supervision of the Engineer with technical assistance from the City of Tampa Water Department, if in the Engineer's opinion the pipe contains dirt that can be so removed. If not, then the pipe shall be cleaned by swabbing and flushing before it is placed in the trench. Pipe larger than 12 in. in diameter shall be thoroughly cleaned, by appropriate means, before placing it in the trench. During suspension of work for any reason at any time, including the end of each workday, a watertight plug shall be placed in the end of the pipe last laid to prevent mud or other foreign material from entering the pipe. Sufficient backfill material shall also be placed over the pipe to prevent flotation. Lines shall be laid straight and depth of cover shall be maintained uniformly with respect to finished grade, whether grading is completed or proposed at time of pipe installation. Pipelines shown on the plans to be laid at grade or with a specified slope shall be installed with the invert conforming to the required elevations, slopes and alignment shown and with the pipe bottom uniformly and continuously supported by a firm bedding and foundation.

The work shall at all times progress with caution so as to prevent damage to underground obstructions, both known and unknown. Should an obstruction not shown on the plans be encountered, the Engineer shall be immediately notified so that alteration to the plans can be made should realignment be necessary. The Contractor shall notify the Engineer far enough in advance to allow the realignment to be accomplished by deflection in the pipe joints.

Pipe shall be laid with bell ends facing in the direction of laying (upstream) unless directed otherwise by the Engineer with technical assistance from the City of Tampa Water Department. Wherever it is necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, the amount of deflection allowed shall not exceed that allowed under American Water Works Association (AWWA) Standard C600 for the type of joint being installed and in accordance with the manufacturers recommendations. Only after the pipe has been properly homed will it be allowed to be deflected.

Water mains crossing or parallel to storm sewer, sanitary sewer and gas mains shall have a minimum of 12-inch vertical clearance and a minimum horizontal clearance which shall comply with all State, Local and Federal regulations and requirements. All exceptions to this minimum shall be with the approval of the Engineer with technical assistance from the City of Tampa Water Department. Polywrap shall be installed on all water mains. When crossing or parallel to storm sewer and sanitary sewer mains, including gravity sewers and force mains, with less than the minimum clearances, the Contractor shall protect the water main in a manner acceptable to the Engineer with technical assistance from the City of Tampa Water Department.

T3.03 THRUST RESTRAINT

All plugs, caps, hydrants, tees, bends and other fittings on pressure pipelines shall be provided with wedge-action restrained joint, or as directed by the Engineer with technical assistance from the City of Tampa Water Department. When restraining of pipe is indicated on the plans, push-on pipe with restraining ("gripping-type") gaskets shall be used.

T3.04 JOINTS

The joints of all pipelines shall be made absolutely tight. The particular joint used shall be acceptable to the Engineer with technical assistance from the City of Tampa Water Department prior to installation. The gasket material for the joint shall be properly positioned before the pipe is lowered into the trench. The joining of the pipe shall proceed in accordance with the manufacturer requirements.

a) Push-on Joints

In making up the push-on type joint, the gasket shall be placed in the socket with the large round end entering first so that the groove fits over the bend in the seat. A thin film of lubricant (approved by the manufacturer) shall then be applied to the inside surface of the gasket that will come in contact with the entering pipe. The plain end of the pipe to be entered shall be thoroughly brushed with a wire brush and placed in alignment with the bell of the pipe to which it is to be joined. The joint shall be made up by exerting sufficient force on entering pipe so that its plain end is moved past the gasket until it seats as per manufacturer recommendations. Backhoe buckets or excavation equipment are not to be applied directly to the pipe.

b) Mechanical Joints

Where shown on the plans, or where in the opinion of the Engineer, settlement or vibration is likely to occur, all pipe joints of pressure pipelines shall be bolted mechanical type as specified herein.

Mechanical joints shall be made up using high-strength, low-alloy steel bolts and EPDM gaskets having either plain or duck tip as recommended by the manufacturer. All types of mechanical joint pipes shall be laid and jointed in full conformance with the manufacturer recommendations. Only especially skilled workmen shall be permitted to make up mechanical joints.

Mechanical joints shall be centered in the bells. Soapy water shall be brushed over the gasket just prior to installation. The gasket and gland shall be placed in position, the bolts inserted, and the nuts tightened finger tight. Mechanical joints shall be assembled in accordance with AWWA Standards. The joints shall be tightened on opposite sides of the pipes by means of a torque wrench in such a manner that the gland shall be brought up evenly into the joint. The following range of bolt torque shall be applied:

Bolt Size*	**Range of Torque**
3/4 in. diameter	85 to 95 ft.-lbs
1 in. diameter	95 to 100 ft.-lbs

If effective sealing is not obtained at a maximum torque listed above, the joint shall be disassembled and reassembled after thorough cleaning. If the joint is defective, it shall be cut out and entirely replaced or if permission is given by the Engineer with technical assistance from the City of Tampa Water Department, it may be repaired by a suitable clamp.

T3.05 PLUGS AND CAPS

Plugs shall be inserted into the bells of all dead ends of pipe, tees, valves or crosses. Plain ends of pipe, tee, crosses shall be capped.

T3.06 POLYETHYLENE ENCASEMENT

Polyethylene encasement conforming to the requirements of AWWA C-105 Method-A, 8-mil thick, shall be installed on all buried ductile iron pipe, fittings, valves, and appurtenances where shown on the drawings, as directed by the Department, or as dictated by field conditions. Polyethylene encasement shall be installed in accordance with Department Standard Detail “Installation of Polyethylene Encasement”. Polyethylene encasement installation shall be required where soils or the soil environments are deemed to be corrosive, or at the direction of the Department.

T3.07 COMPLETION

After the pipe has been laid, inspected by the Engineer with technical assistance from the City of Tampa Water Department and found to be satisfactory, sufficient backfill shall be placed along the pipe barrel to hold the pipe securely in place while conducting the preliminary hydrostatic test. No backfill shall be placed over the joints until the preliminary test is satisfactorily completed, leaving them exposed to view for the detection of visible leaks.

Upon satisfactory completion of the preliminary hydrostatic test, backfilling shall be completed.

T3.08 FITTINGS

Fittings shall be handled with care to avoid damage. All fittings shall be loaded and unloaded by lifting, and under no circumstances shall fittings be dropped, skidded, or rolled. Fittings shall not be placed, under any circumstances, against pipe or other fittings in such a manner that damage could result. Slings, hooks, or tongs used for lifting shall be padded in such a manner as to prevent damage or exterior surface or interior lining of fittings. If any part of the fittings' coating or lining is damaged by the Contractor, the repair or replacement shall be made by the Contractor in a manner satisfactory to the Engineer, with technical assistance from the City of Tampa Water Department before installing. Fittings shall also be stored at all times in a safe manner to prevent damage and kept free of dirt, mud, or other foreign matter. All fitting

gaskets shall be stored and placed in a cool location out of direct sunlight and out of contact with petroleum products. All gaskets shall be used on a first-in, first-out basis.

Adequate precautions shall be taken to prevent the separation of joints at bends, tees, and plugged ends.

Details of design, construction, applications, installations, and number of joints necessary for the restraint of a given thrust shall be as specified herein, as shown on the Standard Details or as indicated on the plans. Under no circumstances will gray iron pipe be used at restrained joints. Ductile iron pipe will be used unless otherwise specified by the Engineer, with technical assistance from the City of Tampa Water Department.

Tie rods and pipe clamps when allowed by the Engineer, with technical assistance from the City of Tampa Water Department must be of adequate strength to prevent movement or other suitable means may be used as allowed by the Engineer, with technical assistance from the City of Tampa Water Department. Steel rods, clamps, and washers shall be rust-proof treated with bituminous material and polyethylene encased.

T3.09 VALVES

Valves shall be handled with care to avoid damage. All valves shall be loaded and unloaded by lifting, and under no circumstances shall valves be dropped, skidded, or rolled. Valves shall not be placed, under any circumstances, against pipe or other fittings in such a manner that damage could result. Slings, hooks, or tongs used for lifting shall be padded in such a manner as to prevent damage. If any part of the valves coating and lining is damaged by the Contractor, the repair and replacement shall be made by the Contractor at his expense in manner satisfactory to the Engineer with technical assistance from the City of Tampa Water Department before installing. Valves shall also be stored at all times in a safe manner to prevent damage and kept free of dirt, mud, or other foreign matter. All valve gaskets shall be stored and placed in a cool location out of direct sunlight and out of contact with petroleum products. All gaskets shall be used on a first-in, first-out basis.

Butterfly valves shall first be delivered to the 2603 Rome Avenue Yard (259-1652), for servicing prior to being delivered to the construction site. Yard shall be notified 2 working days prior to delivery for a one day turn around.

Gate valves and butterfly valves shall be set and joined to new pipe in a manner heretofore specified for cleaning, laying, and joining pipe. Valves shall be installed such that the operating nut is plumb. If the top of the operating nut on the valve is more than three feet below finished grade, add an operating nut extension rod such that the nut on the top of the extension rod is less than 3 feet below finished grade. The rod should lock onto the valve operating nut.

Cast iron valve boxes shall be firmly supported and maintained centered and plumb over the operating nut of the valve by the Contractor with box cover flush with the surface of the finished pavement or at such other levels as may be directed. Valve boxes shall have 6-inch thick wire mesh reinforced concrete pads poured around the top section of the valve box when in pavement or when directed by the Engineer with technical assistance from the City of Tampa Water Department. The pad shall be 24-inch square and shall be centered on the valve box. All City of Tampa Water Department valve covers shall be painted safety blue as prescribed by the American Public Works Association (APWA) uniform color code for utility systems.

The valve and valve box shall be installed plum allowing the valve to be operated to its completely open and closed positions without obstruction or binding of the valve key. This test will be accomplished by the Contractor with the approval of the Engineer with technical assistance from the City of Tampa Water Department before final acceptance of the valve and box into the water system.

T3.10 TAPS

All material supplied will be disinfected in accordance with AWWA Specification C-651.

After the tapping sleeve and valve have been installed and before the tap is made, the sleeve will be tested to ensure a watertight joint. The test must be witnessed by the City Water Department. A test plug will be provided in the sleeve and after the sleeve has been installed, the sleeve filled with water, and the pressure increased to between 150 psi and 190 psi. All leaking joints will be repaired to the satisfaction of the Engineer, with technical assistance from the City of Tampa Water Department at the Contractor's expense.

All tapping sleeves shall be wrapped and sealed with polyethylene encasement material in a manner acceptable to the Engineer, with technical assistance from the City of Tampa Water Department.

T3.11 FIRE HYDRANTS

Fire hydrants shall be handled so as to avoid any damage at all times. Hydrants shall be located in a manner to provide complete accessibility and in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized. Fire hydrants in FDOT rights-of-way shall conform to FDOT clear zone requirements. Unless otherwise directed, the setting of any hydrant shall be as described in these Technical Specifications. All fire hydrants shall be thoroughly cleaned of dirt or foreign material before installation. All hydrants shall stand plumb and shall have their pumper-nozzle perpendicular to the curb. The top of flange elevation shall be finished grade plus 4 inches. Standard depth of bury shall be 3 to 5 feet. Each hydrant shall be connected to the water main with a 6-inch branch controlled by an independent 6-inch resilient seat gate valve hydrant shut-off valve.

All hydrants shall be anchored by restrained fittings as specified in these Technical Specifications and as shown in the Standard Details.

All fire hydrants shall be painted with a high-grade enamel, Federal Safety Yellow (OSHA approved), above the ground line.

All hydrant sets shall include the installation of a concrete thrust collar around the barrel of the hydrant 8 inches below the ground line.

Upon completion of installation and passing all required tests, the Contractor shall paint the bonnet of the hydrant OSHA green.

A blue, reflective pavement marker (RPM) with bi-directional faces shall be installed adjacent to each hydrant, in the center of that travel lane nearest the hydrant. The RPM and the adhesive used to anchor it to the road surface shall conform to all appropriate provisions of the Florida Department of Transportation **"**Standard Specifications for Road and Bridge Construction".

T3.12 METER AND FIRE SERVICE CONNECTIONS

Any water meter and fire service connection made to existing or new water distribution mains shall be at locations called for in the plans, in meter set cards, or as otherwise directed by the Engineer with technical assistance from the City of Tampa Water Department. No meter or fire service connections are to be installed outside right-of-way limits unless easements have been provided. Any trenching, excavation, backfilling, cutting, tapping necessary to install meter and fire service connections and such incidental work associated with the installation of meter and fire service system shall be performed in strict accordance with

these Technical Special Provisions or as directed by the Engineer with technical assistance from the City of Tampa Water Department. Meters and double detector check valves shall be handled so as to avoid any damage at all times.

Fire and meter service lines shall be installed to a minimum depth of 3-feet below roadbeds and ditches.

T4.00 TESTING

The Contractor shall perform the required tests to assure that all pipe installed meets the specifications herein. The required tests are as follows:

T4.01 HYDROSTATIC TESTING

1. Pressure Testing

All newly laid pipe, including fittings, valves and service lines shall be pressure tested in accordance with AWWA standard C 600.

The Contractor shall provide all necessary equipment and instrumentation required for flushing and testing of the piping systems. If requested by the Engineer, with technical assistance from the City of Tampa Water Department, the Contractor shall furnish to the Engineer certified test data for the pressure gauges and recorders used on hydrostatic equipment. Water for test purposes will be supplied by the City of Tampa Water Department. At the option of the Engineer, with technical assistance from the City of Tampa Water Department, flow meters and/or pressure gauges used on hydrostatic testing equipped with approved strip or round chart recorders shall be supplied by the Contractor. Tests shall be made in sections not to exceed ¼-mile. Testing shall be conducted in the presence of and to the satisfaction of the Engineer, with technical assistance from the City of Tampa Water Department as a condition precedent to the approval and acceptance of the system. Not less than 3 days notice shall be given prior to start of such tests, and such testing shall not be scheduled until preliminary testing by the Contractor has indicated that the test section is ready for testing. The schedule and procedures for testing shall be determined by the Contractor and reviewed with the Engineer, with technical assistance from the City of Tampa Water Department prior to testing.

The duration of each pressure test shall be at least 2 hours with a minimum test pressure in excess of 150 psi. At no time shall the test or line pressure exceed 190 psi. If required by the Engineer, with technical assistance from the City of Tampa Water Department, pump test equipment will be equipped with pressure relief valves pre-set to 190 psi. Each valved section of pipe shall be slowly filled with water and a pump shall be connected to the low point of the section being tested.

Before conducting the test, the Contractor shall backfill all pipe and reaction blocking unless the Engineer, with technical assistance from the City of Tampa Water Department directs certain joints or connections to be left uncovered. When reaction blocking is provided, the pressure test shall not be made until adequate curing time for the blocking has been allowed.

Before application of the test pressure, all air shall be expelled from the pipe. To accomplish this, taps will be made, if necessary, at points of highest elevation and afterward tightly stopped with tapered brass plugs, all at the Contractor's expense.

At the end of the 2-hour test period, the Contractor will be required to pump the lines back up to the highest pressure obtained during the duration of the test period.

Pressure tests shall be made between valves to demonstrate the ability of the valve to sustain pressure. All piping systems shall be tested in accordance with these test methods in addition to any other tests required by local plumbing codes or building authorities.

Throughout the duration of the test, the Contractor is required to maintain a minimum pressure in excess of 150 psi. The Contractor is advised that, should the test pressure fall to or below 150 psi any time during the 2-hour test, the test will be considered invalid and a retest will be required. Therefore, it is advised that the Contractor should pump water into the line as the test pressure approaches 150 psi.

The Contractor is warned that pressure testing against existing valves is done at his own risk. Failure of these valves to hold test pressure will not relieve the Contractor of the pressure testing.

All exposed pipe, fittings, valves and joints shall be carefully examined for leaks. Any cracked or defective pipe, fittings, valves or other appurtenances discovered as a consequence of the pressure test shall be removed and replaced with acceptable material. All leaking or defective joints shall be repaired, corrected or replaced. After all necessary replacements and corrections have been made, the test shall be repeated to the satisfaction of the Engineer, with technical assistance from the City of Tampa Water Department.

If the pipeline fails the pressure test twice, then the Contractor shall be required to retest the pipeline and provide to the Engineer, with technical assistance from the City of Tampa Water Department certification by a Professional Engineer registered in the State of Florida, that the pipeline has passed the test in accordance with these standards prior to the Engineer, with technical assistance from the City of Tampa Water Department scheduling and witnessing the pressure test.

2. Leakage Tests for Pipelines

Concurrently with pressure testing, pipelines shall be subjected to leakage tests.

Leakage measurements shall not be started until a constant test pressure has been established in excess of 150 psi.

The duration of each leakage test shall be at least 2 hours and the test pressure shall be as specified for the pressure tests. Leakage is defined as the quantity of water that must be supplied into the pipeline or section thereof to maintain the established test pressure after the air in the pipeline has been expelled and the pipe filled with water plus that volume of water required at the conclusion of the test to bring the line pressure back up to the highest pressure obtained during the duration of the test period.

The maximum allowable leakage shall not exceed the number of gallons per hour (gph) as determined by the following formula:

$$L = \frac{SD \times \sqrt{P}}{133{,}200}$$

where,
L - allowable leakage, gph
S - length of pipeline tested, feet
D - nominal diameter of the pipe, in
P - average test pressure during the leakage test, PSI

This equation is based on 18-foot lengths of pipe, and shall be adjusted accordingly for other lengths supplied.

AWWA Standard C600 includes a table which provides the allowable amount of leakage in gallons per hour for various sizes of pipe under different test pressures. The Contractor is referred to that table as an alternative to actually calculating the values using the above formula.

When leakage exceeds the allowable limit, the defective pipe or joints shall be located and repaired. All visible leaks are to be repaired regardless of the amount of leakage. If the defective portions cannot be located, the Contractor shall remove and reconstruct as much of the work as is necessary until the leakage is within the allowable limits. Such corrective work or damages to other parts of the work as a result of such work shall be at the Contractor's expense.

Leakage detection at mechanical joints shall be stopped by tightening the gland (not to exceed required torque) and leaking slip joints shall be cut out and entirely replaced or if permission is given by the Engineer, with technical assistance from the City of Tampa Water Department, it may be repaired by a suitable clamp. Any cracked or defective pipe, fittings, valves, or hydrants discovered as a result of this test shall be removed and replaced by the Contractor with sound material and then test shall be repeated.

If the pipeline fails the test twice, the Contractor shall be required to retest the pipeline and provide the Engineer, with technical assistance from the City of Tampa Water Department certification by a Professional Engineer registered in the State of Florida that the pipeline has passed the test in accordance with these standards.

T4.02 DISINFECTION

The Contractor shall disinfect the water mains in accordance with the applicable section of the latest AWWA Specification C651. **The Contractor, if directed, shall use the method specified by the Engineer, with technical assistance from the City of Tampa Water Department**.

Methods of Chlorination

1. Slug Method

The slug method consists of: a) Completely filling the main in order to remove air pockets, b) flushing the main with a velocity of not less than 2.5 feet per second in order to remove particles, c) at a point not more than 10-feet downstream of the water source flushing the new main; chlorine is to be continuously injected for a sufficient period to develop a solid column or "slug" of chlorinated water, d) the slug of chlorinated water is to move through the main exposing all interior surfaces to a chlorine concentration of approximately 100 mg/L for at least a 3 hour period.

2. Continuous Feed Method

The continuous feed method consists of a) completely filling the main to remove air pockets, b) flushing the main with a velocity not less than 2.5 feet/seconds, c) at a point not more than 10-feet downstream of the water source flushing the new main; chlorine is to be injected in the new main at a constant rate sufficient to establish a 25 mg/L chlorine concentration throughout the main, d) Note table for amount of sufficient chlorine required for each 100 foot section of pipe of various diameters.

Pipe Diameter	100% Chlorine (lb.)	1% Chlorine Solution (gal)
6 in.	0.030	0.36
8 in.	0.054	0.65
12 in.	0.120	1.44
16 in.	0.217	2.60

The chlorinated water shall be retained in the main for at least 24 hours and have a residual of not less than 10 mg/L free chlorine prior to flushing.

3. Testing

For bacteriological testing (Bac-t), the Contractor shall use a laboratory that is approved by the City of Tampa, i.e. Thornton Labs (223-9702), KNL Laboratories (229-2879) or Advance Environmental Labs (630-9616).

Upon completion of the hydrostatic test and disinfection, the Contractor shall contact the City of Tampa Water Department's Construction Section requesting a bacteria test. The Contractor shall install sample taps on the new main and at the end of each new branch of the piping system. The Contractor shall flush the chlorinated disinfection water from the piping system until a free chlorine residual of 1 to 1.5 mg/L is maintained. The approved lab shall obtain water samples on 2 consecutive days allowing 24 hours for each sample to be processed.

Due to the requirements from the FDEP, the contractor may be required to remobilize to the job site thirty to forty-five days after the samples have been cleared to perform necessary meter transfers and/or cut and plugs.

Samples for bacterial analysis will be taken and analyzed by the approved lab, under the review of the Engineer with technical assistance from the City of Tampa Water Department and 2 consecutive approved samples will be required. All drilling and tapping equipment shall be sterilized as directed by the Engineer, with technical assistance from the City of Tampa Water Department. All testing will be at the expense of the Contractor.

After completing the testing and sterilizing and regardless of ground conditions, all sample taps and corporation stops shall be removed from the pipe and replaced with tapered brass plugs.

Boil Water Notices: Hillsborough County Health Department requires the water main be tested prior to being put into service. If during the process of putting a relocated water main in service a shutdown of existing water mains is required, additional testing and boil water notices will be required, at no additional cost to the Department. The affected mains shall pass two-day Bac-t tests on existing water mains followed immediately with issuance of a rescind boil water notice, at no additional cost to the Department.

MATERIAL SPECIFICATIONS

M1.00 GENERAL REQUIREMENTS

All materials shall be in accordance with these Material Specifications and shall, in no event, be less than that necessary to conform to the requirements of any applicable law, ordinances and codes. All materials or products that will be in contact with the potable water shall be listed by the National Sanitation Foundation (NSF-61 listed) or by an approved certifying agency as conforming to the requirements of ANSI/NSF-61. Items designated to be domestically manufactured shall be manufactured, assembled and tested in their entirety within the United States of America or its territories. Items requiring a domestic presence may be foreign manufactured and/or assembled and/or tested but the manufacturer shall have a designated representative of agent located within the United States of America and that representative or agent shall be available to provide on-site service if required by the Construction Manager, Engineer, or City of Tampa Water Department.

All materials shall be new, unused, and correctly designed. They shall be of standard first grade quality, produced by expert workmen, and intended for the use for which they are offered. Materials or equipment which, in the opinion of the City, are inferior or are lower grade than indicated, specified or required, shall not be accepted.

M2.00 QUALITY CONTROL AND ASSURANCE (All Materials)

When submitting for approval of a product manufacturer not listed, include manufacturer drawings/brochures that clearly indicate size, dimension weights, performance standards, etc. If this documentation is omitted, the material may be rejected at the sole option of the Engineer, with technical assistance from the Water Department.

M2.01 POLYETHYLENE ENCASEMENT (Polywrap)

1. GENERAL

Polyethylene encasement shall conform to the requirements of ANSI/AWWA C-105/A21.5 Method A, shall be blue-colored, and 8 mil thick. Polyethylene encasement shall be installed on all buried ductile iron pipe, fittings, valves, and appurtenances where shown on the drawings or as directed by the Water Department as dictated by field conditions. It shall be blue in color.

2. PRODUCT

The raw material used to manufacture polyethylene encasement shall be Type 1, Class A Grade E-1 in accordance with ASTM D-1248

The polyethylene encasement shall meet the following test requirements:

Tensile Strength	1200 PSI minimum
Elongation	300% minimum
Dielectric Strength	800 V/Mil Thickness minimum
Thickness 0.008"	(8 mils) minimum nominal with minus tolerance not exceeding 10% of nominal
Melt Index	0.4 maximum

3. MANUFACTURER

All polyethylene encasement shall be domestically manufactured.

M2.02 BRASS FITTINGS

1. GENERAL

All brass fittings for service lines shall be included under this specifications. Brass fittings are to include all accessories.

2. PRODUCT

a. All fittings shall be manufactured of brass, cast and machined in accordance with AWWA Standard C-800, latest revision.

b. All fittings shall perform in accordance with AWWA C-800, latest revision.

c. All brass fittings shall comply with Florida Administrative Code (F.A.C.) 62-555 (latest revision), the Safe Water Drinking Act, as amended, and the U.S Environmental Protection Agency (E.P.A.).

d. All fittings shall be certified as suitable for contact with drinking water in accordance with ANSI/NSF Standard 61, Drinking Water Components – Health Effects, Section 8. Certification shall be by an accredited certification organization or by a laboratory able to demonstrate that the NSF 61 lead testing protocol was followed.

e. All curb stops/meter valves shall be full-port and have a flow passage area equivalent to the fitting outlet flow area.

f. All curb stops/meter valves shall be ball valve, roundway, with check, with a full port opening ball no less than 3/4-inch. Curb stops and meter valves shall be provided with padlock wings cast on stop body and operating tee cap to provide for locking the stop in closed position. Curb stops for use with copper or plastic service shall have an inlet connection with a compression joint and an outlet connection with female iron pipe thread, as manufactured by Ford Meter Box Company B41W, Mueller B-25170, A.Y. McDonald 6102W-22, or approved equal.

g. Corporation stop inlet connection shall be the AWWA Taper thread. The outlet connection shall be a pack-joint outlet for copper or plastic tubing. Corporation stops with compression joint outlets for copper or plastic tubing sizes shall be: for sizes up to 1-1/4”, Ford Meter Box Company F-1000, A.Y. McDonald 4701-22, Mueller H-15008, or approved equal; for sizes 1-1/2” – 2”, Ford Meter Box Company FB-1000, A.Y. McDonald 4701-22, Mueller H-15008, or approved equal.

h. Meter resetters shall be designed for use with standard 5/8”x3/4" and 1” water meters. Resetters shall be constructed from brass fittings conforming to the specifications herein, with copper riser pipes. An angle ball valve shall be provided on the inlet riser, saddle nuts and gaskets on inlet and outlet. Pipe connections shall be (nominal) male iron pipe size meter thread on both inlet and outlet.

i. Branch connections shall be brass construction with copper compression joint inlet and male iron pipe size outlets.

3. MANUFACTURER

The brass fittings manufacturer shall have a domestic presence. The fittings shall be equal to or better than brass fittings produced by Mueller Company, Ford Meter Box Company, A.Y. McDonald Manufacturing Company or Cambridge Brass.

M2.03 SERVICE SADDLES

1. GENERAL

Service saddles shall be used for tapping water distribution pipes to provide a drip-tight connection to the main for customers' water meters. Service saddles shall incorporate a wrap-around type body, straps, gasket and bolts. When installed, the body shall wrap around the main for a minimum of 160 degrees.

2. PRODUCTS

a. Service saddle for pipe less than 3 inches shall be single band which is hinged or split from the saddle body and is anchored by bolting one or more bolts between the band and saddle body, or a double strap design anchored by four bolts.

b. Service saddles for pipe equal to or greater than 3 inches shall use a double-wide single flexible band or a double strap with a minimum of a four bolt pattern anchoring. These service saddles shall provide for a variable range in diameter per nominal size of pipe, yet shall fit the stated diameter for the nominal size pipe noted.

c. Service saddles shall be constructed from bronze, ductile iron in accordance with ASTM A536, or stainless steel and shall seal to the distribution pipe by an EPDM rubber gasket. The gasket shall maintain a resilient seal without cracking or becoming brittle during the working life of the service saddle. All service saddles shall have corporation tap threads.

d. Threads shall be AWWA CC in accordance with AWWA C-800.

e. Gasket shall be of self-sealing design.

f. Service saddle bodies shall be protected with a heavy coating of corrosion resistant, metal primer.

g. Service saddles provided shall be suitable for use with water of 100 degrees Farenheit and pressure up to 150 psi without rupture and failure.

h. Straps and bolts shall be carbon steel confirming to ASTM A108, electro-galvanized with dichromate seal.

3. MANUFACTURER

Service saddles shall be as follows:

2-inch or less: 2" McWane enamel CI (OD2.50"),and 2" McWane enamel CI (OD 2.75") Clow "3401"; Ford "570/590"; JCM "402/403/405" (DI); Jones "J-995"; Mueller"H-13420/H-10475/H-10476"; Rockwell "313/317"

3-inch or greater: 4" pipe (OD 4.80"), 6" pipe (OD 6.9"), 8" pipe (OD 9.05"), Clow "3408/3410"; Ford "FS- or FC-202" series; JCM "402 Cortin Strap (for DIP)"; Rockwell "313 (DI) /317/323".

M2.04 BLOW-OFF ASSEMBLY (N/A)

M2.05 MECHANICAL JOINT RESTRAINTS FOR DUCTILE IRON PIPE

1. GENERAL

Mechanical restraint devices shall be used to restrain plain ends of ductile iron pipe to push-on, mechanical, or flange joints, or fittings which meet ANSI/AWWA C-110 and C-111/A21.10 and A21.11, latest revisions.

Wedge action restraint for mechanical and flange joint pipe and fittings shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when activated, imparts multiple wedging actions against the pipe, thereby increasing its restraint on the pipe as the joint tries to separate.

2. PRODUCT

a. **Push-on Joint Restraint (for 4" - 16" only)**

Push-on joint restraint devices shall be the gasket-type, consisting of an EPDM rubber gasket with stainless steel locking segments vulcanized into the gasket.

b. **Flange Joint Restraint**

Flange joint restraint fittings shall include all individually activated gripping wedges and gaskets. Flange joint restraint fittings shall attach to the plain end of a pipe by wedge screws to produce a flange which joins to an existing integral companion flange. Flange joint restraint fittings shall be constructed of ductile iron meeting ASTM A536 and manufactured in accordance with ANSI/AWWA C-110/A21.10 and/or C-111/A21.11, latest revision. All flanges shall have bolt circle and bolt holes which match a Class 125 flange and are compatible with ANSI/AWWA C-115/A21.15. Gasket shall be made of EPDM rubber.

c. **Mechanical Joint Restraint**

1) The wedge action glands shall be manufactured of ductile iron conforming to ASTM A536-80. The wedging nut and bolt shall be manufactured of ductile iron which has been heat-treated to a minimum hardness of 370 BHN.

2) Wedge action glands shall be dimensioned such that they can be used with standard mechanical joint and have tee-head bolts conforming to the mechanical joint nuts and bolts section specified herein.

3) Existing bell and spigot joints of previously installed pipe shall be restrained with split restraint devices, designed to be installed around and behind the bell end of the pipe.

d. **Coatings**

1) Flange Adapters shall be provided with painted "shop coat".

2) Retainer glands shall be provided with a bituminous coat.

3) Push-on restraint fittings shall be provided with a bituminous coat.

3. QUALITY CONTROL AND TESTING

a. Pipe restrained with mechanical restraint devices specified shall be capable of withstanding the following pressures:

Push-on and Mechanical Joint Pipe -	4" - 16"	min. 350 psi
	>16"	min. 250 psi
Flange Joint Pipe -	4" - 36"	min. 250 psi

b. Burst pressure tests shall be performed as specified in ANSI/AWWA C-111/A21.11, latest revision.

a. Pipe restrained with retainer glands specified shall be capable of withstanding twice the rated pressure of the restraint device for five minutes with no leakage or movement.

4. MANUFACTURER

a) Ductile iron pipe push-on joint restraint devices shall be U.S. Pipe "Field-lok" Gasket or American "Fast-Grip" Gasket.

b) Ductile iron pipe flange joint restraint devices shall be EBAA Iron "Megaflange Series 2100" or "1000 EZ Flange" or Ford Meter Box Company "Uni-flange Series 400-C".

c) Wedge action restraint for ductile iron mechanical joint pipe shall be approved, equal to, or better than EBAA Iron "Megalug, Series 1100-SD".

M2.06 DUCTILE IRON PIPE

Push-On, Mechanical,

1. GENERAL

Ductile iron pipe shall be domestically manufactured in accordance with the latest revision of ANSI/AWWA C-151/A21.51. Pipe shall be furnished in 18 or 20 foot laying lengths. Pipe shall be lined with a standard thickness cement mortar lining and seal coated in accordance with the latest revision of ANSI/AWWA C-104/A21.4 and NSF 61. Pipe outside coating shall be an asphaltic coating in accordance with ANSI/AWWA C-151/A21.51, latest revision.

2. PRODUCTS

a. Push-on Joint Pipe

Push-on joint pipe shall be supplied with all joint accessories. Accessories shall include gaskets and lubricant in sufficient quantity for the proper assembly of each joint. Gaskets for push-on joints shall be made of ethylene propylene diene (EPDM) rubber. All plain ends shall be painted with a circular stripe on the pipe barrel to allow a visual means of checking proper assembly.

- All push-on joints shall be in accordance with ANSI/AWWA C-111/A21.11, latest revision.

- Pressure Class shall be as follows:

Diameter	Min. Pressure Class
4" → 16"	350
> 16"	250

b. Mechanical Joint Pipe

- Mechanical joint pipe shall be supplied with all joint accessories. Accessories shall include lubricant, gaskets, ductile iron glands, bolts, and nuts, all in sufficient quantity for the assembly of each joint. The bolts and nuts shall be manufactured per nuts and bolts section herein. The follower gland shall be ductile iron. Gaskets for mechanical joints shall be made of ethylene propylene diene (EPDM) rubber.

- All mechanical joints shall be in accordance with ANSI/AWWA C-111/A21.11, latest revision.

- Pressure Class shall be as follows:

Diameter	Min. Pressure Class
4" → 16"	350
> 16"	250

3. QUALITY CONTROL AND TESTING

All pipe shall meet or exceed all hydrostatic, performance and acceptance tests as set forth in ANSI/AWWA C-151/A21.51, latest revision.

4. MANUFACTURER

All ductile iron pipe, unless specified below, shall be domestically manufactured by U.S Pipe, American Pipe or Clow/McWane.

M2.07 HIGH DENSITY POLYETHYLENE TUBING (2-inch and smaller)

1. GENERAL

a. All water service lines two (2) inches in diameter and smaller shall be constructed of high-density polyethylene (HDPE) tubing.

2. PRODUCT

a. Polyethylene extrusion compound from which the PE pipe and tubing are extruded shall comply with the applicable requirements for the Type III, color and U.V. code E, Class C, PE 3408, very high molecular weight polyethylene plastic material manufactured in accordance with AWWA C-901, latest revision, as specified in ASTM D1248. 2-inch and smaller HDPE pressure tubing shall have a color and ultraviolet code E and a minimum cell classification of 334434E as specified in ASTM D3350.

b. The polyethylene extrusion compound shall be of virgin quality approved for potable water service by the National Sanitation Foundation. The polyethylene extrusion compound shall be manufactured with sufficient and proper ultra-violet color stabilizers.

c. Polyethylene tubing shall be SDR-9 200 psi.

d. The standard dimension ratio (SDR) shall be 9 for CTS tubing sizes. The average outside diameter, minimum wall thickness and respective tolerances for any cross-section shall be as specified in ASTM D2737. The average inside diameter, minimum wall thickness, and respective tolerances for any cross-section shall be as specified in ASTM D2239.

e. Polyethylene tubing shall be blue and have U.V. color stabilizers so that the pipe is not affected in color or flexibility for a minimum of four (4) years.

3. QUALITY CONTROL AND TESTING

Environmental stress cracking resistance testing shall be performed in accordance with ASTM D1693, Condition C, and shall have no failures after 5000 hours duration.

5. MANUFACTURER

All HDPE tubing shall be manufactured by Performance Pipes "DriscoPlex", Endot EndoPure", Vanguard "Bruiser" or Charter Plastics "Blue Ice".

M2.08 RESILIENT SEAT GATE AND TAPPING VALVES (N/A)

M2.09 2” RESILIENT SEAT GATE VALVE (N/A)

M2.10 VALVE BOXES (N/A)

M2.11 RUBBER SEATED BUTTERFLY VALVES, MJ (N/A)

M2.12 COMPACT ANCHOR FITTINGS – DUCTILE IRON

1.0 GENERAL

Ductile Iron Compact Anchor Fittings ("Fittings") provided under this specification shall be manufactured in accordance with AWWA Standard C-153 and C-111, latest editions, and as specified herein. Joint accessories shall be provided with fittings.

2.0 PRODUCT

2.1 Tees

2.1.1 Both joints on the run of all anchor tees shall be mechanical joint in accordance with AWWA Standard C-111, latest edition.

2.1.2 All mechanical joints shall be supplied with a joint accessories package (bolts, nuts and gasket) as part of the anchor fitting. MJ Gaskets shall be made of EPDM rubber formulated to resist chloramine degradation. All anchor fittings shall be compatible with mechanical joint connections in accordance with AWWA C-111, latest edition, and shall be capable of mechanical restraint so as to eliminate the need for additional thrust restraints.

2.1.3 The standard anchor tee branch shall have an anchoring "plain end" which includes an integral or split follower gland, suitable for connecting to mechanical joint fitting meeting AWWA C-111.

2.2 Anchor Elbow and Anchor Coupling

The Anchor x Anchor elbows and anchor couplings shall have for both ends anchoring "plain ends". These "plain ends" shall have integral or split follower glands, suitable for mechanical joint fittings meeting AWWA C-111.

2.3 Joint Accessories

2.3.1 All T-head bolts and nuts for joints shall conform to the mechanical joint bolts and nuts section specified herein.

2.3.2 All joint accessories shall be furnished with anchoring fittings.

2.4 All anchoring fittings shall be furnished with a standard thickness cement mortar lining and seal coated in accordance with AWWA Standard C-104, latest edition.

2.5 Fittings shall have an exterior, asphalt coating which conforms to ANSI/AWWA C-153/A21.53.

2.6 All fittings shall have a minimum pressure rating of 350 psi.

3.0 QUALITY CONTROL AND TESTING

All anchor fittings shall meet or exceed acceptance, performance and hydrostatic testing in accordance with AWWA Standard C-153 and C-111, latest editions.

4.0 MANUFACTURER

Ductile iron compact anchor fittings shall be manufactured by U.S. Pipe and Foundry Company, Clow, American Ductile Iron Pipe or McWane.

M2.13 COMPACT MECHANICAL JOINT FITTINGS-DUCTILE IRON

1. GENERAL

a. Ductile iron compact mechanical joint fittings (4" - 24") shall be manufactured in accordance with ANSI/AWWA C-153/A21.53, latest revisions and the specifications stated herein. Fittings shall be listed by the National Sanitation Foundation (NSF) and shall conform to the requirements of NSF-61.

b. Whenever the word "fitting" is used in this specification, it shall mean "Compact Ductile Iron Fitting".

2. PRODUCT

a. For fittings larger than 16-inches physical and chemical properties shall be in accordance with ANSI/AWWA C153/A21.53, latest revision.

b. The minimum working pressure for fittings shall be 350. The minimum wall thickness shall not be less than that of pressure class 350 ductile iron pipe.

c. Joints shall be Mechanical Joint in accordance with ANSI/AWWA C111/A21.11 and C153/A21.53, latest revision, with exceptions noted herein. Mechanical Joint bolts and nuts shall per nuts and bolts section herein.. Joints requiring a shorter bolt than called for in ANSI/AWWA C111/A21.11 shall be supplied as required. Gaskets for mechanical joints shall be made of ethylene propylene diene (EPDM) rubber.

d. All fittings furnished shall have a standard thickness cement mortar lining and shall be seal coated in accordance with AWWA Standard C-104, latest revision. They shall conform to all requirements of ANSI/NSF 61 and shall have an asphalt exterior coating which conforms to ANSI/AWWA C153/A21.53.

e. Fusion bonded epoxy fittings shall be coated inside and out with fusion-bonded epoxy, and be in conformance with the requirements of ANSI/AWWA C-116/A21.16 and AWWA C-550, latest revisions. Fittings shall be listed by NSF or by an approved certifying agency as conforming to all requirements of ANSI/NSF 61.

3. QUALITY CONTROL AND TESTING

All fittings specified herein shall meet or exceed all hydrostatic, performance, and acceptance tests in accordance with ANSI/AWWA C153/A21.53 latest revision.

4. MANUFACTURER

All manufacturers of ductile iron compact MJ fittings specified herein shall have a domestic presence. The fittings shall be manufactured by U.S. Pipe, Clow, Tyler Pipe, American Ductile Iron Pipe, PCI or McWane.

M2.14 MECHANICAL JOINT BOLTS AND NUTS

1. GENERAL

All mechanical joint bolts and nuts (pipe 4" - 12") shall be manufactured in accordance with ANSI/AWWA C-111/A21.11, latest revision, and shall also adhere to the following specification.

2. PRODUCT

a. All mechanical joint bolts shall be a Tee-head design with hexagonal nuts. Dimensions shall be in accordance with ANSI/AWWA C-111/A21.11.

b. All bolts and nuts shall be manufactured of high-strength, low alloy steel in conformance with ANSI/AWWA C-111/A21.11 and ASTM A242, latest revisions.

b. All bolts shall be designed for internal and external threads to conform to ANSI/ASME B1.1 and B1.2. Thread form shall conform to the standards and dimensions of the coarse-thread series Unified Coarse (UNC); external threads shall be made in compliance with Class 2A limits, and internal threads shall be made in compliance with Class 2B limits. The Contractor is advised that various HDPE MJ adapters may require longer than standard bolts to complete the installation

3. MANUFACTURER

Mechanical joint bolts and nuts (pipe 4" - 12" pipe) specified herein shall be domestically manufactured of Cor-Ten, Birmingham Foundry or National Set Screw Corporation Technology.

M2.15 SOLID SLEEVES, MJ

1. GENERAL

Solid sleeves shall be used to join two plain ends of pipe or repair a damaged pipe.

2. PRODUCT

a. Solid sleeve lengths shall be up to 24-inches. The solid sleeve shall be capable of having two plain ends of pipe inserted into opposite ends of the sleeve. The sleeve is then to be sealed to the pipe by a mechanical joint at each end of the sleeve.

b. All sleeves shall be manufactured of ductile iron. Solid sleeves shall be manufactured in accordance with ANSI/AWWA Standard C-153/A21.53, latest revision. All sleeves shall be rated for a minimum working pressure of 350 psi.

c. All solid sleeve sealing ends shall be mechanical joints in accordance with ANSI/AWWA C-111/A21.11, latest revision. All joint accessories shall be furnished with the fittings. All bolts and nuts shall be per nuts and bolts section herein. The gasket shall be for a standard

Mechanical Joint, in accordance with ANSI/AWWA C-111/A21.11, latest revisions, and be made of EPDM rubber. The follower gland shall be manufactured from ductile iron at least ASTM A536, Grade 70-50-05 in accordance with ANSI/AWWA C-111/ A21.11, latest revision

d. All ductile iron compact solid sleeves shall be furnished with a standard thickness cement mortar lining and seal coating in accordance with AWWA Standard C-104, latest revision.

e. Fittings shall have an exterior, asphaltic coating which conforms to ANSI/AWWA C-153/A21.53.

3. QUALITY CONTROL AND TESTING

a. All solid sleeves shall meet or exceed all testing requirements of ANSI/AWWA C-153/A21.53.

4. MANUFACTURER

a. All ductile iron mechanical joint solid sleeves shall be manufactured by U.S Pipe, Sigma, Tyler/Union, American Cast Iron Company or Clow.

M2.16 DRY-BARREL FIRE HYDRANTS

1. GENERAL

All non-rising stem dry-barrel hydrants shall be manufactured in accordance with AWWA C-502, latest revision and these specifications.

2. PRODUCT

2.1 Hydrants shall have a 5¼-inch main valve opening. The main valve shall be of compression-design and shall open against and closing with pressure. The hydrant shall comply with the requirements of Associates Factory Mutual Insurance Companies and have the "FM" symbol cast into the barrel. The hydrant shall be listed with Underwriter's Laboratories. Hydrants shall open by turning the operating nut counterclockwise.

2.2 The hydrant shall be provided with a breakable traffic feature designed so that the nozzle section of the hydrant can be rotated a full 360 degrees. Break couplings shall be made of cast iron, epoxy coated steel, or forged stainless steel. The lower barrel and shoe shall be made of ductile iron, manufactured in accordance with AWWA C-502, latest revision.

2.3 All hydrants shall have two 2½-inch bronze nozzles, 180 degrees apart, and one 4½-inch bronze nozzle. All nozzle centerlines shall be at the same elevation. Nozzle outlet threads to be National Standard fire hose coupling screw thread, as described in Appendix A of AWWA C-502. After being coated with an approved anti-seize compound as specified herein, hydrant nozzle threads or twist-locks into the hydrant nozzle section; a locking device secures the nozzle. Cast iron or ductile iron nozzle caps provided, with gaskets; nozzle cap nut configuration matches hydrant operating nut. Chains are not provided on nozzle caps.

2.4 Hydrant design shall be such that removal of the seat valve drain mechanism, internal rod and all working parts can be accomplished through the top of the hydrant without disturbing the ground-line joint or nozzle section. The shoe inlet shall be mechanical joint, in accordance with AWWA C-111, latest revision. The interior of the shoe and (and upper and lower valves plates, if utilized in design) are epoxy-coated in accordance with AWWA C550, latest revision. Accessory kits shall be provided with MJ bolts and nuts and gasket. Mechanical joint nuts and bolts to be manufactured per nuts and bolts section herein. Main valve gasket and mechanical joint (MJ) gasket made of EPDM.

2.5 All above-ground external bolts, studs, and nuts made of low-zinc bronze or stainless steel. Below-ground bolts, studs and nuts shall be made of high-strength, low-alloy steel as specified herein, or of stainless steel. When bolts are used at the break coupling, they shall not be frangible.

2.6 Unless the operating rod is made of stainless steel, the rod shall be sheathed where it passes through a double o-ring seal, sealing the operating threads from the water in the hydrant at all times when the valve is in the open or closed position. Another o-ring shall prevent water from passing between the operating shaft and the sheath. Downward travel of the operating rod and valve assembly shall be controlled by a travel stop device (located in the bonnet only), to prevent the bottom of the main valve from making contact with the epoxy coating of the shoe. Travel stop devices located on the bottom of the operating rod are not acceptable. Bronze operating nuts shall be fully covered with a cast iron or ductile iron weather shield and shall have at least one anti-friction thrust washer to reduce the operating torque when opening the hydrant. The hydrant's bronze main valve seat ring shall thread into a bronze sub-seat or drain ring. The drain outlet for the hydrant shall be eliminated as part of the casting or machining process.

2.7 Hydrant operating threads shall be lubricated with anti-seize compound paste upon assembly. Approved anti-seize compounds are Bostik Never-Seez food-grade, or Permatex part #133. Approval for other anti-seize compounds shall be requested in writing to the Tampa Water Department, accompanied with a Material Safety Data Sheet from the manufacturer of the compound for review. Anti-seize compound shall not contain any heavy metals.

2.8 When the hydrant is tested for head-loss as described in AWWA C502, Section 5, latest revision, the maximum head–loss shall not exceed 2.5 psi when flowing at 1000 gpm through the 4 ½-inch nozzle,.

2.9 Hydrant coatings shall be as specified in AWWA C502 Section 4.02. Additionally, above-ground exterior hydrant coatings shall be minimum 4 mil DFT white primer coating, compatible with Porter high-grade enamel final paint to be applied in the field.

2.10 If manufacturer uses locking keys to secure the lower barrel to the shoe, all locking keys to be fully coated with a Water Department approved anti-seize compound applied upon assembly

3. QUALITY CONTROL AND TESTING

3.1 The following shall be provided upon request of the Engineer:

3.1.1 Certified affidavit from an officer of the manufacturer that hydrant conforms with AWWA C502, latest revision, and these specifications.

3.1.2 Certified test results from an independent testing laboratory indicating that the hydrant conforms with Section 1.2 of this specification.

3.1.3 Certification of Underwriter's Laboratories listing.

3.1.4 Certification of compliance with Associates Factory Mutual Fire Insurance Companies specifications.

3.1.5 Two sets of engineering performance data, model catalog, and repair parts manual and price lists. Such data shall contain but is not necessarily limited to: head-loss versus flow curves, hydrant parts and materials, hydrant dimensions. Catalog and maintenance data shall also be supplied in sufficient detail to serve as a guide in the assembly and taking-down of the fire hydrant, the ordering of repair parts, and complete lubrication and maintenance information.

3.1.6 Failure to submit any of the above certifications or information with the bid package may result in rejection of the bid.

3.2 The Water Department may request samples of each hydrant. Samples shall be supplied by and, if requested, returned to the bidder at the bidder's expense.

3.2.1 Failure to submit samples within 15 working days after the date of a written request shall result in rejection of the product.

4. MANUFACTURE

4.1 Hydrants shall be assembled and tested in their entirety within the United States of America or its territories. The manufacturer of hydrants shall have continuously manufactured, catalogued, sold, and had in service the hydrants in the size proposed for a minimum of five years.

4.2 Hydrants shall be manufactured by American (Darling B-84-B 5¼), U.S Pipe (Metropolitan 250, M94, 5 ¼), Kennedy (Guardian, K81D, 5 ¼), or American AVK (Series 2780, Nostalgic, 5 ¼).

M2.17 TAPPING SLEEVES (Steel "O-Ring" Type) (N/A)

M2.18 TAPPING SLEEVES (Mechanical Joint) (N/A)

M2.19 HDPE WATER METER BOX & COVER

1. GENERAL

HDPE (high density polyethylene) water meter boxes shall be manufactured in accordance with these specifications.

Meter box covers ("Covers") provided under this specification shall be ductile iron or precast polymer concrete with hinged reading lids where specified. Covers provided shall be designed to withstand light or heavy traffic loading as specified herein.

2. PRODUCT

a. (1) The HDPE meter box shall be 100% homogenous high-density polyethylene of one piece molded construction for durability, with dimensions as shown in the referenced drawings. The meter box must have a minimum wall thickness of .550 inches with wall core interior area of rigid foam construction offering insulation and tensile strength. The box shall be tested to withstand a freestanding 20,000 lb. vertical load and a sidewall loading of 180 pounds per square inch. All edges shall be clean and smooth for safety during handling. Exterior wall shall be of smooth finish, black in color and have ultraviolet degradation protection properties for above ground storage. Interior wall shall be smooth finish and white in color facilitating illumination of interior area. The meter box shall have a top flange encircling the top cover and below the cover seat to retard "push down" when set in pavement and an anti-settling flange on the bottom.

(2) All standard ductile iron meter box covers shall be manufactured to meet or exceed ASTM A-536 Grade 65-45-72, latest revision and shall be designed to meet the requirements for AASHTO Incidental Traffic H-10 loading. All extra-heavy covers shall meet the requirements for AASHTO Full Traffic H-20 loading.

All standard precast polymer concrete covers shall be designed to meet the requirements for AASHTO Incidental Traffic H-10 loading. All extra-heavy covers shall be manufactured as stated above and shall be designed to meet the requirements for AASHTO Full Traffic H-20 loading.

b. Standard meter box covers shall include hinged reading lids as specified in Department meter box Standard Details. Extra-heavy covers shall be solid with no reading lid.

c. Meter boxes shall be dimensioned to accommodate meter box covers as specified.

All reading lids under this specification shall be supplied with a slot for engaging a raising hook to permit reading the enclosed water meter without removing the box cover. Reading lids are to be made of ductile iron. The reading lids shall be hinged and secured in place by a suitable stainless steel (Type 304) hinge pin.

d. Ductile iron reading lids shall be manufactured in accordance with ASTM A536 Grade 65-45-12, latest edition.

a. Polymer concrete for precast polymer concrete covers shall consist of a mix of polymer resin, course sand and fine sand, and shall be reinforced with layers of woven fiberglass to withstand traffic loadings as specified. Polymer concrete shall have a minimum compressive strength of 12,000 psi.

b. All ductile iron covers must be certified by the ductile iron manufacturer as well as by an independent testing laboratory. All ductile iron covers shall exceed Federal Specifications RC-F-621D. All ductile iron covers shall have a minimum compressive strength of 25,000 lbs. on a 9-inch square load area.

c. All covers under this specification shall be sized to fit the appropriate Brooks Products, Inc., Orlando, Florida concrete meter boxes, numbers 36, 37, 66 and Dual H.

d. All covers shall have UL/FM Approvals.

3. QUALITY CONTROL AND TESTING

Contractor's proposing installation of meter boxes not described in #4 of this Section shall provide the following for Department review of the proposed product:

a. The Engineering performance data for each size meter box and cover offered. Such data shall contain but may not be limited to: 7-day and 28-day concrete compression tests, sieve analysis of aggregates, water/cement ratio and curing process, and any other applicable tests as required.

b. The Two sets of shop drawings for proposed boxes and covers which differ from these standards. The shop drawings shall note the dimension, thickness and tolerances to allow review of material.

The Department may request that the Contractor furnish a sample of each type of meter box and cover proposed for use. This sample shall be returned at the Contractor's expense after the Department's review and evaluation. Failure to submit samples, if requested, may result in the rejection of the proposed meter box and cover.

c. All covers must offer a minimum of a full 10-year warranty against defects, breakage, etc., under normal use conditions.

4. MANUFACTURER

Meter boxes provided shall be equal to or better than:
Mid States Plastics, Mount Sterling, KY, "BCF Style", HDPE meter boxes, all sizes. DFW Plastics #37 meter box size only is acceptable (model DFW37-C). (DFW Plastics #66 size and Dual-H meter boxes are currently not approved for City installations.)

All polymer concrete covers shall be equal to or better than CDR Systems Corporation Polycrete or Brooks Products Polycrete Meter Box Covers.

All ductile iron covers shall be equal to or better than EBAA Iron Ductile Iron Lid, or approved equal.

All covers shall be domestically manufactured.

END OF SECTION WATER MAIN RELOCATION

SPECIFICATIONS FOR SANITARY SEWER WORK

SECTION 2 - BACKFILLING

W-2.01 General

All excavation shall be backfilled to the original surface of the ground or to such other grades as may be shown or directed. For areas to be covered by topsoil, backfill shall be left 4 inches below the finished grade or as shown on the Plans. The time elapsing before backfilling is begun shall be subject to the approval of the Engineer. In all backfilling, all compressible and destructible rubbish and refuse which might cause later settlement and all lumber and braces shall be removed from the excavated space before backfilling is started, except that sheeting and bracing shall be left in place or removed as the work progresses.

Construction equipment used to backfill against and over cast-in-place concrete structures shall not be permitted to travel over these structures until the designated concrete strength has been obtained as verified by concrete test cylinders. In special cases where conditions warrant, as determined by the Engineer, the above restriction may be modified if the concrete has gained sufficient strength, as determined from test cylinders, to satisfy design requirements for the removal of forms and the application of load.

W-2.02 Unsuitable Backfill Material

Before backfilling around structures, all rubbish shall be removed from behind the walls.

When the excavated material contains garbage, cinders, glass, tin cans, wood, or other trash or objectionable organic material, as determined by the Engineer, it shall not be used for backfill but shall be disposed of by the Contractor away from the site of the work to his own place of disposal. The unsuitable materials shall be replaced with backfill material which shall be sand, clay, gravel, sandy loam, or other excavated material free of objectionable organic matter, as approved by the Engineer.

W-2.03 Select Fill Material - General

Select fill material shall be used for pipe bedding, manhole bedding, trench and structure backfill, and other purposes as shown on the Plans, specified, and ordered in writing by the Engineer.

Select fill material shall be sand, conforming to the requirements of the subsections headed "Select Fill Material - Sand" or crushed stone or limestone screenings, conforming to the requirements of the subsection headed "Select Fill Material - Crushed Stone."

W-2.04 Select Fill Material - Sand

Sand used for pipe bedding or as select fill material for trench or structure backfill shall consist of job excavated sand or imported sand which can be readily and thoroughly compacted. Sand shall be reasonably well graded and shall fall within the following gradation limits:

Passing No. 4 sieve - 95 percent (minimum)
Passing No. 200 sieve - 10 percent (maximum)

Sand containing more than 10 percent of material passing the No. 200 sieve or sand which, in the opinion of the Engineer, would have a tendency to flow under pressure when wet will not be acceptable for use as pipe bedding or select fill material for trench or structure backfill

Sand shall not be used for bedding for manholes or other structures.

W-2.05 Select Fill Material - Crushed Stone

Crushed stone used for pipe bedding, manhole base bedding, or as select fill material for trench or structure backfill shall consist of clean, durable rock, angular in shape, which can be readily and thoroughly compacted. Crushed stone shall be reasonably well graded and shall be no greater than a No. 57 stone.

W-2.06 Pipe and Structure Bedding

All pipelines shall be bedded in well graded, compacted select fill material. Select fill material shall be sand, conforming to the subsection headed "Select Fill Material - Sand" and/or crushed stone, conforming to the subsection headed "Select Fill Material - Crushed Stone," as shown on the Plans, specified or ordered in writing by the Engineer. Pipe bedding shall be constructed in accordance with the details shown on the Plans.

When shown on the Plans or ordered in writing by the Engineer, pipelines (except PVC) shall be laid in Class D concrete cradle or encasement.

Precast concrete manhole bases shall be bedded on No. 57 stone, conforming to the subsection headed "Select Fill Material - Crushed Stone," as shown on the Plans.

Cast-in-place manhole bases and other foundations for structures shall be cast against undisturbed earth in clean and dry excavations.

Existing underground structures, tunnels, conduits and pipes crossing the excavation shall be bedded with compacted select fill material. Bedding material shall be placed under and around each existing underground structure, tunnel, conduit or pipe and shall extend underneath and on each side to a distance equal to the depth of the trench below the structure, tunnel, conduit or pipe.

W-2.07 Bedding Placement for Pipelines

Select fill material, used as pipe bedding, shall be placed by hand, in uniform layers not greater than 6 inches in loose thickness and thoroughly compacted in place. Select fill material pipe bedding shall extend to one foot over the top of the pipe.

Each layer of select fill shall be thoroughly tamped and compacted in place by hand or with suitable mechanical or pneumatic tools to a dry density not less than 95 percent of the maximum dry density as determined by AASHTO Des: T-180. No large stone fragments shall be placed in the pipe bedding nor closer than two feet to any point on any pipe.

W-2.08 Bedding Placement for Precast Concrete Manholes

No. 57 stone used for bedding beneath precast manhole bases shall be placed in uniform layers not greater than 6 inches in loose thickness and thoroughly compacted in place with suitable mechanical or pneumatic tools.

W-2.09 Structure Backfill

Backfill around manholes, risers, and structures shall be suitable job excavated material, selected fill material, or other material approved by the Engineer. Such backfill shall extend from the bottom of the excavation or top of structure bedding to the bottom of pavement base course, subgrade for lawn replacement, the top of the existing ground surface, or to such other grades as may be shown or given by the Engineer.

The backfill shall be placed in uniform layers not greater than 18 inches in loose thickness and thoroughly compacted in place with suitable mechanical or pneumatic tools to a dry density of not less than 98 percent of the maximum dry density as determined by AASHTO Des: T-180.

W-2.10 Trench Backfill

Trenches shall be backfilled from 1 foot over the top of the pipe to the bottom of pavement base course, subgrade for lawn replacement, to the top of the existing ground surface or to such other grades as may be shown or given by the Engineer. Trench backfill shall be select fill material, suitable job excavated material or other material, as approved by the Engineer.

Except under pavements and railroad tracks, trench backfill shall be placed in uniform layers not greater than 18 inches in loose thickness and thoroughly compacted in place using heavy-duty tampers such as pneumatic jackhammers with tamping foot attachment or vibrating rollers if required. Each layer shall be compacted to a dry density of not less than 95 percent of the maximum dry density as determined by AASHTO Des: T-180.

Where railroad tracks or pavements and appurtenances for streets or highways are to be placed over trenches, the trench backfill shall be placed in uniform layers not greater than 12 inches in loose thickness and thoroughly compacted in place with equipment as specified above. Each layer shall be compacted to a dry density of not less than 98 percent of the maximum dry density as determined by AASHTO Des: T-180. On City of Tampa streets, each layer shall be compacted as specified above to the bottom of the subbase which is defined as 12 inches below the bottom of the base course. The subbase shall be compacted to 98 percent of modified proctor.

Trench backfilling work shall be done in a manner to prevent dropping of material directly on top of any conduit or pipe through any great vertical distance. In no case shall backfilling material from a bucket be

allowed to fall directly on a structure or pipe and in all cases, the bucket shall be lowered so that the shock of falling earth will not cause damage.

Lumps shall be broken up and if there are any stones, pieces of crushed rock or lumps which cannot be readily broken up, they shall be distributed throughout the mass so that all interstices are solidly filled with fine material.

W-2.11 Backfill for Short Tunnel

Where pipelines are placed in short tunnels, the annular space between the outside of the pipe wall and the tunnel wall shall be completely filled with select fill material or suitable excavated material. Pipelines in short tunnels shall be suitably supported, to permit placing backfill which shall be suitably tamped in place.

W-2.12 Finish Grading

Finish grading shall be performed to meet the existing contour elevations and grades shown on the Plans or given by the Engineer and shall be made to blend into adjacent natural ground surfaces. All finished surfaces shall be left smooth and free to drain.

Grading outside of pipelines or structure lines shall be performed in such a manner as to prevent accumulation of water within the area. Where necessary or where shown on the Drawings, finish grading shall be extended to ensure that water will be carried to drainage ditches, and the construction area left smooth and free from depressions holding water.

W-2.13 Responsibility for After Settlement

Any depression which may develop in backfilled areas from settlement within one year after the work is fully completed and accepted shall be the responsibility of the Contractor. The Contractor shall, at his own expense, provide as needed additional backfill material, pavement base replacement, permanent pavement sidewalk curb and driveway repair or replacement, and lawn replacement and shall perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved by the Engineer.

W-2.14 Inspection and Testing of Backfilling

All backfill shall be subject to test by the Engineer with the assistance of the Contractor.

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SECTION 11 - PVC PIPE GRAVITY

W-11.01 General

All pipe and fittings, 6"-27" nominal diameter, shall be solid wall Polyvinyl Chloride (PVC) Pipe **MANUFACTURED** to standards as outlined in the following sections.

All references to ASTM Designations shall include Manufacturing (PVC Cell Classification) and Performance (Inspection, Sampling and Testing) Specifications, and the most recent shall govern. Pipe and fittings meeting **ONLY** the Performance Test Specification will not be acceptable. The minimum nominal diameter for mainline pipe is 8 inches and for laterals is 6 inches. The maximum laying length shall be 13.0 feet.

W-11.02 Standards (6"-15" Diameter)

Solid wall PVC pipe shall comply with ASTM D 3034 and all applicable ASTM documents as covered in Section No. 2 of ASTM D 3034. All pipe and fittings shall be made of PVC plastic having cell classifications as outlined in Section No. 5 "Materials" of ASTM D 3034 and as defined in ASTM D 1784. For depths of cut through 18 feet, a minimum wall thickness of SDR-35 is required. For depths of cut greater than 18 feet, a minimum wall thickness of SDR-26 is required. Fittings shall be either integrally cast (factory molded) or factory solvent welded and a separate section from the mainline pipe. SDR-26 fittings shall be used with SDR-26 pipe.

W-11.03 Standards (18"-27" Diameter)

Solid wall PVC pipe and fittings shall comply with ASTM F 679 and all applicable ASTM documents as covered in Section No. 2 of ASTM F 679. All pipe and fittings shall be made of PVC plastic having cell classifications as outlined in Section No. 4 "Materials" of ASTM F 679 and as defined in ASTM D1784. All pipe and fittings shall meet the wall thickness and cell classification requirements of either T-1 or T-2 of Table 1 "Pipe Dimensions and Minimum Pipe Stiffness" of ASTM F 679. Fittings shall be either integrally cast (factory molded) or factory solvent welded and a separate section from the mainline pipe.

W-11.04 Joints (6"-27" Diameter)

Joints for solid wall PVC pipe and fittings shall be gasket, bell and spigot, push-on type. Joints shall be a molded integral part of the pipe section. Joints or couplings furnished loose shall not be permitted. Solvent cemented joints shall not be permitted. Lubricant shall be as recommended by the pipe manufacturer. (Assembly of gasketed joints is outlined in the Section "Joining of PVC Pipe").

Joints for pipe and for fittings shall comply with ASTM D 3212 "Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals." Elastomeric gaskets shall meet the requirements of ASTM F 477. Joints for pipe and fittings shall comply with ASTM D 3034 for 6"-15" diameter, ASTM F 679 for 18"-27" diameter, and ASTM F 1336 for 6"-27" diameter.

W-11.05 Pre-installation Tests, Reports, Markings and Submittals

All 6"-15" pipe and fittings shall be marked per Section No. 12 "Marking" of ASTM D 3034. All 18"-27" pipe and fittings shall be marked per Section 11 "Marking" of ASTM F 679. All required information shall be marked on the pipe. If in code, the markings shall be decoded in writing by letter to the City in advance.

PRIOR TO SHIPMENT of the pipe and fittings to the project site, the Contractor shall submit to the Engineer certifications as described below duly certified by the manufacturer's testing facility or an

independent certified testing laboratory demonstrating full compliance with the applicable ASTM specifications described above. Certification from the supplier is **not** acceptable.

An original plus four (4) copies of the following shall be submitted to the Engineer.

1. The name, address, and phone number of the pipe and fittings manufacturer and the location of the plant at which they will be manufactured.

2. A letter of certification stating that each lot of pipe used on this project has been manufactured, sampled, tested, and conforms to Section 8 "Test Methods" of ASTM D 3034 for 6"-15" diameter and Section 7 "Test Methods" of ASTM F 679 for 18"-27" diameter pipe. A letter of certification from the fittings manufacturer shall be provided stating that all fittings conform with ASTM D 3034 for 6"-15" diameter, ASTM F 679 for 18"-27" diameter, and ASTM F 1336 for 6"-27" diameter.

W-11.06 Bedding Requirements

Unless otherwise indicated on the Plans, solid wall PVC pipe shall be installed with Class "C" bedding as described in Section W-2 - Backfilling." If soil conforming to subsection W-2.04 "Select Fill Material-Sand" is not excavated at the project site, it shall be imported. Compaction requirements are described in subsection W-2.07 "Bedding Placement for Pipelines." In no case shall a concrete cradle be used. In the event the Plans call for or the Contractor opts to install crushed stone, it shall be NO GREATER THAN a #57 stone.

W-11.07 Post-installation Tests

SCOPE: Prior to final acceptance of the project all PVC pipelines shall be leakage tested, deflection tested, and T.V. inspected. The leakage test shall be performed by the Contractor or a reputable test lab after the subbase has been compacted. The Contractor or a Department of Sanitary Sewers approved test lab shall perform the deflection testing at the expense of the Contractor. The deflection test shall be performed a minimum of 7 days after the base has been compacted and sealed. The City shall perform the T.V. inspection only **AFTER** the pipelines have passed both the leakage and deflection tests.

DEFLECTION TESTING: The PVC pipe/soil system has been designed so that the maximum installed deflection does not exceed 5% or 7.2% of the base inside diameter of the pipe as listed in the following table:

INCHES

Nominal Size	Base Inside Diameter	5% Deflection after 7 days Mandrel	7.2% Deflection after 30 days Mandrel
		SDR-35	
8	7.665	7.28	7.09
10	9.563	9.08	8.85
12	11.361	10.79	10.51
15	13.898	13.20	12.86

Nominal Size	Base Inside Diameter	5% Deflection after 7 days Mandrel	7.2% Deflection after 30 days Mandrel
		TYPE T-1	
18	16.976	16.13	15.70
21	20.004	19.01	18.50
24	22.480	21.36	20.79
27	25.327	24.06	23.43
		SDR-26	
8	7.488	7.11	6.93
10	9.342	8.87	8.64
12	11.102	10.55	10.27
15	13.575	12.90	12.56
		TYPE T-2	
18	17.054	16.20	15.77
21	20.098	19.09	18.59
24	22.586	21.46	20.89
27	25.446	24.17	23.54

The Contractor shall have the option of testing for 5% deflection after the base has been compacted and sealed for 7 days; or for 7.2% deflection after the base has been compacted and sealed for 30 days.

If the pipe fails the 7 day, 5% deflection test, the Contractor shall immediately conduct a 7.2% deflection test. If the pipe passes the 7.2% deflection test, the Contractor has the option of repairing that section at that time or waiting until a minimum of 30 days after the base has been compacted and sealed and then re-testing for a maximum of 7.2% deflection.

If the pipe fails the 7.2% deflection test after 7 days or at 30 days, the Contractor shall repair that section immediately.

If the Contractor performs the deflection testing rather than employing an approved test lab, the following shall apply:

The Contractor shall furnish the mandrel, labor, materials, and equipment necessary to perform the tests as approved by the Engineer. The mandrel shall be pulled through by HAND or a HAND operated reel in the presence of the Engineer. Prior to performing the deflection tests, the Contractor shall submit to the Engineer certification that the 9-arm mandrels are preset as stated above. Each mandrel shall be engraved with the following:

Serial Number
Nominal pipe diameter
Either "ASTM D 3034," year and either "SDR-35" or "SDR26"
or "ASTM F 679," year and either "Type T-1" or "Type T-2"
% deflection as stated above.

If the mandrel fails to pass any section of pipe, the Contractor shall excavate and make all repairs necessary to correct the excessive deflection. The Contractor shall then backfill, recompact, and reseal the permanent pavement base, and retest the line. If the mandrel fails to pass a second time, the section shall be replaced. Re-rounding is **NOT** permitted.

W-11.08 Leakage Testing

The Contractor or a reputable test lab shall perform either an infiltration, exfiltration or an air leakage test as authorized by the Engineer. If the groundwater level is two (2) feet or more above the crown of the pipe, an infiltration test must be performed. The Contractor shall notify the Engineer of the date and time of the test a minimum of 5 days prior to the test.

The infiltration/exfiltration tests shall be performed as described in Section W-18.

AIR TESTING - The minimum time duration permitted for pressure drops of 1.0 psi and 0.5 psi are shown in Tables I and II on the following page and are based on a maximum allowable exfiltration rate of 0.0015 cu. ft./min./sq. ft. of internal pipe surface. Derivations may be found in the Uni-Bell PVC Pipe Association publication: "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe," UNI-B-6-85. (Available from Uni-Bell, 2655 Villa Creek Drive, Suite 155, Dallas, Texas 75234.

The test shall commence after the plugged line has reached a stabilized gauge pressure of 4.0$\pm$ 1/2 psi. Air testing equipment shall be arranged so that it is located at the ground surface and shall have an approved air relief arrangement to prevent the sewer from being pressurized to greater than 9.0 psig.

If the pressure drops 1.0 psig (or 0.5 psig) before the appropriate time shown in Table I (Page SS-24) or Table II (Page SS-25) has elapsed, the line has failed. In such case, the Contractor shall structurally repair or replace all defective materials and/or workmanship to the satisfaction of the Engineer.

Sealants are **NOT** permitted. The completed pipe installation shall then be retested.

The lengths of lateral sewers may be ignored for computing required test times. In the event a test section (mainline and laterals), having a combined total internal surface area less than 625 square feet, fails to pass the air test when laterals have been ignored; the test time may be reduced per Section 9.4 of UNI-B-6-85.

If the reduced test time is short enough to allow the section to pass, the computations shall be included with the test results.

W-11.09 Joining of PVC Pipe

The assembly of gasketed joints shall be performed as recommended by the pipe manufacturer. In all cases, clean the gasket and bell, especially the groove area and the spigot area with a rag, brush, or paper towel to remove any dirt or foreign material before the assembly. Lubricant shall be applied as specified by the pipe manufacturer.

Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Apply firm steady pressure either by hand or by bar and block assembly until the spigot easily slips through the gasket.

If undue resistance to insertion of the pipe end is encountered or the reference mark does not position properly, disassemble the joint and check the position of the gasket. If it is twisted or pushed out of its seat ("fish-mounted"), inspect components, repair or replace damaged items, clean the components, and repeat the assembly steps. Be sure both pipe lengths are in concentric alignment. If the gasket was not out of position, verify proper location of the reference mark.

To join field-cut pipe, first square cut the pipe end. Use a factory-finished beveled end as a guide for proper bevel angle and depth of bevel plus the distance to the insertion reference mark. Bevel the end using a pipe beveling tool or a wood rasp which will cut the correct taper. Round off any sharp edges on the leading edge of the bevel.

W-11.10 Joining PVC Pipe to Clay Pipe

The joining of PVC to clay pipe shall be accomplished with flexible compression couplings. Such couplings shall meet the requirements of ASTM Des: C 425 and shall be Series No. 1002 flexible polyvinyl chloride couplings with stainless steel compression bands as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Band-Seal couplings as manufactured by Mission Clay Products Corp., Whittier, California; or equal. Installation of flexible couplings shall be done in accordance with the manufacturer's instructions.

After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-11.11 Joining PVC Pipe to Ductile Iron Pipe

The joining of PVC pipe to ductile iron pipe shall be accomplished with rigid PVC C900 x SDR-35 adapter couplings. Such couplings shall be molded of PVC material meeting ASTM D-1784 specifications. Joints shall meet ASTM D-3213 requirements with gaskets conforming to ASTM F-477. The adapter couplings shall be manufactured by Harco, Lynchburg, Virginia, or equal. Installation of rigid couplings shall be done in accordance with the manufacturer's instructions.

After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-11.12 Connection to Manholes

The Contractor will be required to submit a shop drawing, detailing the method of connecting the proposed pipe to the manhole and making it watertight. For connecting PVC pipe, the Contractor shall use a flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock.

Should the flexible rubber boot need to be relocated when connecting to an existing manhole, the Contractor shall perform the connection by one of two methods. The preferred method is to core the manhole and install a rubber boot. The rubber boot shall be manufactured by Kor-n-Seal, or equal. The boot shall be installed and the PVC pipe connection shall be in accordance with the manufacturer's instructions. If the manhole cannot be cored or if the manhole is constructed of brick, the connection shall be made with a PVC manhole adapter which has an exterior impregnated silica surface layer. The adapter shall be manufactured by GPK Products, Inc., Fargo, North Dakota, or equal. The adapter shall be installed and grouted into the manhole wall in accordance with the manufacturer's instructions with non-shrink grout. The PVC pipe shall be inserted through the adapter.

W-11.13 Storage of PVC Pipe

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage, or deformation to bell ends of the pipe. When unit packages of PVC pipe are stacked, ensure that the weight of upper units does not cause deformation to pipe in lower units.

PVC pipe unit packages shall be supported by racks or dunnage to prevent damage to the bottom during storage. Supports shall be spaced to prevent pipe bending.

PVC pipe shall not be stored close to heat sources or hot objects such as heaters, boilers, steam line, engine exhaust, etc.

When unit packages of PVC pipe are stacked, ensure that the height of the stack does not result in instability which could cause stack collapse, pipe damage, bodily injury, and property damage.

The interior as well as all sealing surfaces or pipe, fittings, and other accessories shall be kept free from dirt and foreign matter.

Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease.

W-11.14 Handling of PVC Pipe - Standard Procedures

When using fork lifts or other handling equipment, prevent damage to PVC pipe.

When handling PVC pipe, avoid severe impact blows, abrasion damage and gouging or cutting by metal surfaces or rocks. Avoid stressing bell joints and damage of bevel ends.

Pipe shall be lowered, not dropped, from trucks and into trenches.

In preparation for pipe installation, placement (stringing) of pipe shall be as close to the trench as practical and on the opposite side from excavated earth. Bell ends shall point in the direction of work progress.

The Engineer may reject any pipe that shows visible signs of damage resulting from poor storage and handling practices.

TABLE I

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

TABLE II

SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.483 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23

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SECTION 15 - LAYING AND JOINTING PIPE FOR FORCE MAINS AND SEWERS

W-15.01 General

The installation, delivery, transportation, unloading, and stringing of pipes, fittings, and accessories for force mains and sewers shall be done in accordance with AWWA C600 for ductile iron pipe and ASTM Des: C 12 for clay and concrete pipe and ASTM D 2321 and pipe manufacturer's recommendations for PVC pipe, as modified or supplemented by the specifications of this section and by the details shown on the Plans.

Proper and suitable tools and appliances for the safe and convenient cutting, handling, and laying of the pipe and fittings shall be used.

Suitable fittings shall be used where shown and at connections where grade or alignment changes require offsets greater than those recommended by the pipe manufacturer.

Pipes and fittings shall be thoroughly cleaned before they are laid and shall be kept clean until they are accepted in the completed work.

All lines shall be closed off with bulkheads when pipe laying is not in progress.

Before being laid, all pipe and specials shall be thoroughly examined for defects, and no piece shall be installed which is known to be defective. If any defective piece should be discovered after having being installed, it shall be removed and replaced with a sound one in a satisfactory manner by the Contractor at his own expense.

Pipe shall be thoroughly cleaned before it is laid and shall be kept clean until it is accepted in the completed work. Special care shall be exercised to avoid leaving bits of wood, dirt, and other foreign particles in the pipe. If any such particles are discovered before the final acceptance of the work, they shall be removed and the pipe cleaned at the Contractor's expense.

Pipe laying for sewers shall begin at the low end of a run and proceed upgrade. Generally, all such pipe shall be laid with bells or grooves pointing uphill. Each pipe shall be carefully placed and checked for line and grade.

Adjustments to bring pipe to line and grade shall be made by scraping away or filling in granular material under the body of the pipe, but in no case by wedging or blocking up the barrel. The faces of the spigot ends and the bells shall be brought into fair contact, and the pipe shall be firmly and completely shoved home. As the work progresses, the interior of the pipelines shall be cleaned of all dirt and superfluous materials of every description. All lines shall be kept absolutely clean during construction. Pipelines shall be laid accurately to line and grade.

Gaskets for pipe joints shall be stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed. Any gaskets showing signs of checking, weathering, or other deterioration will be rejected.

Pipe shall be of the types, sizes, and classes shown on the Plans or as listed in the Contract Items.

Each piece of pipe shall be inspected and cleaned before it is lowered in the trench and any lumps or projections on the face of the spigot or tongue end or the shoulder shall be cut away. No cracked, broken, or defective pieces shall be used in the work.

Concrete pipe manufactured with a plastic sheet liner shall be laid so that the liner is on the crown of the pipe and placed symmetrically about the vertical centerline of the pipe.

Pipe laying will be permitted only in dry trenches having a stable bottom. Where groundwater is encountered, the Contractor shall make every effort to secure an absolutely dry trench bottom.

If, in the opinion of the Engineer, the Contractor has failed to obtain an absolutely dry trench bottom by improper or insufficient use of all known methods of trench dewatering, the Engineer may then order the Contractor to excavate below grade and place sufficient selected fill material, crushed stone, or Class D concrete over the trench bottom at the Contractor's own expense.

If all efforts fail to obtain this condition and the Engineer determines that the trench bottom is unsuitable for pipe foundation, he will order in writing the kind of stabilization to be constructed.

W-15.02 Transportation and Delivery

Every precaution shall be taken to prevent injury to the pipe during transportation and delivery to the site. Extreme care must be taken in loading and unloading the pipe and fittings. Such work must be done slowly with skids or suitable power equipment, and the pipe shall be under perfect control at all times. Under no condition shall the pipe be dropped, bumped, dragged, pushed, or moved in any way which will cause damage to the pipe or coating. When handling the pipe with a crane, a suitable pipe hook or sling around the pipe shall be used. Under no condition shall the sling be allowed to pass through the pipe unless adequate measures are taken to prevent damage to the pipe ends.

If in the process of transportation, handling, or laying, any pipe or special is damaged, such pipe or pipes shall be replaced or repaired by the Contractor at his own expense.

The Contractor shall furnish and install suitable blocking and stakes so as to prevent the pipe from rolling. The type of blocking and stakes, and the method of installation, shall be approved by the Engineer.

W-15.03 Pipe Laying - Trenches

Pipelines shall be laid in trench excavation on bedding material as specified under the Workmanship and Materials section headed "Backfilling," Class D concrete cradle or other foundations as shown on the Plans, specified, or ordered in writing by the Engineer. The pipe shall be properly secured against movement and pipe joints shall be made in the excavation as required.

The pipe bedding shall be carefully graded, compacted, and formed to fit the bottom quadrant of the pipe. Bell holes shall be cut out for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length.

Where pipelines are laid in Class D concrete cradle or encasement, the installation shall conform to the requirements of the Workmanship and Materials section headed "Pipe Cradles and Encasements."

Pipelines laid on other type foundations shall be installed as specified for such other foundations or as directed in writing by the Engineer.

W-15.04 Lateral Detection Tape

Detectable underground marking tape shall be installed over all laterals from the edge of pavement to the property line. The tape shall be Lineguard encased aluminum foil, or equal. The 2-inch wide tape shall be APWA green and reverse printed bearing the identification of the sewer line below it and a warning such as "CAUTION."

The tape shall be buried 4-6 inches above the lateral. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill.

W-15.05 Mechanical Joints for Ductile Iron Pipe

In making up mechanical joints, the spigot shall be centered in the bell. The surface with which the rubber gasket comes in contact shall be cleaned thoroughly and the gasket shall be washed thoroughly with soapy water just prior to assembly of the joint. The gasket and gland shall be placed in position, the bolts inserted, and the nuts tightened fingertight. The nuts then shall be tightened by means of a torque wrench in such a manner that the gland shall be brought up evenly into the joint. The following range of bolt torques shall be applied:

Bolt Size Inches	Range of Torque Foot-Pounds
5/8	45 - 60
3/4	75 - 90
1	80 - 100
1-1/4	105 - 120

If effective sealing is not obtained at the maximum torque listed above, the joint shall be disassembled and reassembled after a thorough cleaning.

All bolts and nuts shall be field coated with a bituminous coating after assembly of the joint.

W-15.06 Push-on Joints for Ductile Iron Pipe

In making up push-on joints, the gasket seat in the socket shall be cleaned thoroughly and the rubber gasket shall be wiped clean with a cloth. The gasket shall be placed in the socket and a thin film of lubricant shall then be applied to the inside surface of the gasket that will come in contact with the entering pipe. The plain end of the pipe to be entered shall be cleaned thoroughly and placed in alignment with the bell of the pipe to which it is to be joined. The joint shall be made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket.

W-15.07 Joining Clay Pipe

The joining of clay pipe with flexible plastic joints shall be done in accordance with the manufacturer's instructions. The joint surface on both the bell and spigot ends shall be wiped clean and coated with a lubricant furnished by the manufacturer to facilitate assembly. The spigot end shall be inserted in the bell and pressure applied sufficient to seat the pipe properly. After the joint has been completed, any voids in the excavation beneath the spigot shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-15.08 Joining of PVC Pipe-Gravity

The assembly of gasketed joints shall be performed as recommended by the pipe manufacturer. In all cases clean the gasket and bell, especially the groove area and the spigot area, with a rag, brush or paper towel to remove any dirt or foreign material before the assembly. Lubricant shall be applied as specified by the pipe manufacturer.

Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Apply firm steady pressure either by hand or by bar and block assembly until the spigot easily slips through the gasket.

If undue resistance to insertion of the pipe end is encountered or the reference mark does not position properly, disassemble the joint and check the position of the gasket. If it is twisted or pushed out of its seat ("rolled"), inspect components, repair or replace damaged items, clean the components, and repeat the assembly steps. Be sure both pipe lengths are in concentric alignment. If the gasket was not out of position, verify proper location of the reference mark.

To join field-cut pipe, first square cut the pipe end. Use a factory-finished beveled end as a guide for proper bevel angle and depth of bevel plus the distance to the insertion reference mark. Bevel the end using a pipe beveling tool or a wood rasp which will cut the correct taper. Round off any sharp edges on the leading edge of the bevel.

W-15.09 Joining Concrete Pipe

Before joining concrete pipe using flexible rubber gaskets, the joint surfaces of both the bell and spigot (tongue and groove) ends shall be wiped clean. Any lumps, projections, burrs, or chips which would interfere with the proper compression of the gasket shall be repaired. The spigot or tongue end with the gasket in place and with all surfaces lubricated as recommended by the manufacturer, shall be inserted into the bell or groove. Pressure shall be applied to seat the pipe properly in the bell or groove. Voids under the pipe shall be tamped full of granular material to provide full bearing for the pipe.

Curves for reinforced concrete pipe sewers shall be constructed with standard pipe where the opening of the joint on the outside of the curve is less than 1/2 inch. Where greater opening of the joint would be required, the curves shall be constructed using beveled or radius pipe with standard joints.

Curves for reinforced concrete pressure pipe or prestressed concrete pipe shall be constructed with standard pipe sections, where the opening of the joint on the outside of the curve is less than 1/2 inch, or with beveled pipe, precast elbows or combination of these methods.

W-15.10 Concrete Pipe Rubber Gasket Joints

Rubber gaskets shall be of the O-ring type or equivalent cross section approved by the Engineer. The composition and properties of the gaskets for gravity flow sewers shall meet the requirements of ASTM Des: C 443.

Composition and properties for concrete pressure pipe gaskets shall meet the requirements of the specifications for the concrete pressure pipe with which the gasket will be used.

In making O-ring rubber gasketed joints, the gasket and the pipe socket shall be lubricated with an approved rubber gasket lubricant, and the gasket shall be stretched over the spigot and placed accurately in position. The tongue or spigot end shall be carefully centered in the socket of the preceding pipe so as

to avoid displacement of the gasket, and the pipe shall be drawn home fully compressing the gasket. Adjustments to line and grade shall be made in such a manner that the compressed rubber gasket will not be disturbed. Before proceeding with backfilling, the joint shall be felt completely around to determine whether the gasket is in its proper position. If the gasket can be felt out of place, the pipe shall be withdrawn and the gasket examined for cuts or breaks. If the gasket has been damaged, it shall be replaced with a new one before the pipe is replaced.

Rubber gaskets shall be stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed. Any gaskets showing signs of checking, weathering, or other deterioration will be rejected.

W-15.11 Temporary Bulkheads

At the ends of contract sections, where adjoining pipelines have not been completed, and in connections built into pipelines where adjoining pipelines or structures have not been completed and are not ready to be connected, temporary bulkheads, approved by the Engineer, shall be built. Such bulkheads encountered in connecting sewers or structures included in the Contract, or pipelines or structures previously built, shall be removed by the Contractor when the need for them has passed or when ordered by the Engineer.

W-15.12 Testing

The testing of pipelines shall be done in accordance with the requirements of the Workmanship and Materials section headed "Leakage Tests."

W-15.13 Joining Clay, Solid Wall PVC, or PVC Composite to Ductile Iron Pipe

The joining of clay pipe to ductile iron pipe shall be accomplished with flexible compression couplings. Such couplings shall meet the requirements of ASTM DES: C 425 and shall be Series No. 1002 flexible polyvinyl chloride couplings with stainless steel compression bands as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Band-Seal couplings as manufactured by Mission Clay Products Corp., Whittier, California; or approved equal. Installation of flexible couplings shall be done in accordance with the manufacturer's instructions. After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

The joining of PVC pipe to ductile iron pipe shall be accomplished with rigid PVC C900 x SDR-35 adapter couplings. Such couplings shall be molded of PVC material meeting ASTM D-1784 specifications. Joints shall meet ASTM D-3213 requirements with gaskets conforming to ASTM F-477.

The adapter couplings shall be manufactured by Harco, Lynchburg, VA, or equal. Installation of rigid couplings shall be done in accordance with the manufacturer's instructions. After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-15.14 Connection to Manholes

The Contractor will be required to submit a shop drawing, detailing the method of connecting the proposed pipe to the manhole and making it watertight:

1. For connecting vitrified clay or ductile iron pipe, the Contractor shall use nonshrink grout to seal the opening between the pipe O.D. and manufactured opening in the manhole or flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock.

2. For connecting PVC pipe, the Contractor shall use a flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock. Should the flexible rubber boot need to be relocated or when connecting to an existing manhole, the Contractor shall perform the connection by one of two methods. The preferred method is to core the manhole and install a rubber boot. The rubber boot shall be manufactured by Kor-n-Seal, or equal. The boot shall be installed and the PVCP connection shall be in accordance with the manufacturer's instructions. If the manhole cannot be cored or if the manhole is constructed of brick, the connection shall be made with a PVC manhole adapter which has an exterior impregnated silica surface layer. The adapter shall be manufactured by GPK Products, Inc., Fargo, ND, or equal. The adapter shall be installed and grouted into the manhole wall in accordance with the manufacturer's instructions with nonshrink grout. The PVCP shall be inserted through the adapter.

W-15.15 Joint Grouting

Joints for concrete pipelines using rubber gaskets and steel end rings shall be grouted on the outside with cement mortar composed of one part Type IA portland cement to one part sand by volume. The materials shall be thoroughly mixed to produce a uniform mortar with all aggregate particles well coated.

The joint grouting shall not advance closer than two pipe lengths to the laying operations. In grouting the joint, a cloth diaper shall be used to encase the outside diameter of the bell of the pipe and adequately straddle the joint recess so as to keep out dirt and to serve as a form for grouting. The joint space shall be filled with cement mortar, just thin enough to run around the joint. The diaper is to be left in place permanently. Before the mortar has taken its initial set, the diaper shall be examined, and if not completely filled, additional mortar shall be forced into the joint.

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SECTION 18 - LEAKAGE TESTS

W-18.01 General

All pipelines will be tested and inspected for infiltration or leakage by the Engineer with the assistance of the Contractor prior to final acceptance of the work. All tests and inspections will be conducted in a manner to minimize as much as possible any interference with the Contractor's work or progress.

The Contractor shall notify the Engineer when the work is ready for testing and inspecting, and tests and inspections shall be made as soon thereafter as practicable under the direction of the Engineer. Personnel for reading meters, gauges, or other measuring devices will be furnished by the Engineer. The Contractor shall furnish all other labor, materials, services, and equipment, including power, fuel, meters and gauges, pumps, bulkheads, backflow preventers, water, and other items and apparatus necessary for making leakage tests, preparing pipelines for testing, assembling, placing, and removing testing equipment, and placing pipelines in service, all to the satisfaction of the Engineer. Only City water shall be used for testing unless otherwise approved by the Engineer. The water shall be obtained and metered from sources approved by the Engineer. After testing, the water shall be disposed of by the Contractor into storm sewers or drainage courses approved by the Engineer.

W-18.02 Tests of Sewer – General

All sewers shall be tested for infiltration or leakage after completion of backfilling. All wyes, house connections, and stubs shall be suitably plugged or bulkheaded to the satisfaction of the Engineer prior to testing. All sewers shall be cleaned and pumped out as necessary prior to testing.

Sewers shall be tested for infiltration, unless otherwise ordered by the Engineer. If the Engineer determines that groundwater conditions are not suitable for infiltration testing, sewers shall be tested for leakage. Sewers may be tested for leakage by measuring leakage out of the sewer or by air testing. The length of sewer to be tested shall be subject to prior approval by the Engineer.

The length of house connections, if any, will be included in the total length of sewer under test when computing infiltration or leakage.

All testing equipment and the arrangement of such equipment shall be subject to the prior approval of the Engineer. Sections of sewers under test shall be arranged to prevent the internal pressure on any joint from exceeding 10 psi.

Refer to Section 11 - PVC Pipe Gravity for specific requirements for infiltration and leakage testing for PVC gravity pipe.

W-18.03 Infiltration Test of Sewers

Infiltration tests shall be performed when the groundwater level is a minimum of 2 feet above the crown of the sewer at the highest point in the test section. No such tests shall be started until the infiltration conditions are established in the work to be tested. The Contractor shall provide suitable observation wells along the line of the work or other approved means to determine the groundwater level.

Infiltration tests will be made by measuring the infiltrated flow of water over a measuring weir set up in the invert of the sewer a distance, as approved by the Engineer, from a temporary bulkhead or other limiting point of infiltration. Testing shall be for a minimum period of 4 hours. The quantity of infiltration for any section of the sewer shall not exceed 50 gallons/mile/day/inch of pipe diameter.

W-18.04 Leakage Test of Sewers

Leakage tests shall be performed by bulkheading the section of sewer under test at the manhole, at the lower end, and filling the sewer with clear water until the water level is up a minimum of 2 feet above the crown of the sewer or a minimum of 2 feet above the groundwater level, whichever is greater, in the manhole at the highest point in the section. Leakage will be the measured amount of water added to maintain the level in the higher end manhole. Tests shall be carried on a minimum of 4 hours with readings at 30-minute intervals. The quantity of leakage for any section of the sewer shall not exceed the limits specified for infiltration in the subsection headed "Infiltration Test of Sewers."

W-18.05 Air Leakage Test of Sewers

Air pressure leakage tests shall be limited to sewers 30 inches in diameter and smaller. The maximum allowable air leakage is based on prewetted pipe walls. The contractor may, therefore, fill the pipe with clear water and then empty the pipe prior to air testing. When pipe walls are prewetted, air leakage tests shall be completed within 24 hours after filling the sewer section to be tested.

Air pressure tests shall be made by placing the sewer under 3.0 psig air pressure and measuring the volume of air required to maintain this pressure. The rate of air leakage shall be determined when the system reaches an equilibrium state and air flow shall be read by means of an approved rotameter.

The maximum rate of air loss shall be 0.003 cfm per square foot of interior pipe surface, and the maximum air flow shall not exceed 2.0 cfm when the total pressure on the sewer is maintained at 3.0 psig. When the groundwater level is above the invert of the sewer, but below a level adequate for infiltration testing, the maximum air loss shall be reduced 6 percent for each foot of groundwater above the sewer invert.

Air testing equipment shall be arranged so that compressors, valving, gauges, and other test devices are located at the ground surface. Air testing equipment shall have an approved air relief arrangement to prevent the sewer from being pressurized to greater than 10.0 psig.

W-18.06 Leakage Tests of Force Mains

Force mains shall be tested as a whole or in sections valved or bulkheaded at the ends. The mains shall be tested under an average hydrostatic pressure of not less than 100 pounds per square inch, unless otherwise indicated in the Specific Provisions. The pressure shall be applied to the pipeline through a tap in the pipe by means of a hand pump or other method and shall be maintained for a minimum of 4 hours. Air shall not be used for testing force mains.

The leakage for all force mains, as determined by the above test, shall not exceed the allowable leakage for iron water mains as given by the following formula in Section 4.2.2. of AWWA Specification C600:

$$L = \frac{SD \times \sqrt{P}}{133{,}200}$$

in which L is the allowable leakage, in gallons per hour, S is the length of force main tested in feet, D is the nominal diameter of the pipe in inches, and P is the average test pressure in psi gauge.

During the test, each valve shall be operated through several complete cycles of closing and opening. In addition, each valve, when in the closed position, shall have the test pressure applied to one end of the valve only. Each end of the valve shall be tested in this manner. There shall be no visible leakage through the valves, and the valves shall not show any evidence of structural distress.

All harnessed sections of the buried force main shall be completely backfilled before such sections are tested.

W-18.07 Repairing Leaks

When infiltration or leakage occurs in excess of the specified amount, defective manholes, pipe, pipe joints, or other appurtenances shall be located and repaired at the expense of the Contractor. If the defective portions cannot be located, the Contractor, at his own expense, shall remove and reconstruct as much of the original work as necessary to obtain a sewer or force main within the allowable infiltration or leakage limits upon such retesting as necessary and directed by the Engineer.

* * *

SECTION 20 – MAINTAINING EXISTING SANITARY SEWER IN OPERATION

W-20.01 General

It shall be the Contractor's responsibility to preserve all existing sanitary sewer services without interruption while performing the work included in this project. The Contractor shall furnish all labor, materials, and equipment required to bypass wastewater flow around the working area to an acceptable point of discharge. Also, if deemed necessary by the engineer, the Contractor will be responsible to provide necessary noise suppression devices to minimize bypass pump noise.

The Contractor shall not be permitted to pump or otherwise direct the flow of sanitary sewage into storm sewers, streams, or other open channels or onto streets or alleys at any time during the course of the work.

W-20.02 Bypass Pumping

The Contractor shall submit the proposed plan to the Engineer for approval prior to proceeding with the work. All required agency approvals and permits shall be the responsibility of the Contractor. The hydraulic design of the bypass pumping arrangement shall be the sole responsibility of the Contractor.

Pumping equipment shall be of a type suitable for pumping raw unscreened sewage over an indefinite period without clogging or requiring shutdown for routing maintenance. Bypass pumping shall be continuous during the entire length of time each portion of the work is being accomplished. The Contractor shall submit drawings and equipment specifications, detailing the proposed pumping equipment and the method of installation, to the Engineer for approval.

The Contractor shall possess at least one (1) backup pump, no smaller than the largest pump in use, on site for every 1 to 3 bypass pumps in operation. An additional backup pump shall be required on site for each increment of 3 pumps in operation as illustrated on the following table:

Operating Bypass pumps	Required Backup Pumps On Site
1 – 3	1
4 – 6	2
7 – 9	3

W-20.03 Connections

All house laterals and connections to lateral sewers shall be maintained in operation without leakage or backup during the work.

W-20.04 Street Closures

The Contractor shall be responsible for coordination of maintenance of traffic and all street closures with the City of Tampa, Department of Public Works.

W-20.05 Cleanup

When the repair or reconstruction has been completed, all temporary connections and bulkheads shall be removed. Sewers shall be cleaned of all settled solids.

* *

CONTRACT ITEMS

FOR SANITARY SEWER RELOCATION WORK

CONTRACT ITEM 0700 SERIES - SOLID WALL PVC PIPE

The contractor shall furnish all materials and equipment, construct, test, and maintain complete all pipe sewer as shown on the Plans, specified, and directed by the Engineer.

The work includes all related work and appurtenances required to locate existing sanitary sewer lines and make the connections as shown on the Plans to the proposed lines, maintaining existing sanitary sewer in operation, removal of existing sanitary sewer pipe systems including manholes as shown on the Plans or directed by the Engineer, sidewalks, driveways, curbs, curb and gutter, and permanent pavement, excavation, short tunnels, backfill, sheeting, shoring, bracing, dewatering, pipe bedding, pipe fittings, pipework, making all pipe connections, standard pipe cradles and encasements shown on the Plans, installation and removal of plugs and bulkheads, testing, special temporary and nonpermanent pavement replacement, nonpermanent sidewalk and driveway replacement, protection, repair and replacement of utilities and house services, maintenance of traffic, including maintaining access across driveways along the line of the work, protection, trimming and replacement of trees and shrubs, protection, repair and replacement of culverts and other storm water facilities, reconstruction or regrading of road shoulders and ditches, disposal of surplus excavated material, protection of existing structures, making joints between pipes and manholes or structures and all other work incidental to the installation of the sanitary sewer pipe complete in place.

The work does not include sheeting left in place, rock excavation, manholes, surface restoration comprising lawn or permanent pavement replacement, additional earth excavation or additional selected fill materials, driveways, sidewalk and curb or curb and gutter replacement and, when shown on the Plans or ordered, such work will be paid for under other appropriate Contract Items.

The quantity of sewer pipe, in linear feet, to be measured for payment shall be the actual length of new pipelines placed in the work, as shown, specified and directed. Depth of cut for sanitary sewers shall be measured from the original ground surface to the pipe invert. Pipelines will be measured along the centerline of the pipe.

The measured length of gravity sanitary sewers, regardless of pipe material, will include all fittings, short tunnels and manholes with no deductions for wyes, tees and the width of manholes. Deductions in the measured length of gravity sanitary sewers will be made for the width of structures, such as junction boxes, measured from the outside face to the outside face of the structure walls, plus one foot.

The measured length for sanitary force mains will include all fitting and short tunnels with deductions for the laid length of valves.

Payment for Sewer Pipe will be made at the appropriate Contract Item Unit Price per linear foot of the respective pipe.

Payment shall be made under:

Item No. 0700-1	Wastewater Pipe (F&I) (6” PVC) < 5’ Deep	LF
Item No. 0700-2	Wastewater Pipe (F&I) (6” PVC) > 5’ Deep	LF

CONTRACT ITEM 4900 SERIES - CONNECTION TO EXISTING MANHOLE

The Contractor shall furnish all labor, equipment and materials required to connect the proposed pipeline into existing manholes as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, dewatering, breaking into the existing manhole, removal and disposal of rubble and excess material, installation of sewer pipe, sealing the voids around the pipe, backfilling, compacting and all other work incidental to connection to existing manhole.

Payment for Connection to Existing Manholes will be made at the appropriate Contract Lump Sum Price or per manhole as designated in the proposal.

Payment shall be made under:

Item No. 4900-1	Connection to Exist. Manhole	EA

CONTRACT ITEM 5000 - REMOVAL OF EXISTING MANHOLES AND SEWER PIPE

The Contractor shall furnish all labor, materials and equipment to remove the existing manholes and sewer pipe outside the payment limits complete as shown on the Plans, specified, and directed by the Engineer.

The work includes excavation, backfilling and compaction of clean material in 12" lifts, selected fill material, temporary shoring, dewatering, removal of pavement, sidewalks, curb, curb and gutter, concrete or crushed stone work, nonpermanent and special temporary pavement replacement, disposal of surplus excavated material, protection of adjacent facilities and removal and transportation of manhole frames and covers as specified on the Plans.

The Engineer reserves the right to determine and designate the individual manholes and parts of existing sewer lines to be removed.

Not included in the work are additional earth excavation and additional select sand fill material which, if ordered or specified, will be included for payment under other Contract Items.

Payment for Removal of Existing Manholes and Sewer Pipe will be made at the Contract Item Unit Price per linear foot of sewer pipe removed measured along the centerline of the sewer including the distance within each manhole. The unit price per foot of length of pipe under this item includes the cost of placing and compacting with approved materials to completely fill the void created by the removal of the pipe and manholes.

Payment shall be made under:

Item No. 5000-1	Wastewater Pipe Removal	LF
Item No. 5000-2	Sanitary Sewer Manhole Removal	EA

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SPECIFIC PROVISIONS
FOR SANITARY SEWER RELOCATION WORK

SP-15.01 Data to be Submitted on Pipe

Within ten days after the date the Contractor is issued the Notice of Award and prior to his entering into any subcontract for the manufacture or purchase of any pipe, the Contractor shall submit to the Engineer, in an amount equal to four (4) sets to be retained by the City plus the number of sets desired by the Contractor, the following information:

The name and address of the pipe manufacturer and the location of the plant at which the pipe will be manufactured.

A general description of and specifications for the pipe and pipe joints proposed.

Notarized certificates of manufacture for VCP, PVC, HDPE, and DIP stating conformance to applicable standards and specifications.

Any additional information that the Engineer may deem necessary in order to evaluate the qualifications of the manufacturer and to determine the suitability of the proposed pipe to meet the requirements of the Contract Documents.

The Contractor shall not enter into any subcontract for the furnishing of pipe until he has received the Engineer's approval, in writing, of the proposed manufacturer and pipe.

All pipe of specified classes and materials shall be of one kind and shall be produced by a single manufacturer.

SP-15.02 Sanitary Sewer Lateral Reconstruction

All sanitary sewer laterals, in conflict, shall be reconstructed as indicated on the plans and as directed by the Engineer.

The laterals shall be constructed as indicated on the sanitary sewer standard sheet.

SP-15.03 Alignment Survey Gravity Pipe Sewer or Force Main

The Contractor shall employ the services of a Land Surveyor, registered in the State of Florida, to survey the centerline alignment of the new gravity storm sewer pipe, gravity sanitary sewer pipe, or force main. All manhole locations or horizontal points of intersection, deflection angles, proposed manhole rim elevations, and proposed finished roadway elevations at the manholes shall be noted in the survey with their respective field stations. In the event of discrepancies between the centerline stationing shown on the Plans and that obtained by the actual field survey, the Contractor shall notify the Engineer. The Engineer will advise the Contractor of any appropriate adjustments in alignment of the sewer or force main, or locations of manholes or horizontal points of intersection. The alignment survey must be submitted to the Engineer and approved by him prior to submitting shop drawings on manhole, structures, inlets, etc.

The Land Surveyor shall also establish construction centerline offset hubs at 100-foot intervals as directed by the Engineer. The Contractor shall protect these hubs from displacement or damage during construction. Any offset hubs damaged or displaced shall be reset by the Land Surveyor to the satisfaction of the Engineer.

The cost of the survey and establishing and resetting offset hubs shall be included in the respective unit price Contract Item, or total Lump Sum Price, as applicable, and no additional payment will be made therefor.

SP-15.04 City Testing

The cost of retesting materials and/or workmanship, which has been initially tested by the City and found to be unacceptable, is to be borne by the Contractor.

END OF SECTION SANITARY SEWER WORK

CITY OF TAMPA MODIFIED SPECIFICATIONS FOR ASPHALTIC PAVEMENT

SECTION 330

HOT BITUMINOUS MIXTURES

This subsection shall Replace and/or Modify Portions of F.D.O.T Standard Specifications for Road and Bridge Construction 330,331, and 334. All references to the CITY OF TAMPA shall mean the local agency. All references to the Engineer shall mean the designated Engineer of the local agency. Any incorrect references to FDOT specifications, test methods, or standards should be brought to the attention of the Engineer for clarification.

330-1 Description. Construct plant-mixed hot bituminous pavements and bases. Establish and maintain a quality control system that provides assurance that all materials, products and completed construction submitted for acceptance meet Contract requirements.

330-1.1 General: Meet the requirements of Section 320 for plant and equipment, and meet the general construction requirements of Section 330. The Engineer will accept the work based on one of the following methods as described in 334-5 and 334-6: 1) **Asphalt Work Category 1,** 2) **Asphalt Work Category 2,** 3) **Asphalt Work Category 3**

330-1.2 Quality Control/Acceptance Testing: The contractor's submittal of documentation for quality control testing may be waived by the Engineer; however, the contractor shall not be exempt from implementing quality control procedures regarding material and workmanship. The local agency shall perform the quality acceptance testing, or utilize a licensed private testing laboratory of the Engineer's choice.

END OF SECTION HOT BITUMINOUS MIXTURES

CITY OF TAMPA MODIFIED SPECIFICATIONS FOR ASPHALTIC PAVEMENT

SECTION 331

331-1 Description.

331-1.1 General: Construct a Type S Hot Mix Asphalt (HMA) pavement course as specified by the Contract. The general composition and physical test properties for all mixes shall be met per F.D.O.T Standard Specifications for Road and Bridge Construction. Meet the applicable requirements for plants, equipment, and construction requirements.

Where Type S Asphalt Concrete is specified in the Contract, if approved by the Engineer, the equivalent fine Type SP Asphalt Concrete mixture (Traffic Level C) meeting the requirements of Section 334 may be selected as an alternate at no additional cost to the Department. The equivalent mixes are as follows:

Type S-I .....Type SP-12.5
Type S-II .....Type SP-19.0
Type S-III .....Type SP-9.5

Meet the requirements for plant and equipment specified in Section 320. Meet the general construction requirements specified in Section 330.

331-1.2 Layer Thicknesses:

331-1.2.1 Structural Layers: The allowable layer thicknesses for Type S Asphalt Concrete mixtures used in structural and overbuild applications is as follows:

Type S-III... 3/4 – 1 1/4 inches [20 – 30 mm]
Type S-I .. 1 1/4 – 2 1/2 inches [30 – 60 mm]
Type S-II .....2 – 2 3/4 inches [50 – 70 mm]

In addition to the minimum and maximum thickness requirements, the following restrictions are placed on Type S mixtures when used as a structural course:

Type S-III – Limited to the final (top) structural layer, one layer only.

Type S-I – May not be used in the first layer of courses over 3 1/2 inches [90 mm] thick, nor in the first layer of courses over 2 3/4 inches [70 mm] thick on limited access facilities.

Type S-II – May not be used in the final (top) structural layer.

331-1.2.2 Additional Requirements: The following requirements also apply to Type S Asphalt Concrete mixtures:

1. A minimum 1 1/2 inch [40 mm] initial lift is required over an Asphalt Rubber Membrane Interlayer (ARMI).
2. When construction includes the paving of adjacent shoulders (#5 feet [#1.5 m] wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless shown differently in the plans.
3. All overbuild layers shall be Type S asphalt concrete. Use the minimum and maximum layer thicknesses as specified in 331-1.2.1 unless shown differently in the plans. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch [13 mm], and the maximum allowable thickness may be increased 1/2 inch [13 mm], unless shown differently in the plans. Other variations from these thicknesses must be approved by the Engineer.

331-4 General Composition of Mixture.

331-4.3 Mix Design: Prior to the production of any asphalt mixture, obtain the Engineer's conditional approval of the mix design. If required by the Engineer, send representative samples of all component materials, including asphalt binder to a laboratory designated by the Engineer for verification. The Engineer will consider any marked variations from original test data for a mix design or

any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and at his discretion, the Engineer may no longer allow the use of the mix design. Furnish the following information:

1. The specific project on which the mixture will be used.
2. The source and description of the materials to be used.
3. The gradation and approximate proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use.
4. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly No. 200 [75 µm]) should be accounted for and identified for the applicable sieves.
5. A single percentage of asphalt by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%. For structural mixes (S-I, S-II and S-III) establish the optimum asphalt content at a level corresponding to a minimum of 4.5% air voids. For FC-3 mixes, establish optimum asphalt content at a level corresponding to a minimum of 5.0% air voids.
6. A single temperature at which the mixture is intended to be discharged from the plant.
7. The laboratory density of the asphalt mixture for all mixes except Open-Graded Friction Courses.
8. Evidence that the completed mixture will meet all specified physical requirements.
9. The name signature dated of the individual responsible for the Quality Control of the mixture during production.

331-4.4 Contractor Quality Control: Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for quality control purposes.

331-5 Acceptance Procedures:

331-5.1 General Construction Requirements: shall meet same requirements as 334-5 General Construction Requirements (with exception to requirements regarding SP spread rates, unless specified by the Engineer).

331-6 Acceptance of the Mixture: shall meet same requirements as 334-6 Acceptance of the Mixture (with exception to Table 334-3 to be replaced with Table 331-6).

Table 331-6
Tolerances for Acceptance Tests

Characteristic	Tolerance
Asphalt Binder Content	±0.55%
Passing No. 4 [4.75 mm] sieve	±7.00%
Passing No. 10 [2.00 mm] sieve	±5.50%
Passing No. 40 [425 µm] sieve*	±4.50%
Passing No. 200 [75 µm] sieve	±2.00%
*Applies only to Types S-I, S-II, S-III, and FC-	

331-7 Acceptance of the Mixture at the Roadway: shall meet same requirements as 334-6 Acceptance of the Mixture (with exception to Table 334-3 shall be replaced with Table 331-6).

Table 334-7
Roadway Density Acceptance Values

Characteristic	Tolerance
Roadway Density (average of three cores)	92.0% Gmm (proposed mix design)
Roadway Density (avg.of 5 tests nuclear method)	95.0% Gsb (proposed mix design)
Roadway Density (avg.of 5 tests nuclear method)	96.0 % Gsb (lab density)

END OF SECTION 331

CITY OF TAMPA MODIFIED SPECIFICATIONS FOR ASPHALTIC PAVEMENT

SECTION 334

334-1 Description.

334-1.1 General: Construct a Type SP Hot Mix Asphalt (HMA) pavement based on the type of work specified in the Contract and the Asphalt Work Categories as defined below. Meet the applicable requirements for plants, equipment, and construction requirements as defined below. Use a HMA mix that meets the requirements of this specification.

334-1.2 Asphalt Work Mix Categories: Construction of Hot Mix Asphalt Pavement will fall into one of the following work categories:

334-1.2.1 Asphalt Work Category 1: Includes the construction of bike paths.

334-1.2.2 Asphalt Work Category 2: Includes the construction of new HMA turn lanes, paved shoulders and other non-mainline pavement locations.

334-1.2.3 Asphalt Work Category 3: Includes the construction of new mainline HMA pavement lanes, milling and resurfacing.

334-1.3 Mix Types: Use the appropriate HMA mix as shown in Table 334-1.

Table 334-1
HMA Mix Types

Asphalt Work Category	Mix Types	Traffic Level
1	Type SP-9.5 , or equivalent as determined by the Engineer	A
2	Type SP-9.5, SP-12.5, or equivalent as determined by the Engineer	B or C
3	Type SP-9.5, SP-12.5	C

A Type SP mix one traffic level higher than the traffic level specified in the Contract may be substituted, at no additional cost (i.e. Traffic Level B may be substituted for Traffic Level A, etc.).

334-1.4 Gradation Classification: HMA mixes are classified as either coarse or fine, depending on the overall gradation of the mixture. Coarse and fine mixes are defined in 334-3.2.2. Use only fine mixes.

The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

Type SP-9.5 ..... 9.5 mm
Type SP-12.5 ..... 12.5 mm

334-1.5 Thickness: The total pavement thickness of the HMA Pavement will be based on a specified spread rate or plan thickness as shown in the Contract Documents. Before paving, propose a spread rate or thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan spread rate or thickness. When the total pavement thickness is specified as plan thickness, the plan thickness and individual layer thickness will be converted to spread rate using the following equation:

$$\text{Spread rate (lbs/yd}^2\text{)} = t \times Gmm \times 43.3$$

where: t = Thickness (in.) (Plan thickness or individual layer thickness)
Gmm = Maximum specific gravity from the mix design

For target purposes only, spread rate calculations shall be rounded to the nearest whole number.

334-1.5.1 Layer Thicknesses: Unless otherwise called for in the Contract Documents, the allowable layer thicknesses for HMA mixtures are as follows:

Type SP-9.5 ..... 3/4 - 1 1/2 inches
Type SP-12.5 ..... 1 1/2 - 2 1/2 inches

334-1.5.2 Additional Requirements: The following requirements also apply to HMA mixtures:

1. When construction includes the paving of adjacent shoulders (5 feet wide), the layer thickness for the upper pavement layer and shoulder shall be the same and paved in a single pass, unless otherwise called for in the Contract Documents.

2. For overbuild layers, use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum allowable thickness may be reduced by 1/2 inch, and the maximum allowable thickness may be increased by 1/2 inch, unless called for differently in the Contract Documents.

334-1.6 Weight of Mixture: The weight of the mixture shall be determined as provided in 320-2.2 of the Florida Department of Transportation (FDOT) specifications.

334-2 Materials.

334-2.1 Superpave Asphalt Binder: Unless specified elsewhere in the Contract or in 334-2.3.3, use a PG 67-22 asphalt binder from the FDOT Qualified Products List (QPL).

334-2.2 Aggregate: Use aggregate capable of producing a quality pavement. For Category 2 and 3 projects, require the aggregate supplier to certify that the material meets FDOT requirements.

334-2.3 Reclaimed Asphalt Pavement (RAP) Material:

334-2.3.1 General requirements: RAP may be used as a component of the asphalt mixture if approved by the Engineer. Usage of RAP is subject to the following requirements:

1. Limit the amount of RAP material used in the mix to a maximum of 50 percent by weight of total aggregate.

2. Do not use RAP material in any friction course mixes.

3. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

4. Provide RAP material having a minimum average asphalt content of 4.0 percent by weight of total mix. The Engineer may sample the stockpile to verify that this requirement is met.

5. Use a grizzly or grid over the RAP cold bin, in-line roller crusher, screen, or other suitable means to prevent oversized RAP material from showing up in the completed recycle mixture. If oversized RAP material appears in the completed recycle mix, take the appropriate corrective action immediately. If the appropriate corrective actions are not immediately taken, stop plant operations.

334-2.3.2 Material Characterization: Assume responsibility for establishing the asphalt binder content, gradation, viscosity and bulk specific gravity (G_{sb}) of the RAP material based on a representative sampling of the material.

334-2.3.3 Asphalt Binder for Mixes with RAP: Select the appropriate asphalt binder grade based on Table 334-2. Maintain the viscosity of the recycled mixture within the range of 4,000 to 12,000 poises.

Table 334-2
Asphalt Binder Grade for Mixes Containing RAP

Percent RAP	Asphalt Binder Grade
<20	PG 67-22
20 – 29	PG 64-22
≥30	Recycling Agent

334-3 Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregates, mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the asphalt mixture in accordance with AASHTO R35-04, except as noted herein. Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. Prior to the production of any asphalt mixture, obtain the Engineer's conditional approval of the mix design. If required by the Engineer, send representative samples of all component materials, including asphalt binder to a laboratory designated by the Engineer for verification. The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and at his discretion, the Engineer may no longer allow the use of the mix design.

334-3.2.2 Mixture Gradation Requirements: Combine the aggregates in proportions that will produce an asphalt mixture meeting all of the requirements defined in this specification and conform to the gradation requirements at design as defined in AASHTO M323-04, Table 3. Aggregates from various sources may be combined.

334-3.2.2.1 Mixture Gradation Classification: Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M323-04, Table-3, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M323-04, Table 4. Fine mixes are defined as having a gradation that passes above or through the primary control sieve control point. Use only fine mixes

334-3.2.3 Gyratory Compaction: Compact the design mixture in accordance with AASHTO T312-04. Use the number of gyrations as defined in AASHTO R35-04, Table 1.

334-3.2.4 Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M323-04, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M323-04, Table 6.

334-3.2.5 Moisture Susceptibility: Test 4 inch specimens in accordance with FM 1-T 283. Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi. If necessary, add a liquid anti-stripping agent from the FDOT's Qualified Products List, or hydrated lime in order to meet these criteria.

In lieu of moisture susceptibility testing, add a liquid anti-stripping agent from the FDOT Qualified Products List. Add 0.5% liquid anti-stripping agent by weight of binder.

334-3.2.6 Additional Information: In addition to the requirements listed above, provide the following information on each mix design:

1. The design traffic level and the design number of gyrations (N_{design}).
2. The source and description of the materials to be used.
3. The FDOT source number and the FDOT product code of the aggregate components furnished from an FDOT approved source (if required).
4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation caused by handling and processing as necessary.
5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly material passing the No. 200 sieve) should be accounted for and identified. The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component.
6. A single percentage of asphalt binder by weight of total mix intended to be

incorporated in the completed mixture, shown to the nearest 0.1 percent.

7. A target temperature at which the mixture is to be discharged from the plant and a target roadway temperature. Do not exceed a target temperature of 330°F for modified asphalts and 315°F for unmodified asphalts.

8. Provide the physical properties achieved at four different asphalt binder contents. One shall be at the optimum asphalt content, and must conform to all specified physical requirements.

9. The name of the Mix Designer.

10. The ignition oven calibration factor.

334-4 Contractor Quality Control.

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for quality control purposes.

334-5 General Construction Requirements.

334-5.1 Weather Limitations: Do not transport asphalt mix from the plant to the roadway unless all weather conditions are suitable for the laying operations.

334-5.2 Limitations of Laying Operations:

334-5.2.1 General: Spread the mixture only when the surface upon which it is to be placed has been previously prepared, is intact, firm, and properly cured, and is dry.

334-5.2.2 Air Temperature: Spread the mixture only when the air temperature in the shade and away from artificial heat is at least 40°F for layers greater than 1 inch (100 lb/yd^2) in thickness and at least 45°F for layers 1 inch (100 lb/yd^2) or less in thickness (this includes leveling courses). The minimum temperature requirement for leveling courses with a spread rate of 50 lb/yd^2 or less is 50°F.

334-5.3 Mix Temperature: Heat and combine the ingredients of the mix in such a manner as to produce a mixture with a temperature at the plant and at the roadway, within a range of ±30°F from the target temperature as shown on the mix design. Reject all loads outside of this range.

334-5.4 Transportation of the Mixture: Transport the mixture in vehicles previously cleaned of all foreign material. After cleaning, thinly coat the inside surface of the truck bodies with soapy water or an asphalt release agent as needed to prevent the mixture from adhering to the beds. Do not allow excess liquid to pond in the truck body. Do not use diesel fuel or any other hazardous or environmentally detrimental material as a coating for the inside surface of the truck body. Cover each load at all times.

334-5.5 Preparation of Surfaces Prior to Paving:

334-5.5.1 Cleaning: Clean the surface of all loose and deleterious material by the use of power brooms or blowers, supplemented by hand brooming where necessary.

334-5.5.2 Patching and Leveling Courses: Where the HMA is to be placed on an existing pavement which is irregular, wherever the plans indicate, or if directed by the Engineer, bring the existing surface to proper grade and cross-section by the application of patching or leveling courses.

334-5.5.3 Application over Surface Treatment: Where an asphalt mix is to be placed over a surface treatment, sweep and dispose of all loose material from the paving area.

334-5.5.4 Tack Coat: Apply a tack coat on existing pavement structures that are to be overlaid with an asphalt mix and between successive layers of all asphalt mixes, unless directed otherwise by the Engineer. Use a tack coat product meeting FDOT specifications. Use an emulsified tack coat spread rate of 0.02 to 0.08 gal/sy or as specified by the Engineer.

334-5.6 Paving:

334-5.6.1 Alignment of Edges: With the exception of pavements placed adjacent to curb and gutter or other true edges, place all pavements by the stringline method to obtain an accurate, uniform alignment of the pavement edge. Control the unsupported pavement edge to ensure that it will not deviate more than ± 1.5 inches from the stringline.

334-5.6.2 Rain and Surface Conditions: Immediately cease transportation of asphalt mixtures from the plant when rain begins at the roadway. Do not place asphalt mixtures while rain is falling, or when there is water on the surface to be covered. Once the rain has stopped and water has been removed from the tacked surface to the satisfaction of the Engineer and the temperature of the mixture caught in transit still meets the requirements as specified in 334-5.3, the Contractor may then place the mixture caught in transit.

334-5.6.3 Checking Depth of Layer: Check the depth of each layer at frequent intervals, and make adjustments when the thickness exceeds the allowable tolerance. When making an adjustment, allow the paving machine to travel a minimum distance of 32 feet to stabilize before the second check is made to determine the effects of the adjustment.

334-5.6.4 Hand Spreading: In limited areas where the use of the spreader is impossible or impracticable, spread and finish the mixture by hand.

334-5.6.5 Spreading and Finishing: Upon arrival, dump the mixture in the approved paver, and immediately spread and strike-off the mixture to the full width required, and to such loose depth for each course that, when the work is completed, the required weight of mixture per square yard, or the specified thickness, is secured. Carry a uniform amount of mixture ahead of the screed at all times.

334-5.6.6 Thickness of Layers: Construct each course of Type SP mixtures in layers of the thickness shown in 334-1.5.1.

334-5.7 Leveling Courses:

334-5.7.1 Patching Depressions: Before spreading any leveling course, fill all depressions in the existing surface more than 1 inch deep by spot patching with leveling course mixture, and compact thoroughly.

334-5.7.2 Spreading Leveling Courses: Place all courses of leveling with an asphalt paver or by the use of two motor graders, one being equipped with a spreader box. Other types of leveling devices may be used upon approval by the Engineer.

334-5.7.3 Rate of Application: When using Type SP-9.5 (fine graded) for leveling, do not allow the average spread of a layer to be less than 50 lb/yd^2 or more than 75 lb/yd^2. The quantity of mix for leveling shown in the plans represents the average for the entire project; however, the Contractor may vary the rate of application throughout the project as directed by the Engineer. When leveling in connection with base widening, the Engineer may require placing all the leveling mix prior to the widening operation.

334-5.8 Compaction: For each paving or leveling train in operation, furnish a separate set of rollers, with their operators.

When density testing for acceptance is required (Asphalt Work Category 3), select equipment, sequence, and coverage of rolling to meet the specified density requirement. Regardless of the rolling procedure used, complete the final rolling before the surface temperature of the pavement drops to the extent that effective compaction may not be achieved or the rollers begin to damage the pavement.

When density testing for acceptance is not required (Asphalt Work Categories 1 and 2), use a rolling pattern approved by the Engineer.

Use hand tamps or other satisfactory means to compact areas which are inaccessible to a roller, such as areas adjacent to curbs, headers, gutters, bridges, manholes, etc.

334-5.9 Joints.

334-5.9.1 Transverse Joints: Construct smooth transverse joints, which are within 3/16 inch of a true longitudinal profile when measured with a 15 foot manual straightedge.

334-5.9.2 Longitudinal Joints: For all layers of pavement except the leveling course, place each layer so that longitudinal construction joints are offset 6 to 12 inches laterally between successive layers. Do not construct longitudinal joints in the wheelpaths. The Engineer may waive these requirement where offsetting is not feasible due to the sequence of construction.

334-5.10 Surface Requirements: Construct a smooth pavement with good surface texture and the proper cross-slope.

334-5.10.1 Texture of the Finished Surface of Paving Layers: Produce a finished surface of uniform texture and compaction with no pulled, torn, raveled, crushed or loosened portions and free of segregation, bleeding, flushing, sand streaks, sand spots, or ripples. Correct any area of the surface that does not meet the foregoing requirements in accordance with 334-5.10.4.

334-5.10.2 Cross Slope: Construct a pavement surface with cross slopes in compliance with the requirements of the Contract Documents.

334-5.10.3 Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification. Furnish a 15 foot manual and a 15 foot rolling straightedge meeting the requirements of FM 5-509. Make them available at the job site at all times during paving operations for Asphalt Work Category 3 and make them available upon request of the Engineer for Asphalt Work Categories 1 and 2.

334-5.10.3.1 Asphalt Work Category 3:

334-5.10.3.1.1 Acceptance Testing: Straightedge the final Type SP structural layer and friction course layer with a rolling straightedge. Test all pavement lanes where the width is constant using a rolling straightedge and document all deficiencies on a form approved by the Engineer. Notify the Engineer of the location and time of all straightedge testing a minimum of 48 hours before beginning testing.

334-5.10.3.1.2 Rolling Straightedge Exceptions: Testing with the rolling straightedge will not be required in the following areas: intersections, tapers, crossovers, parking lots and similar areas. In addition, testing with the rolling straightedge will not be performed on the following areas when they are less than 50 feet in length: turn lanes, acceleration/deceleration lanes and side streets. However, correct any individual surface irregularity in these areas that deviates from the plan grade in excess of 3/8 inch as determined by a 15 foot manual straightedge, and that the Engineer deems to be objectionable, in accordance with 334-5.10.4. The Engineer may waive or modify straightedging requirements if no milling, leveling, overbuild or underlying structural layer was placed on the project and the underlying layer was determined to be exceptionally irregular.

334-5.10.3.1.3 Final Type SP Structural Layer: Straightedge the final Type SP structural layer with a rolling straightedge behind the final roller of the paving train. Correct all deficiencies in excess of 3/16 inch in accordance with 334-5.10.4.2, and retest the corrected areas.

334-5.10.3.1.4 Friction Course Layer: At the completion of all paving operations, straightedge the friction course. Correct all deficiencies in excess of 3/16 inch in accordance with 334-5.10.4.3. Retest all corrected areas.

334-5.10.3.2 Asphalt Work Categories 1 and 2: If required by the Engineer, straightedge the final structural layer with a rolling straightedge, either behind the final roller of the paving train or as a separate operation. Correct all deficiencies in excess of 5/16 inch in accordance with 334-5.10.4.2. Retest all corrected areas. If the Engineer determines that the deficiencies on a bicycle path are due to field geometrical conditions, the Engineer will waive corrections with no deduction to the pay item quantity.

334-5.10.4 Correcting Unacceptable Pavement:

334-5.10.4.1 General: Correct all areas of unacceptable pavement at no additional cost.

334-5.10.4.2 Structural Layers: Correct deficiencies in the Type SP structural layer by one of the following methods:

a. Remove and replace the full depth of the layer, extending a minimum of 50 feet on either side of the defective area for the full width of the paving lane.

b. Mill the pavement surface to a depth and width that is adequate to remove the deficiency. (This option only applies if the structural layer is not the final surface layer.)

334-5.10.4.3 Friction Course: Correct deficiencies in the friction course layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on either side of the defective area for the full width of the paving lane. Corrections may be waived if approved by the

Engineer.

334-6 Acceptance of the Mixture.

334-6.1 General: The asphalt mixture will be accepted based on the Asphalt Work Category as defined below:

1) Asphalt Work Category 1 – Certification by the Contractor as defined in 334-6.2.
2) Asphalt Work Category 2 – Certification and quality control testing by the Contractor as defined in 334-6.3
3) Asphalt Work Category 3 – Quality control testing by the Contractor and acceptance testing by the Engineer as defined in 334-6.4.

334-6.2 Certification by the Contractor: On Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. Submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications. The Engineer may run independent tests to determine the acceptability of the material.

334-6.3 Certification and Quality Control Testing by the Contractor: On Asphalt Work Category 2 construction, submit a Notarized Certification of Specification Compliance letter on company letterhead to the Engineer stating that all material produced and placed on the project was in substantial compliance with the Specifications, along with supporting test data documenting all quality control testing as described in 334-6.3.1. If so required by the Contract, utilize an Independent Laboratory as approved by the Engineer for the quality control testing. The mix will also require visual acceptance by the Engineer. In addition, the Engineer may run independent tests to determine the acceptability of the material.

334-6.3.1 Quality Control Sampling and Testing Requirements: Perform quality control testing at a frequency of once per day. Obtain the samples in accordance with FDOT Method FM 1-T 168. Test the mixture at the plant for gradation (P_{-8} and P_{-200}) and asphalt binder content (P_b). Test the mixture on the roadway for density using six-inch diameter roadway cores obtained at a frequency of three cores per day or by Nuclear Density Method if approved by Engineer.

Determine the asphalt content of the mixture in accordance with FM 5-563. Determine the gradation of the recovered aggregate in accordance with FM 1-T 030. Determine the roadway density in accordance with FM 1-T 166 or with FM 1-T 238. The minimum roadway density will be based on the percent of the maximum specific gravity (Gmm) from the approved mix design. If the Contractor or Engineer suspects that the mix design Gmm is no longer representative of the asphalt mixture being produced, then a new Gmm value will be determined from plant-produced mix with the approval of the Engineer. Roadway density testing will not be required in certain situations as described in 334-6.4.1. Assure that the asphalt content, gradation and density test results meet the criteria in Table 334-3.

Table 334-3
Quality Control and Acceptance Values

Characteristic	Tolerance
Asphalt Binder Content (percent)	Target ± 0.55
Passing No. 8 Sieve (percent)	Target ± 6.00
Passing No. 200 Sieve (percent)	Target ± 2.00
Roadway Density (average of three cores)	91.5% Gmm
Roadway Density (any single core)	90.0 % Gmm
Roadway Density (any single core)	90.0 % Gmm

Roadway Density (avg.of 5 tests nuclear method if approved by Engineer)	91.5% Gmm

334-6.4 Quality Control Testing by the Contractor and Acceptance Testing by the Engineer: On Asphalt Work Category 3, perform quality control testing as described in 334-6.3.1. In addition, the Engineer will accept the mixture at the plant or at the site with respect to gradation (P_{-8} and P_{-200}) and asphalt binder content (P_b). The mixture will be accepted on the roadway with respect to density. The Engineer will sample and test the material as described in 334-6.3.1. The Engineer will randomly obtain at least one set of samples per day. Assure that the asphalt content, gradation and density test results meet the criteria in Table 334-3. Material failing to meet these acceptance criteria will be addressed as directed by the Engineer.

334-6.4.1 Acceptance Testing Exceptions: When the total quantity of any mix type in the Project is less than 200 tons, or on Asphalt Work Category 1 construction, the Engineer will accept the mix on the basis of visual inspection. The Engineer may run independent tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, variable thickness overbuild courses, leveling courses, first lift of asphalt base course placed on subgrade, miscellaneous asphalt pavement, or any course with a specified thickness less than 1 inch or a specified spread rate less than 100 lbs/sy. In addition, density testing for acceptance may not be performed on the following areas when they are less than 100 feet in length: crossovers, intersections, turning lanes, acceleration lanes, deceleration lanes, or ramps. Compact these courses in accordance with a standard rolling procedure approved by the Engineer. In the event that the rolling procedure deviates from the approved procedure, placement of the mix will be stopped.

334-7 Method of Measurement.

For the work specified under this Section, the quantity to be paid for will be the weight of the mixture, in tons.

The bid price for the asphalt mix will include the cost of the liquid asphalt or the asphalt recycling agent and the tack coat application as specified in 334-5.5.4. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix.

334-8 Basis of Payment:

334-8.1 General: Price and payment will be full compensation for all the work specified under this Section. Payment will be made under

Item No. 334-1	Type FC-9.5 Asphaltic Concrete	Ton
Item No. 334-2	SP-12.5 Asphaltic Concrete	Ton

END OF SECTION 334

SECTION 02208

ROADWAY EXCAVATION AND EMBANKMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work of this Section consists of furnishing all necessary labor, equipment, material and transportation necessary to bring the roadways and streets to the lines and grades shown on the Drawings. The work includes clearing and grubbing, removal of existing pavement, sidewalks and debris, and incidental demolition.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications sections, apply to this section.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Suitable: Suitable materials for fills shall be classified as A-1, A-3 or A-2-4 in accordance with AASHTO Designation M 145 and shall be free from vegetation and organic material. Not more than 10 percent shall pass the No. 200 sieve.

B. Suitable Material to be Placed in Water: Suitable material for fills to be placed in water shall be classified as A-1 or A-3 in accordance with AASHTO Designation A-145.

C. Unsuitable: Unsuitable materials are classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 and A-8 in accordance with AASHTO Designation M 145.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clearing and Grubbing:

1. Clearing and grubbing shall consist of the complete removal and disposal of all trees, brush, stumps, roots, grass, weeds, rubbish, pavement, concrete, other demolition and all other obstructions resting on or protruding through the surface of the existing ground and the surface of the excavated areas.

2. Clearing and grubbing shall be accomplished within all areas of the right-of- way, except where otherwise designated on the plans, or directed by the City or Engineer. The trees selected by the City or Engineer for saving shall be protected from construction equipment by the Contractor in a manner approved by the City or Engineer and meeting the criteria for such protection as required by the

applicable governmental agency.

3. Where excavation is done within the roadway area, all stumps, roots, etc., protruding through or appearing on the surface of the completed excavation shall be removed to a depth of not less than 2 feet below the excavated surface and replaced with compacted backfill before the area is filled.

4. Within all other areas where clearing and grubbing is to be done, all stumps, roots, and other debris projecting through or appearing on the surface of the ground shall be removed to a depth of 1 foot below the completed surface.

5. Areas to be excavated or filled upon shall be stripped of grass and roots to an average depth of 6 inches unless otherwise specified in the Drawings, general requirements or as directed by the City or Engineer. Stripped material suitable for topsoil shall be stockpiled for later use and all other material shall be disposed of as directed by the City or Engineer.

6. All clearing and grubbing debris shall be removed from the project site and disposed of by the Contractor.

B. Removals and Demolition: Complete all removals and demolition prior to excavation and/or filling. Pavement shall be saw cut to true lines at the limits of removal, and the remaining work shall remain undisturbed during removal work.

3.02 PERFORMANCE

A. Excavation:

1. Excavation shall conform to the limits indicated on the Drawings or specified herein. This work shall include shaping and sloping and other work necessary in bringing the excavation to the required grade, alignment and cross section.

2. All suitable materials removed from the excavation shall be used as far as practicable in the formation of the embankments, subgrades, shoulders and other places as directed. No excavated material shall be wasted without permission, and where necessary to waste such material it shall be at the direction of the City or Engineer. Unsuitable material shall be removed to the required depth and replaced to the satisfaction of the Owner's Engineer with suitable material.

3. All unsuitable and waste excavated material shall become property of the Contractor and shall be removed from the project.

B. Fills:

1. Fills shall be formed of suitable material placed in layers of not more than 8 inches in depth measured loose and rolled and/or vibrated with suitable equipment until compacted. Thickness of layers may be increased provided the equipment and methods used are proven by field density testing to be capable of compacting thicker layers to specified densities. Layer thickness shall be decreased if equipment and methods used are proven to be incapable of compacting layers to

specified densities.

2. Rock that will not pass through a 6-inch diameter ring shall not be placed within the top 12 inches of the surface of the completed fill. Rock that will not pass through a 3-inch diameter ring shall not be placed within the top 4 inches of the completed fill. Broken concrete or asphaltic pavement shall not be used in fills.

3. Fill material shall be compacted to a density of not less than 100 percent of its maximum density as determined by AASHTO Designation T 99 Method C, unless specified otherwise in the general requirements.

4. Fill material which must be placed in water standing at the normal water table, which cannot be removed by gravity after ditching, shall be spread in a uniform layer of a thickness not in excess of that necessary to support the hauling, placing and compacting equipment for succeeding layers. Material above this normal water table shall be compacted as specified above.

5. Final elevations shall be within 0.1 foot of the required elevation and surfaces shall be sloped to drain as shown on the Drawings.

C. Roadway Subgrades:

1. The construction of roadway subgrades shall conform to the requirements set forth hereinafter and shall consist of bringing the top of the roadway subgrade between the outer limits of the base course, to a surface conforming to the grades, lines and cross section shown on the plans, of uniform density, ready to be stabilized.

2. The top 12 inches of the subgrade, including cut and fill sections, shall be compacted to a density of not less than 100 percent of the maximum density as determined by the AASHTO Designation T 99 Method C, unless specified otherwise in the general requirements.

D. Topsoil: Topsoil shall be material obtained from stripping or excavation free of roots, brush, stumps or other debris and suitable for or capable of supporting the growth of grass or other plant life. When this topsoil material is available from the on site excavation operations, the topsoil shall be placed to a depth of 4 inches in fill areas to be grassed or sodded in lieu of the fill material specified above. Topsoil need not be compacted.

E. Finish Grading: After paving is completed, the disturbed areas shall be finish graded. Any lumber, undesirable materials and rocks larger than the 2-inch size shall be removed from the surface and the surface shall be prepared for sod and/or mulching. The completed surface shall be shaped and sloped to drain as indicated on the Drawings. The completed surface shall be within 0.1 foot of the elevations shown on the Drawings, unless otherwise approved by the City or Engineer.

F. Soil Testing: Testing of soil density shall be provided by the City of Tampa. Contractor to coordinate with City laboratory as required elsewhere in these specifications.

PART 4 – CONTRACT ITEMS

4.01 BASIS OF PAYMENT

Payment shall be made under:

Item No. 02208-1	Clearing and Grubbing	LS
Item No. 02208-2	Removal of Existing Concrete Pavement	SY
Item No. 02208-3	Regular Excavation	CY
Item No. 02208-4	Embankment	CY

END OF SECTION 02208

SECTION 02440

UNDERGROUND SPRINKLER

PART 1 - GENERAL

1.01 WORK INCLULDED

Furnish all materials, equipment and labor as necessary for the installation of an irrigation system per the drawings and specifications. All work should meet City of Tampa standards for materials and workmanship.

1.02 RELATED DOCUMENTS

A. Drawing and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specification sections, apply to this section.

B. Section 02900: Trees, Plants, and Groundcovers.

C. Section 02935: Maintenance of Plantings.

1.03 DESCRIPTION OF WORK

A. Location of underground sprinkler system is shown on drawings if provided.

B. Design and Installation of system is included in this section.

1.04 QUALITY ASSURANCE:

A. Workmanship: All work shall be installed by skilled personnel, proficient in the trades required, in a neat, orderly and responsible manner with recognized standards of workmanship. The Contractor shall have had considerable experience and demonstrated ability in the installation of sprinkler irrigation systems of this type.

1.05 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for all materials and installation instructions for underground sprinkler system prior to starting work on the project site.

B. Drawings: Provide Design drawings that will include plan layout and details illustrating location and type of heads, valves, piping circuits, controls and accessories. If requested by the City, provide design calculations demonstrating how system component sizes we derived.

1. Format: The irrigation system design plans shall be done in AutoCAD to scale. These plans shall be provided to the City of Tampa prior to final acceptance of the project. Provide CD containing AutoCad (DWG files) 2007 version minimum along with the requirements of the general provisions of the contract.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Backflow Preventer: Top Ported – Double Check Vacuum Breaker sized to match the system and installed underground in a valve box of adequate size to ensure 2" of clearance of all valve handles.

B. Irrigation Pipe: All main and lateral lines shall be PVC pipe ASTM D1785 1120 schedule 40. Exception would be galvanized steel pipe, when specified, and if exposed paint with 2 coats of forest green enamel.

1. Pipe Size: Increased to allow expansion or nozzle size change.
   a. No flow shall exceed 4' per second.
   b. All laterals to heads will be 1" or larger on rotors and ¾" or larger on pop-ups.
   c. Nozzle and zone size will be calculated to provide maximum precipitation rate to reduce watering time based on meter size.
   d. No pipe smaller than ¾".

C. Sleeving: Sleeving shall be installed for all hardscape surfaces including, but not limited to sidewalks, courts, etc. Contractor to verify schedule 40 or HDPE. Sleeve size shall be 2 times irrigation pipe size minimum. For all sleeves containing lateral pipe and wiring, all wire to be in its own conduit. Mark sleeve locations on curb with permanent curb mounted location marker.

D. Adhesives: All connections, 4" and less, shall be weld-on PC-64 purple primer and weld-on PVC 702 clear cement.

E. Pipe Fittings:
1. ASTM D 2466 socket fittings schedule 40 shall be used for PVC pipe. Put purple primer first, cement after
2. ANSI B 16.3 galvanized malleable iron screwed fittings shall be used for all galvanized pipe.

F. Manual Valves: Manufactured as follows: PVC Schedule 40 ball valves unless otherwise indicated.

G. Quick Coupling Valve: Standard is Rainbird #3RC with minimum lateral size ¾". Athletic fields with wells are Rainbird 44RC with minimum lateral size ½". Ensure 2" of clearance of all valve handles. (See "Quick Coupling Valve Detail" for installation.)

H. Electric Valves: Irritrol 200B series electric valve with flow control. AC or DC depending upon power source. If DC is specified a separate common wire for each 6 zones must be installed. Master valve to be used with more than 2 zones or if main line crosses a roadway. No pressure regulator on valves

I. Automatic Valve Wiring: 14 gauge direct burial wire, color coded as follows: red for zones, blue for master valve and black for extras. Two black extra wires to be run to the furthest valve in each direction. Wire splices shall be made at a common location, contained in a valve box and spliced using greased filled King wire nuts. All wire to be brought to timer location with 6' pigtail to facilitate hook-up.

1. Provide 12 gauge white common wire for any runs over 100'.

J. Drip Irrigation:

1. Spacing for Dripline runs should be 12" on center, 6" off curb.

2. Rainbird Dripline with approximately 1GPH emitters with 12" spacing, shall be used for Dripline irrigation. Length of run not to exceed manufacturer's recommendations. Both ends of each segment of Dripline to be attached to schedule 40 manifold with compression insert fittings of the appropriate size.

3. Compression insert fittings are to be used for Dripline irrigation with PVC manifolds. Compression or barbed fittings required for all splices, elbows and tees for Dripline fittings. All PVC manifolds to be buried 5" to 6" with Dripline returning to surface at 45 degree angle from manifold. Driplines to be staked every 3' with 6" map pins. Additional piping that may be required shall be sized per the following chart:

2.5 inch	45 -60 GPM
2 inch	25 – 44 GPM
1.5 inch	18 – 43 GPM
1.25 inch	11 – 17 GPM
1 inch	8 – 10 GPM
.75 inch	0 – 7 GPM

4. Each Dripline zone shall have an in-line pressure regulator matched to the system with at least 35 psi and a filter with at least 200 mesh or better.

5. ½" to ¾" PVC ball valve shall be attached to each footer located in the valve box with 2" clearance for operation for operation of valve handle.

K. Sprinkler Heads: Manufacturer's standard unit designed to provide uniform coverage over entire area of spray shown on drawings at available water pressure and installed using K-Flex pipe and schedule 40 PVC connectors as follows:

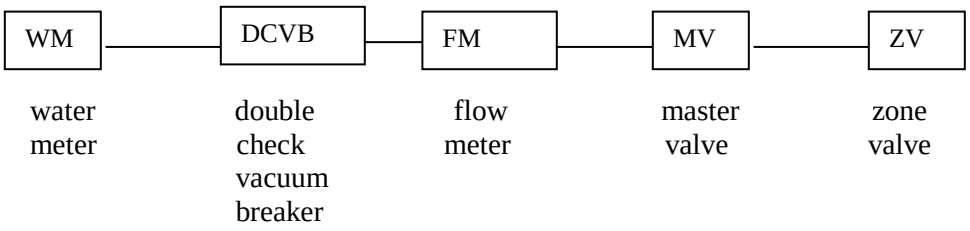
1. Rainbird Bubbler: #1402 – 0.5 GPM on K-Flex pipe (2 per tree).
2. Rainbird Pop-up: 1800 series with nozzle to match application (No PRS).
3. Hunter rotor: Hunter I-20 or I-25 (athletic fields) with nozzle to match application.
4. Micro (Maxi-Jet): to be matched to job and used only with Parks & Recreation Department approval.

L. Valve Box: Provide plastic valve box with cover, size as needed, or as specified on drawings. Place level on brick or stone blacks. Provide a minimum of 2" of #57 stone below exposed PVC pipes. Top of valve installed flushed with finished grade..

M. Computerized Irrigation Controller: Computerized irrigation controller and cabinet shall be supplied and installed by the City of Tampa. Coordination of installation of the controller is required by the contractor.

N. Computerized Irrigation Equipment:

1. Computerized systems shall utilize a flow meter by Master Meter Inc. matched to the water meter size, with a 1 or 10 gallon pulse depending on zone GPM.
2. Wiring from flow meter to controller must be 14-2 Maxi-com cable. No splices should be made in the Maxi-com cable. Maxi-com to be run under main line or in conduit.
3. Power source at timer should be A/C requested, installed and paid for by the contractor. D/C (requires special wiring) used only if all sources of A/C have been exhausted.
4. Controller enclosure shall be NEMA 4 or stainless steel pedestal mount box as specified by City of Tampa Parks and Recreation Department



O. Water Source (As indicated on the Construction drawings):

1. (Not Used) Reclaimed Water: If available, reclaimed water must be used for irrigation. Any system that is to be connected to reclaimed water or is indicated to have reclaimed in the near future shall have all materials of the appropriate color to indicate the use of reclaimed water.

2. (Not Used) Wells: Wells will require the following materials:
   a. 5" well casing
   b. Open hole
   c. 5HP or 7.5HP Submersible pump
   d. Drop pipe (Galv. SCH 40)
   e. Junction box
   f. Submersible cable
   g. Galvanized tee
   h. Well seal
   i. 2" dielectric nipple
   j. Galvanized union
   k. CLA-VAL #55F pressure relieve valve (3/4")

l. Pump station control panel by I.T.S. irrigation technical service (866-521-3320)
m. Cycle stop model CSV-3B-2”
n. Galvanized pipe
o. Galvanized elbow
p. PVC adapter
q. Irrigation mainline
r. 2” Amiad T Super STST 100 mesh filter (optional)
s. 290 PSI pressure gauge (liquid filler)
t. Gate valve
u. Well-X-trol WG-250-UG pressure tank
v. Double check vacuum breaker or pressure vacuum breaker
w. Low pressure 10/20 reversing pressure switch sod 90133GSG2R
x. Operating pressure 29/660 pressure switch SQD 9013GSGJ21
y. Pipe supports (2) required for large pipe and (1) for 2” pipe
z. Galvanized nipple
aa. Schedule 80 PVC union
bb. 10” round valve box (for tank access)
cc. 1 ¼” brass ball valve

3. Potable Water: New water meters shall be requested and paid for by the contractor.

PART 3 – EXECUTION

3.01 SYSTEM DESIGN

A. System design shall take into account existing physical and cultural features and all proposed site improvements to avoid conflicts and ensure an efficient optimal system.

B. Design Pressures: Verify available water source and pressure prior to system design. Design system throughout, to be compatible with available water source. Use reclaimed water whenever available. Athletic fields to be on a well system whenever possible.

C. Location of Heads: Design locations in accordance with accepted sprinkler practice to provide 100% head to head coverage. Make minor adjustments as necessary to avoid structures and other obstructions.

D. Minimum Water Coverage:

(Not Used)Turf areas, 100%
Other planting areas, 100%
(Not Used)Athletic fields, 100%

Layout may be modified, if necessary to obtain coverage, and to suit manufacturer’s standard heads. Do not decrease number of heads indicated unless otherwise acceptable to Engineer and/or Architect. Any proposed decrease must be approved by the City of Tampa.

E. Group valves close to water source in 1 or 2 locations. Planting beds, trees and turf areas shall be on separate zones.

F. Minimize wiring runs. Maximize use of lateral lines. Keep valves 5' from closest hardscape.

G. No flow shall exceed 4 feet per second.

H. Top of pipe to grade shall be:
1. Manifolds: 6"
2. Laterals: 12"
3. Mainlines: 18"

I. Design zones to have matched precipitation rates.

J. Do not use pressure-regulating sprinklers.

K. Insert sprinklers 3 inches from curbs, hardscapes and structures to allow for edging.

L. Computerized irrigation system controller will be installed by the City of Tampa. Verify controller location prior to installation of irrigation system and related electrical wiring.

M. No pipe smaller than ¾"

N. Quick Coupler Valve (Rainbird #3RC or 44RC for athletic field applications) shall be located in a valve box (to grade). Provide 3" of galvanized main line up to and after a galvanized T. Provide 2' of vertical galvanized pipe, capped at bottom. Mount QC valve on galvanized nipple, length as required. Quick Coupler to be on a separate main line (See Quick Coupler valve detail).

O. Coordinate and confirm exact water source and electric source.

P. (Not Used) Wells: Wells shall be dug as needed in accordance with approved construction methodology. Wells shall be located near identified power sources.

3.02 ELECTRIC and WATER SERVICE

A. Water Service: When directed on the Construction drawings or general provisions, the contractor shall include in the bid price all costs associated with providing water service to system as required. This includes all applications and fees required by City of Tampa Water Department to provide service, connection fees and all materials and labor for a complete functioning system. Contractor shall be responsible for applying and paying for any new water meters as required. Coordinate this requirement with the contract documents.

B. Electric Service: Contractor shall include in bid price all costs associated with providing power service to system as indicated in the general provisions of the contract. This includes all applications, drawings and fees required by Tampa Electric Company (TECO) and the City of Tampa. All work to comply with City of Tampa codes and

TECO standards for power connection. All costs associated with power installation and connection shall be the responsibility of the contractor.

C. Upon final acceptance of irrigation system, ownership of water and electric meters will be transferred to the City of Tampa.

3.03 TRENCHING AND BACKFILLING:

A. General: Protect existing utilities, paving, plants, trees and other facilities caused by irrigation operations. Contractor shall be responsible for the repair of any damage to existing utilities and paving. Excavate straight and true with bottom uniformly sloped to low point.

B. Sunshine: Contractor shall be responsible for notifying underground utilities 48 hours prior to beginning work at (800) 432-4770. No site work shall commence until all underground utilities have been properly located and identified

C. Backfill: Backfill with clean material from excavation. Remove organic material as well as rocks and debris larger than 1" diameter. Place acceptable backfill material in 6" lifts, compacting each lift.

D. (Not Used) Existing Lawns: Where trenching is required across existing lawns, trench no wider than necessary to accommodate pipes.
1. Backfill trench to within 6" of finished grade. Continue fill with acceptable topsoil and compact to bring area to the elevation of existing lawn.
2. If trench is more than 6" in width, relay or plant new sod within 7 days after removal, roll and water generously.
3. Restore to original condition any sod areas not in healthy condition equal to adjoining lawns 30 days after planting.

E. Existing Trees: All efforts shall be made to avoid trenching under the driplines of existing trees and canopy spread of proposed trees. All proposed trenching or other work under the limb spread of any and all trees shall be done by hand so that no limbs or branches or roots are damaged in any way.
1. Trenching shall comply with Chapter 13-146, Technical Manual and shall be done to minimize root disturbance. City of Tampa representative shall be present prior to beginning work, to determine limits of root pruning and shall approve any work taking place within protective radius of trees. All tree roots shall be severed cleanly per the Chapter 13 of the City Code.
2. Protective radius schedule per Chapter 13 of the City Code reads as follows:
1" caliper – no trenching within 4' of tree trunk
6" – 14"caliper – no trenching within 6' of tree trunk
15" – 34" caliper – no trenching within 15' of tree trunk
34" and greater – no trenching within 20' unless approved by Parks and Recreation representative

F. Pavements:
1. Boring is the preferred method. Open cuts must be approved by City of Tampa representative. Where existing pavements must be crossed to install landscape irrigation system, saw cut straight clean lines 6" wider than trench.

2. Excavate trench to required depth and width.
3. Remove cut out pavement and excavated material from the site.
4. Backfill with dry sand fill material, placing in 6" lifts to meet City of Tampa compaction requirements.
5. Repair or replace pavement cuts with equivalent materials and finishes.
6. If a concrete sidewalk is cut or damaged, the full section must be replaced.
7. Piping under hardscape that is 5' wider or greater shall be sleeved.
8. Contractor is responsible for daily clean up of operations to include debris, directional bore slurry and any hydraulic fluids.

3.04 INSTALLATION: (see details on construction drawings)

A. A pre-construction meeting will occur on site prior to commencement of work.

B. General: Contractor shall be responsible for filing and obtaining any and all agency permits. All work must conform to City of Tampa and the uniform plumbing code. Any work taking place along a city, county or state road or median must comply with appropriate regulating authority guidelines for Traffic Control for Construction and Maintenance Operations.

C. Required Inspections:
1. Piping: prior to covering.
2. All materials prior to planting and/or mulching.
3. 24 hour notice of inspection required.

D. Backflow Preventer: Top ported DCVB installed underground in a rectangular valve box with 6" gravel sump. Box of adequate size for easy testing access.

E. Control Valves: Install in valve box. Arrange in box for easy adjustment and removal.
1. Adjust size of automatic control valves to provide flow rate of rated operating pressure required for each sprinkler zone.
2. All zone wiring and Maxi-com cable to be installed under the main line or in conduit. Wiring that shares a sleeve with irrigation water lines shall be contained in its own conduit.

F. Provide 18" of straight uninterrupted PVC pipe in front of the master Meter and 12" of straight behind.

G. Piping: Lay pipe on solid subbase uniformly sloped.
1. Install PVC pipe in dry weather when temperature is above 40 degrees F in strict accordance with manufacturer's instructions. Allow joints to cure at least 24 hours at temperatures above 40 degrees F (4 degrees C) before testing, unless otherwise recommended by manufacturer. All PVC connections will be cleaned with purple primer prior to cementing.
a. Mainline depth shall be 18"
b. Lateral line depth shall be 12".

H. Sprinkler Heads: Flush circuit lines with full pressure and install nozzles after hydrostatic test is completed.
1. Install all heads at manufacturer's recommended heights.

2. Locate part-circle heads to maintain a minimum distance of 3" from curbs, hardscape and structures.
3. After completion of grading, seeding or sodding, and rolling of the grass areas, carefully adjust lawn sprinkler heads so they will be flush with grade.
4. Pop-ups installed on ½" flex hose using schedule 40 PVC connectors.
5. Rotors to be installed on appropriate size flex hose using schedule 40 PVC connectors.
6. Ensure sprayer rotor water does not directly contact existing structures or hardscape areas.

I. Low Volume: (See details on construction drawings)
1. Drip line should be on surface and pinned every 3' using staples at least 6" in length.
2. Headers and footers shall use compression adapters and be buried under 5" to 6" of soil.
3. Flush completed before installing flush valve.
4. Use compression fittings on all drip line connections.
5. Flush caps are to be installed in a 6" valve box. Box shall have a 6" diameter by 36" deep sump filled with gravel. Not required if using "LD" Rainbird.
6. Inline pressure regulator and filter to be installed in plastic box for easy access and maintenance.
7. Drip line should be routed around tree rings, boxes, inlets, utilities, etc.

J. Dielectric Protection: Use dielectric fittings at connection where pipes of dissimilar metal are joined.

K. Wiring: All wiring shall be performed by the contractor as shown on drawings. All wiring shall be run from point of connection back to the controller. Provide 6' pig tail.

L. Quick Coupler Valves: Build and install per details on construction drawings. Valve box shall be adequately sized and installed so as not to interfere with the operation of the quick coupler key.

M. Controller. Computerized irrigation system controller shall be compatible with the City of Tampa Motorola Central Control System. Verify controller type and cabinet with City of Tampa Parks and Recreation Department prior to 30% design submittal

3.05 ACCEPTANCE:

A. Maintenance: Contractor is responsible for all maintenance of the system until final acceptance by City of Tampa, and for the maintenance period specified in section Trees, Shrubs and Ground covers.

B. Final Inspection: The inspection of irrigated areas will be made by the City of Tampa representative upon contractor's request. Provide notification at least 2 working days prior. The City of Tampa representative will provide a punch list of those items which must be corrected before re-inspection for final acceptance. The City of Tampa

representative will set an appropriate time period in which the punch list items must be corrected.

1. Contractor to provide notification of at least 2 sorking days prior to inspection.
2. System to be run through electronically for all zones to ensure all components are working properly.
3. System to be run through with City programming for one week prior to final acceptance.

C. As-Built Drawings: At project closeout, the Contractor shall submit complete electronic drawings showing any changes from approved shop drawing. These shall be included as part of required As-Built/Record Drawing requirement of the general provision.

1. As-built drawings shall include the following:
   - Irrigation system as installed.
   - Water source location and size.
   - Power source location.
   - Changes to controller type or location.
   - Changes in type or location of flow meter or master valve.
   - Any wiring changes in location, number, type, color.
   - Valve locations should be dimensioned and areas controlled identified.
   - Manifold locations, depth and whether it is a header or footer.
   - Direction of dripline and spacing.
   - Location, depth and size of main line and feeder lines. Off-set to main line requested.
   - Location of maxi-com cable.
   - Location and depth of all directional bores.

3.05 ACCEPTANCE

A. Final Acceptance: Is the point in time when all requirements of the project drawings and specification are completed, including any punch list items, to the satisfaction of the City of Tampa representative. A City of Tampa representative shall notify the contractor in writing of final acceptance.

3.06 GUARANTEE

A. Guarantee: All work shall be guaranteed by contractor for one year from date of final acceptance against all defects and malfunctions in materials, equipment and workmanship, and shall be included as a part of the project closeout document requirements.

1. The guarantee shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment and workmanship, to the satisfaction of the City of Tampa. Repairs, if required, shall be done promptly at no cost to the City of Tampa. The Contractor shall not be responsible for damage to the irrigation system by others. The guarantee shall state the name of the owner, provide full guarantee terms, effective and termination date, name and license number. It shall be signed by the chief

executive of the Contracting firm and notarized. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

2. The Contractor will make necessary repairs within 72 hours notice. If the contractor neglects to make or undertake the repairs with the due diligence, the City of Tampa may make such repairs at the Contractors expense. In the case of emergency where, in the judgment of the City of Tampa, delay would cause serious loss or damage, repairs or replacement may be made without notice being sent to the contractor, and the Contractor shall pay the cost thereof.

END OF SECTION 02440

SECTION 02510

SAW-CUT CONCRETE SIDEWALK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included in this Section consists of furnishing all labor, material equipment and transportation for the construction of the sidewalks to the lines and grades as shown on the Drawings.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications Sections, apply to this Section.

B. Section 03000 – Concrete Specifications

C. Section 02511 – Shell Aggregate Concrete Sidewalk

1.03 QUALITY ASSURANCE

A. Work to be done by qualified contractor regularly engaged in doing decorative concrete. Contractor shall have completed a minimum of ten (10) projects with a similar scope and must have been doing similar work for a minimum of five (5) years.

1.04 SUBMITTALS

A. A List of projects of a similar nature that have been completed with pictures of completed work, and location shall be submitted to the City for Approval. Provide references for work completed and demonstrate years of experience.

B. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications.

C. Ten foot by ten foot (10’ x 10’) mock up with finish and jointing.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Concrete: Concrete shall be Class A that conforms to the requirements of Section 03000.

B. Preformed Joint Filler: Preformed joint filler shall be non-extruding and resilient bituminous type and shall conform to the requirements of AASHTO Designation M 153 or AASHTO Designation M 213. It shall be gray in color to match concrete.

PART 3 - EXECUTION

3.01 PREPARATION

A. Subgrade Condition:

1. The finished subgrade shall be maintained in a smooth, compact condition and any areas which are disturbed prior to placing of the concrete shall be restored at the Contractor's expense. The subgrade shall be moist at the time the concrete is placed. Water shall be uniformly applied ahead of the pouring operations as directed by the Engineer. Large rocks and other obstructions shall be removed to a minimum depth of 6 inches below the finished subgrade elevation, and the space shall be backfilled with sand, base course material or other suitable material which shall be thoroughly compacted by rolling or tamping.

2. The subgrade shall be accurately trimmed to the required elevation with a 1/4-inch tolerance. High areas shall be trimmed to proper elevation. Low areas may be filled with suitable material and compacted to the specified density or filled with concrete integrally with the placing of the pavement.

B. Setting Forms: The forms shall be accurately set to line and grade and such that they rest firmly, throughout their entire length upon the compacted subgrade surface. Forms shall be joined neatly and tightly and braced to resist the pressure of the concrete and the finished operations. The alignment and grade of all forms shall be approved before and immediately prior to the placing of concrete.

C. Mixing Concrete: Concrete shall be mixed in accordance with the requirements of Section 03000.

D. Concrete Testing: All testing shall be done in accordance with Specification Section 03000-2.03. The City of Tampa will perform the concrete testing. Notify City five (5) days prior to required testing.

3.02 INSTALLATION

A. Placing Concrete:

1. The concrete shall be distributed on the subgrade to such depth that, when it is consolidated and finished, the thickness required by the Drawings will be obtained at all points and the surface will at no point be below the grade specified for the finished surface. The concrete shall be deposited on the subgrade in a manner which will require as little re-handling as possible. Placing of the concrete shall be continuous between transverse joints, without the use of intermediate bulkheads.

2. Concrete shall be thoroughly consolidated against and along the faces of all forms by means of vibrators. Vibrators shall not be permitted to come in contact with the subgrade or a side form. Vibration at any one location shall not continue so long as to produce puddling or the accumulation of excessive grout on the surface. In no case shall the vibrator be operated longer than 15 seconds in any one location.

B. Striking-off, Consolidating And Finishing Concrete: Immediately after the placing, the concrete shall be struck off, consolidated and finished, to produce a finished product conforming to the cross section, width and surface finish required by the Drawings and Specifications.

C. Straight edging and Surface Corrections: After floating has been completed and the excess water removed, but while the concrete is still in a plastic state, the surface of the concrete shall be tested for trueness with an accurate 10-foot straight edge. The straight edge shall be furnished by the Contractor. The straight edge shall be held in successive positions parallel to the walk center line, in contact with the surface, and the whole area tested from one side of the slab to the other, as necessary. The advance along the walk shall be in successive stages of not more than one-half the length of the straight edge. Any depressions shall be immediately filled with freshly mixed concrete and struck-off, consolidated and refinished. High areas shall be cut down and refinished. Straight edge testing and surface correction shall continue until the entire surface appears to conform to the required grade and cross section. All surface irregularities exceeding 1/4 inch in 10 foot shall be corrected.

D. Final Finish: As soon as the water sheen has disappeared and just before the concrete becomes non-plastic, all edges, including expansion joint edges, shall be finished with an edging tool having a radius of 1/8 inch. Finally the top shall be given a float finish. Within four (4) to twelve (12) hours after the concrete has been finished, a two foot by two foot grid shall be cut into the pavement. Every four feet the saw-cut shall be a contraction joint, see section E. below. Non-contraction joints shall be cut to a depth of ½". All saw-cutting, unless otherwise indicated, shall be perpendicular to the right-of-way and performed using a double blade. A ten foot by ten foot sample shall be submitted prior to construction for approval. The sample shall be half saw-cut concrete and half shell aggregate concrete, and contain the curve between the two surfaces as shown on the plan.

E. Joints: All joints, unless otherwise indicated, shall be perpendicular to the right-of-way.

1. Transverse Construction Joints: Transverse construction joints shall be constructed at the end of all pours and at other locations where the pouring operation are stopped for as long as 30 minutes. Construction joints, however, shall not be placed within four feet of any other transverse joint or of either end of a section of walk. If sufficient concrete has not been placed to form a slab at least four feet long, the excess concrete, back to the last preceding joint, shall be removed. The joints shall be formed by placing a wood or metal bulkhead accurately and securely in place, in a plane perpendicular to the profile and center line of the walk. Construction joints shall have tooled edges with a 1/8-inch radius.

2. Transverse Contraction Joints: Transverse contraction joints shall be saw-cut at ten foot by ten foot intervals and shall provide planes of weakness created by a concrete saw blade. The cut in the concrete shall be perpendicular to the surface of the walk and shall extend to a depth of 1 1/2 inches below the top surface. See Section D. above for additional saw-cutting instructions.

3. Transverse Expansion Joints: One half-inch expansion joints shall be formed by placing preformed joint filler around all structures and at intervals not exceeding 30 feet on center. Place an expansion joint between different types of concrete finishes.

F. Curing:

1. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, the entire surface and the edges of the newly placed concrete shall be water cured by misting or covering with an approved curing material kept thoroughly saturated with water.

2. The forms shall be kept wet until removed and upon removal, the curing specified herein shall be started immediately.

3. Concrete shall be cured for a period of 7 days for normal Portland cement or 4 days for high early strength cement.

4. Concrete poured in the dry shall not be submerged until it has attained sufficient strength to adequately sustain the stress involved, nor shall it be subjected to flowing water across the surface for 4 days.

G. Form Removal: After the concrete has sufficiently set a minimum of 12 hours, the Contractor shall remove the forms and shall backfill the space on each side. The earth shall be compacted and graded in a satisfactory manner without damage to the concrete work. Honeycombs shall be filled with sand cement mortar. Plastering will not be allowed on the face of the walk. Rejected walk shall be removed and replaced without additional compensation.

END OF SECTION 02510

SECTION 02511
SHELL AGGREGATE CONCRETE SIDEWALK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included in this Section consists of furnishing all labor, material equipment and transportation for the construction of the sidewalks to the lines and grades as shown on the Drawings.

B. This section shall apply to all surface finishes indicated as “Shell Aggregate” on the plans.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications sections, apply to this section.

B. Section 03000 – Concrete Specifications.

C. Section 02510 – Saw-Cut Concrete Sidewalk.

1.03 QUALITY ASSURANCE

A. WORKMANSHIP: All concrete work which does not conform to the specified requirements, including strength, tolerances, and finishes, shall be removed and replaced or corrected as directed by the Architect/Engineer at the Contractor’s expense, without extension of time.

B. SPECIALTY SUBCONTRACTOR: Shell aggregate application shall be furnished and applied only by an applicator who can present positive proof of having successfully applied materials and used methods specified herein under comparable conditions over a period of at least five (5) years.

1.04 SUBMITTALS

A. A List of projects of a similar nature that have been completed with pictures of completed work, and location shall be submitted to the City for Approval. Provide references for work completed and demonstrate years of experience.

B. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications.

C. Aggregate: Submit a one (1) quart sample of the washed #3 color coquina shell aggregate for approval prior to preparation of mock up.

D. The Contractor shall furnish a ten foot by ten foot (10’ x 10’) mock up with finish and jointing for approval prior to construction. The approved panel shall constitute an example of minimum workmanship for all work specified under the s section. If the sample panel is disapproved, additional sample panels shall be made until approval is obtained. The

approved sample panel shall be kept at the jobsite for comparison with the finished work. See Section D, Final Finish for description.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Concrete: Concrete shall be Class A that conforms to the requirements of Section 03000 and shall be 4000 psi #57 limestone aggregate concrete with L.M. Scofield integral color #5130, Spring Beige per manufacturer's specifications or approved equal.

B. Shell Aggregate: Washed, #3 color coquina shell. All aggregate shall be free of deleterious materials.

C. Preformed Joint Filler: Preformed joint filler shall be non-extruding and resilient bituminous type and shall conform to the requirements of AASHTO Designation M 153 or AASHTO Designation M 213.

PART 3 - EXECUTION

3.01 PREPARATION

A. Subgrade Condition:

1. The finished subgrade shall be maintained in a smooth, compact condition and any areas which are disturbed prior to placing of the concrete shall be restored at the Contractor's expense. The subgrade shall be moist at the time the concrete is placed. Water shall be uniformly applied ahead of the pouring operations as directed by the Engineer. Large boulders and other obstructions shall be removed to a minimum depth of 6 inches below the finished subgrade elevation, and the space shall be backfilled with sand, base course material or other suitable material which shall be thoroughly compacted by rolling or tamping.

2. The subgrade shall be accurately trimmed to the required elevation with a 1/4-inch tolerance. High areas shall be trimmed to proper elevation. Low areas may be filled with suitable material and compacted to the specified density or filled with concrete integrally with the placing of the pavement.

B. Setting Forms: The forms shall be accurately set to line and grade and such that they rest firmly, throughout their entire length upon the compacted subgrade surface. Forms shall be joined neatly and tightly and braced to resist the pressure of the concrete and the finished operations. The alignment and grade of all forms shall be approved before and immediately prior to the placing of concrete.

C. Mixing Concrete: Concrete shall be mixed in accordance with the requirements of Section 03000, with these special provisions; the application shall be 4000 psi #57 aggregate concrete with L.M. Scofield integral color #5130, Spring Beige or approved equal.

D. Aggregate: Prior to the concrete placing operation, all select seeding aggregate shall be washed thoroughly so that it is free of all dust, dirt, and clay particles. The aggregate shall be in a damp condition but without free surface water at the time of seeding application.

There shall be sufficient select aggregate on hand to complete the seeding once it has started.

F. Concrete Testing: All testing shall be done in accordance with Specification Section 03000-2.03. The City of Tampa will perform the concrete testing. Notify City five (5) days prior to required testing.

3.02 INSTALLATION

A. Placing Concrete:

1. The landscape architect shall be notified of concrete placement sufficiently in advance of start of operation to allow the architect's representative to complete preliminary inspection of the work, including subgrade and forms. Normal concrete placement procedures shall be followed. Concrete shall arrive at the jobsite so that no additional water will be required to produce the desired slump of no greater than 5". When conditions develop that require addition of water to produce the desired slump, permission of the landscape architect's representative must be obtained The concrete shall be transported from the mixer to its place of deposit by a method that will prevent segregation or loss of material.

2. Concrete shall be consolidated by suitable means to eliminate voids and pockets. The strikeoff and darby or bull- float operations should be such that a level or flat, plane surface is obtained sufficiently below the final finish grade to allow for volume growth due to the addition of the seeding aggregate.

3. The concrete shall be distributed on the subgrade to such depth that, when it is consolidated and finished, the thickness required by the drawings will be obtained at all points and the surface will at no point be below the grade specified for the final finished surface. Take into account the shell aggregate seeding when placing concrete. The concrete shall be deposited on the subgrade in a manner which will require as little rehandling as possible. Placing of the concrete shall be continuous between transverse joints, without the use of intermediate bulkheads.

4. Concrete shall be thoroughly consolidated against and along the faces of all forms by means of vibrators. Vibrators shall not be permitted to come in contact with the subgrade or a side form. Vibration at any one location shall not continue so long as to produce puddling or the accumulation of excessive grout on the surface. In no case shall the vibrator be operated longer than 15 seconds in any one location.

B. Seeding and Embedment:

1. The seeding operation shall start immediately after the placement of concrete as described above. The select coquina aggregate mix shall be carefully and uniformly seeded by suitable means so that the entire surface has a 100% uniform coverage of shell mixture imbedded in the concrete. Care shall be taken not to over-embed and deform the surface. Under no circumstances shall areas lacking sufficient mortar be filled with small quantities of the base concrete mix. The finishing method is more particularly described below.

2. Finish: While the concrete is still in a fluid state:

a. A 50% surface coverage of triple washed coquina shell is hand or mechanically broadcast and floated into the surface.

b. A second 50% coverage of the mixture is then immediately applied and floated into the surface.

c. The finished surface is to be troweled smooth and edged with a 1/8" radius edger to maintain clean crisp edges post blasting.

d. Once the concrete has reached 75% of the desired compressive strength, the surface is to be mist-blasted with a non-silica blasting sand to expose the shell aggregate. All adjacent surfaces shall be protected in this process.

e. Do not use a surface retardant.

C. Joints:

1. Transverse Construction Joints: Transverse construction joints shall be constructed at the end of all pours and at other locations where the pouring operation are stopped for as long as 30 minutes. Construction joints, however, shall not be placed within four feet of any other transverse joint or of either end of a section of walk. If sufficient concrete has not been placed to form a slab at least four feet long, the excess concrete, back to the last preceding joint, shall be removed. The joints shall be formed by placing a wood or metal bulkhead accurately and securely in place, in a plane perpendicular to the profile and center line of the walk. Construction joints shall have tooled edges with a 1/8-inch radius.

2. Transverse Contraction Joints: Transverse contraction joints shall be saw-cut at ten foot by ten foot intervals and shall provide planes of weakness created by a concrete saw blade. The cut in the concrete shall be perpendicular to the surface of the walk and shall extend to a depth of 1 1/2 inches below the top surface.

3. Transverse Expansion Joints: One half-inch expansion joints shall be formed by placing preformed joint filler around all structures and at intervals not exceeding 30 feet on center. Place an expansion joint between different types of concrete finishes.

D. Curing:

As soon as the washing operation ceases, the curing operation shall begin. The concrete shall be kept in continuously moist condition by wet coverings, plastic sheeting, or continuous saturation by sprinkling, for 7 days. The temperature of the concrete shall not be allowed to fall below 50 deg. F. during the curing period.

E. Form Removal: After the concrete has sufficiently set a minimum of 12 hours, the Contractor shall remove the forms and shall backfill the space on each side. The earth shall be compacted and graded in a satisfactory manner without damage to the concrete work. Honeycombs shall be filled with sand cement mortar. Plastering will not be allowed on the face of the walk. Rejected walk shall be removed and replaced without additional

compensation.

END OF SECTION 02511

SECTION 02580

PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. This Section specifies the furnishing and application of permanent reflective pavement marking traffic paints, thermoplastic, glass spheres and reflective pavement markers.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary General Provisions, Special Conditions and Division1Specifications sections, apply to this section.

1.03 QUALITY ASSURANCE

A. Pavement marking traffic paints, thermoplastic, glass spheres and reflective markers shall be applied in accordance with Standard Specifications for Road and Bridge Construction, 2013, of the Florida Department of Transportation, the Manual of Uniform Traffic Control Devices and the Florida Manual on Traffic Control and Safe Practices for Street and Highway Construction and Supplemental Specifications thereto.

1.04 SUBMITTALS

A. Submit certificates stating that materials meet Florida Department of Transportation Specifications Sections 706, 711, and 971.

PART 2 - PRODUCTS

2.01 MATERIALS

A. White and Yellow Permanent Reflective Pavement Markings Paint: Traffic paint codes T1 (white) and T2 (yellow) shall meet with requirements of Section 971 in the FDOT Standard Specifications for Road and Bridge Construction.

B. Thermoplastic: The thermoplastic compound used shall meet the requirements set of Section 711 of the FDOT Standard Specifications for Road and Bridge Construction.

C. Markers: Reflectorized pavement markers shall meet the requirements of Sections 706 and 970 of the FDOT Standard Specifications for Road and Bridge Construction.

D. Glass Spheres: Glass spheres shall meet the requirements of Section 971-2 of the FDOT Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.01 APPLICATION

A. Equipment shall conform with FDOT Standard Specifications for Road and Bridge Construction Sections 710.3.

B. Dimensions and alignment tolerances shall conform with FDOT Standard Specifications Sections 710-5.

C. Application of paint and glass spheres shall conform with FDOT Standard Specifications Section 710-4.

D. Application of thermoplastic compound and glass spheres for traffic stripes, arrows, messages and markings shall conform with FDOT Standard Specifications Section 711-4.

E. Installation of reflectorized pavement markings shall conform with FDOT Standard Specifications Section 706-4.

F. Protection of newly painted pavement markings shall conform with FDOT Standard Specifications Section 710-7.

PART 4 – CONTRACT ITEMS

4.01 BASIS OF PAYMENT

Payment shall be made under:

Item No. 02580-1	Retro-Reflective Pavement Markers	EA
Item No. 02580-2	Solid Traffic Stripe 6” White	LF
Item No. 02580-3	Solid Traffic Stripe 12” White	LF
Item No. 02580-4	Solid Traffic Stripe 24” White	LF
Item No. 02580-5	Solid Traffic Stripe 6” Yellow	LF

END OF SECTION 02580

SECTION 02900

TREES, PLANTS AND GROUNDCOVERS

PART 1 - GENERAL

1.01 WORK INCLUDED

Furnish all materials, equipment and labor as necessary for preparation of planting areas, soil treatment, planting of trees, shrubs, groundcovers and grass, relocation of designated plants, protection of plants, maintenance, guarantee and replacement of plants, and related items as required to complete the work as indicated on the drawings and specified herein.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications sections, apply to this section.

B. Section 02440: Irrigation System.

C. Section 02910: Structural Soil

D. Section 02935: Maintenance of Plantings.

1.03 DEFINITIONS

A. The following words and terms or pronouns used instead shall wherever they appear in these specifications, be construed as follows, unless a different meaning is clear from the context:

"Final Acceptance" shall mean that point in time when all requirements of project drawings and specifications are completed, including any punch list items, to the satisfaction of the City of Tampa representative. The contractor shall be notified in writing of final acceptance by a City of Tampa representative.

"Warranty Period" shall be a one year period beginning at Final Acceptance.

"Maintenance Period" shall begin when plant material is installed and continue for ninety (90) days after notification of Final Acceptance.

"Final Maintenance Inspection" shall occur at the end of the ninety (90) day maintenance period.

1.04 QUALITY ASSURANCE

A. The landscape installation shall be by a single firm specializing in landscape work.

B. Plant names indicated shall comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed shall conform generally with names accepted by the nursery trade.

Provide stock true to botanical name and legibly tagged.

C. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock" (ANSI Z60 1) and, sizing and grading standards of the latest edition of "Grades and Standards for Nursery Plants: Part I and II" by the Florida Department of Agriculture and Consumer Services. All plant material shall be "Florida No. 1" or better.

1. Caliber measurement shall be taken six (6) inches above ground level if four (4) inches or less. If greater than 4 (four) inches, caliber measurement will be taken at twelve (12) inches above ground level.

D. Do not make substitutions. If specified landscape material is not obtainable submit to City of Tampa representative in writing, proof of non-availability and proposal for use of equivalent material. When authorized, adjustment of contract amount will be made.

E. All plants shall be nursery grown and 100% acclimatized to local planting conditions.

F. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, providing that the larger plants will not be cut back to size indicated or rootbound in pots. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated. Height and spread specified will prevail over container size specified, for groundcover and shrub material only.

G. All trees will be inspected and approved by the City of Tampa representative at the place of growth, for compliance with specification requirements for quality, size, and variety. When trees cannot be obtained locally, provide sufficient photographs of the proposed plants for approval.

1. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

2. Tag trees at the source of supply prior to inspection by City of Tampa representative.

1.05 SUBMITTALS

A. Submit planting schedule showing scheduled dates for each type of planting in each area of site two weeks prior to beginning work.

B. Submit certificates of inspection, as required by governmental authorities, and manufacturers or vendors certified analysis for soil amendments, herbicides, insecticides and fertilizer materials, submit other data substantiating that materials comply with specified requirements.

C. Submit the following material samples:

1. Mulch
2. Topsoil with verification of sterilization and source.
3. One typical sample of each shrub and groundcover material as specified, prior to

planting for approval.

a. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

D. Upon final acceptance of plant material, submit two (2) written maintenance instructions recommending procedures for maintenance of plant materials for a one year period.

E. Provide landscape planting as-built drawings:

1. Legibly mark drawings to record actual installation.
2. Identify field changes of dimension and detail and changes made by approving authority.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver fertilizer materials in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. Store in manner to prevent wetting and deterioration.

B. B&B Trees must be held and fully acclimatized over a period not less than eight (8) weeks prior to delivery to site.

C. Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately prior to digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order. Upon arrival the certificate shall be filed with the appropriate City of Tampa department.

Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the City of Tampa representative. Water heeled-in plantings daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches.

D. Plant material that is stored improperly shall receive a special review of acceptance/rejection, established on a case by case basis.

E. Cover plants transported on open vehicles with a protective covering to prevent wind burn.

F. Topsoil shall be kept dry and loose for planting bed mixes.

G. Label at least one (1) tree and one (1) shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.

1.07 JOB CONDITIONS

A. Work notification: Notify City of Tampa representative at least seven (7) working days prior to installation of plant material. All plant samples to be reviewed for approval prior to

notification.

B. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations. Notify any affected utilities 48 hours prior to beginning work, if applicable.

C. A complete list of plants, including a schedule of sizes, quantities, and other requirements are shown on the drawings. In the event that quantity discrepancies or material omission occur in the plant materials list, the planting plans shall govern.

D. Examine the subgrade, verify the elevations, observe the conditions under which work is to be performed, and examine unsatisfactory conditions before proceeding with the work.

1. When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, notify City of Tampa representative before planting to determine alternative action.

2. Contractor shall be responsible for the removal of existing vegetation deemed necessary by City of Tampa representative to carry out scope of project.

E. The irrigation system shall be installed prior to planting, if applicable. Locate, protect and maintain the irrigation system during planting operations. Repair irrigation system components, new and existing, damaged during planting operations with like materials. Test system prior to installation of plant material.

F. Any work taking place along a city, county or state road or median must comply with appropriate regulating authorities' guidelines for "Traffic Controls for Construction and Maintenance Operations". Contractor shall be responsible to file and obtain any and all required agency permits.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Plants: Provide plants typical of their species or variety; with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasion of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.

1. All plant material shall be "Florida No.1", or better.

2. Dig balled and burlapped plants with firm, natural balls of earth of diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.

3. Container-grown stock: Grown in container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.

a. No plants shall be loose in the container.

b. Container stock shall not be pot bound.

4. Trees with included bark will not be accepted. Trees shall have a minimum of five (5) feet of trunk free from branching, unless otherwise specified.

5. Sanding of palm tree trunks will not be accepted. Palm tree fronds shall be tied up to protect bud from stress and damage. Fronds shall be tied with a material that will decompose naturally. DO NOT HURRICANE CUT WASHINGTON PALMS. TRIM FRONDS ONLY.

6. Plants planted in rows shall be matched in form.

7. Plants larger than those specified in the plant list may be used when acceptable to the City of Tampa representative.

   a. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.

8. The height of the trees, measured from the crown of the roots to the average height of the top of the tree, shall not be less than the minimum size designated in the plant list. Container size designated, if any, shall be minimum size required.

9. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.

10. Height and spread requirements, of shrub and groundcover material, indicated in the plant list shall prevail over container size indicated, unless otherwise specified.

11. Shrubs and small plants shall conform to the following standards:

    a. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
    b. Single stemmed or thin plants will not be accepted.
    c. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground, unless otherwise specified.
    d. Plants shall be in a vigorous condition, free from dead wood, bruises, or other root or branch injuries.

12. Any plant material showing signs of shock will be judged on a case by case basis for acceptance or rejection.

2.02 ACCESSORIES

A. Refer to drawings and other portions of specifications for accessories specifically used on this project.

B. Topsoil for Planting Beds: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from

clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range between pH 5.5 and 6.5. Mixture 50% course native sand and 50% peat as specified.

1. Expressly identify source location of topsoil and/or peat proposed for use on the project.

2. Provide topsoil free of substances harmful to the plant material. Topsoil shall be sterilized.

C. Peat: Brown to black in color, sterile, weed and seed free granulated raw peat, containing not more than 9% mineral on a dry basis.

D. Fertilizer shall be complete with the following analysis and source compounds:

10% nitrogen derived from ammonium nitrate.
2% phosphorous derived from super phosphate.
10% potassium derived from potassium sulfate.
4% magnesium derived from magnesium sulfate.

The fertilizer shall be neutral and contain the essential micro-nutrients (Chelated Fe, Mn, Zn, Mo, Bo, Cu) in sulfates unless otherwise indicated in ppm. Fertilizer shall be slow release.

E. Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions.

F. Mulch shall be derived from an invader tree species (unless specified otherwise on drawings) clean, bright and free from weeds, moss, sticks and other debris. Mulch shall be spread at minimum of two (2) inches deep and maximum of four (4) inches deep or as otherwise noted.

G. Water: Free of substances harmful to plant growth. Water shall contain less than 300 ppm soluble salts and less than 10 ppm chlorine, fluoride and sodium. Hoses or other methods of transportation furnished by Contractor. Contractor shall furnish water supply from an acceptable source. Acceptable sources: deep wells, municipal potable supply and treated wastewater.

H. Guys: All trees between 2" and 4" caliber shall be guyed using a 3/4" rubber elastic guy system such as Tree Saver. Attach fluorescent flagging to guys, minimum 18" length.

I. Pre-emergent weed killer: Apply 2: granular "Chipco" Ronstar or approved equal, at a rate recommended by manufacturer.

J. Structural Soil: See specification Section 02910 for material and method of installation.

PART 3 - EXECUTION

3.01 INSPECTION

Contractor shall examine proposed planting areas and conditions for installation. Do not start planting work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Time of planting.

Deciduous material: If deciduous trees are planted in-leaf, they shall be sprayed with an anti-desiccant prior to planting operation.

B. Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

C. Layout of individual tree locations shall be performed by the City of Tampa representative prior to starting work at each site. Give 48 hour notice of need for inspection. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations until alternate plant locations have been selected. Verify locations of existing utilities.

D. Excavate beds and install Structural Soil per specification Section 02910.

E. Excavate circular plant pits with 1:1 sides, except for plants specifically indicated to be planted in beds. Provide shrub pits at least 12" greater than the diameter of the root system and 3 times greater than diameter of rootball for trees. Depth of pit shall accommodate the root system. Remove excavated materials from the site, as indicated under Site Clearing Section 21.10.

F. Provide pre-mixed planting mixture for use around the balls and roots of the plants consisting of topsoil and 1/2 lb. plant fertilizer as specified, for each cu. yd.of mixture.

G. Provide pre-mixed ground cover bed planting mixture consisting of topsoil and 1/2 lb. Plant fertilizer as specified, per cu. yd. Prepare planting bed as specified on drawings.

H. Palm trees with clear trunk greater than six (6) feet in height shall be backfilled with soil indigenous to site.

3.03 INSTALLATION

A. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material 2"-3" above the finish grade. No filling will be permitted around trunks of stems. Backfill the pit with planting mixture until approximately 2/3 full, then water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Do not use muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water.

After balled and burlapped plants are set, place soil mixture around bases of balls and fill all voids. Remove all burlap, ropes, and wires from the tops of balls.

B. Space ground cover plants in accordance with indicated dimensions. Adjust quantities as necessary to evenly fill planting bed per indicated spacing of plants. Plant within 4' of the trunks of trees and shrubs within planting bed and to within 1' of edge of bed.

C. Apply anti-desiccant using power spray to provide adequate film over trunks, branches, stems, twigs and foliage.

D. Mulch:

1. Apply pre-emergent weed killer over grade prior to mulching, as specified by City of Tampa representative. Use rates recommended for specified product.

2. Mulch tree, shrub planting pits and shrub beds with required mulching material 3" deep or as otherwise noted immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

E. Staking/Guying:

1. Guy all trees over 2" in caliber immediately after planting and prior to acceptance.

2. Brace all palm trees with Platipus Rootball Fixing System per plan details.

3. All work shall be acceptable to the City of Tampa representative.

F. Pruning:

1. Prune branches of B&B stock, prior to transplanting, to balance the loss of roots and preserve the natural character appropriate to the particular plant requirements. In general, remove 1/4 to 1/3 of the leaf bearing buds, proportion shall in all cases be acceptable to the City of Tampa representative. Remove or cut back broken, damaged, and unsymmetrical growth of new wood. Prune trees to retain required height and spread. Do not cut structural branches. Required sizes are the size after pruning.

2. Multiple leader plants: Preserve the leader which will best promote the symmetry of the plant. Cut branches at branch collars.

G. Care of Existing Trees:

1. All existing trees, if any, shall be protected through the duration of this project as outlined in the Tree Protection Standards of the City of Tampa Site Clearing Ordinance. These are available in the City Hall Annex Building, Duplication office for a fee.

H. Tree Relocation:

1. Tree relocation shall be performed under the supervision of the City Arborist, 813-

274-5155.

3.04 MAINTENANCE

A. Begin maintenance immediately after planting. Maintain all plant material until final acceptance and for an establishment period of ninety (90) days after final acceptance.

B. Maintenance shall include but is not limited to pruning, cultivating, mowing, weeding, fertilizing, watering, and application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease.

1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.

2. Tighten and repair guys and stakes as required.

3. Correct defective work immediately after deficiencies become apparent and weather permits.

4. **In addition to irrigation system** or if no system exists, water trees every other day saturating the soil to depth of three (3) feet for the first two (2) weeks. If no irrigation system exists, water plant material per the following schedule:

1-30 days - water every other day, saturating the soil to a depth of 3 feet.

30-90 days - water twice a week, saturating the soil to a depth of three (3) feet.

Quantity of water applied should be adjusted in accordance to rainfall.

3.5 ACCEPTANCE

A. Inspection to determine acceptance of planted areas will be made by the City of Tampa representative upon Contractor's request. Provide notification at least 5 working days before requested inspection date.

Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.

B. The City of Tampa representative will prepare a "punch list" of those items which must be corrected before reinspection for final acceptance. The City of Tampa representative will determine an appropriate time period in which punchlist items must be corrected. Provide 48 hour notification of need for reinspection.

C. The owner will assume plant maintenance 90 days after final acceptance, at which time, the contractor shall request a final maintenance inspection for acceptance, where requirements as stated in 3.5 apply.

3.6 WARRANTY

A. Warrant plant material to remain alive and be in healthy, vigorous condition for a period of

1 year after completion and final acceptance of entire project.

B. Replace, in accordance with the drawings and specifications, all plants that are dead or as determined by the City of Tampa representative to be in an unhealthy or unsightly condition, and have lost their natural shape due to contractor's negligence. The cost of such replacement(s) is at Contractor's expense. Warrant all replacement plants for six months after final acceptance.

C. Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, freezing, rains, lightning storms or winds over 75 miles per hour, winter kill caused by extreme cold and severe winter conditions not typical of planting area; acts of vandalism or negligence on the part of the owner.

D. Remove and replace immediately all plants found to be dead or in unhealthy condition as determined by City of Tampa representative at any time during warranty period. Make replacements within four (4) weeks of notification.

1. An inspection will be conducted at the end of the warranty period. Contractor will replace any plants found to be dead or in poor condition at this time within four (4) weeks of inspection. Contractor will also remove any tree bracing or guying determined by the city representative to be unnecessary at this point in the trees development.

3.7 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Do not leave on site over night, unless arrangements have been made to do so with the City of Tampa representative. Coordinate with City Representative on site storage of debris and/or trash. Repair damage resulting from planting operations.

END OF SECTION 02900

SECTION 02910 – STRUCTURAL SOIL

PART 1 - DESCRIPTION AND SPECIFICATION

1.1 GENERAL

The work of this section consists of all Structural Soil work and related items as indicated on the drawings or as specified herein and includes, but is not limited to, the following:

1. CU Soil™ is a proprietary material patented by Cornell University (US Patent # 5,849,069). Only licensed producers are allowed to supply this material, meeting the specifications described in this text. For a list of licensed CU-Soil™ producers, call AMEREQ, INC. at 1-800-832-8788.

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications Sections, apply to this section.

1.3 REFERENCES AND STANDARDS

The following references are used herein and shall mean:

1. ASTM: American Society of Testing Materials
2. USDA: United States Department of Agriculture
3. AASHTO: American Association of State Highway and Transportation Officials
4. Standard Specifications: Regional or Municipal Standard Specifications Documentation for the location of proposed usage
5. AOAC: Association of Official Agricultural Chemists

1.4 SAMPLES AND SUBMITTALS

At least 30 days prior to ordering materials, the Contractor shall submit to the Engineers representative samples, certificates, manufacturer's literature and certified tests for materials specified below. No materials shall be ordered until the required samples, certificates, manufacturer's literature and test results have been reviewed and approved by the Engineer. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The engineer reserves the right to reject, on or after delivery, any material that does not meet these specifications.

Submit two, one-half cubic foot representative samples of Clay Loam and one, one cubic foot representative samples Structural Soil mixes in this section for testing, analysis and approval. Submit one set of samples for every 500 CY of material to be delivered. In the event of multiple source fields for Clay Loam, submit a minimum of one set of samples per source field or stockpile. Samples shall be taken randomly throughout the field or stockpile at locations as directed by the Engineer and packaged in the presences of the Engineer. Samples shall be labeled to include the location of the source of the material, the date of the sample and the Contractor's name. One of the two samples is to be used by testing laboratory for testing purposes. The second sample of all Clay Loam and Structural Soil shall be submitted to the Engineer at the same time as test analysis as a record of the soil color and texture.

1. Submit the locations of all source fields for Clay Loam.
2. Submit a list of all chemicals and herbicides applied to the Clay Loam for the last five years and a list of all crops grown in the Clay Loam source fields for the last three years.

Submit soil test analysis reports for each sample of Clay Loam and Structural Soil from an approved soil-testing laboratory. The test results shall report the following:

1. The soil testing laboratory shall be approved by the Engineer. The testing laboratory for particle size and chemical analysis may be a public agricultural extension service agency or agricultural experiment station.
2. Submit a bulk density of the sample and particle size analysis including the following gradient of mineral content:

USDA Designation	Size in mm.
Gravel	+2 mm
Sand	0.05 – 2 mm
Silt	0.002-0.05 mm
Clay	minus 0.002 mm

Sieve analysis shall be performed and compared to USDA Soil Classification System. Sieve analysis shall be done by a combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D422 after destruction of organic matter by hydrogen peroxide.

3. Submit a chemical analysis, performed in accordance with current AOAC Standards, including the following:
   a. pH and Buffer pH.
   b. Percent organic matter as determined by the loss of ignition of oven dried samples. Test samples shall be oven dried to a constant weight at a temperature of 230 degrees F, plus or minus 9 degrees.
   c. Analysis for nutrient levels by parts per million including nitrate nitrogen, ammonium nitrogen, phosphorus, potassium, magnesium, manganese, iron, zinc, calcium and extractable aluminum. Nutrient test shall include the testing laboratory recommendations for supplemental additions to the soil as calculated by the amount of material to be added per volume of soil for the type of plants to be grown in the soil.
   d. Analysis for levels of toxic elements and compounds including arsenic, boron, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, zinc and PCB. Test results shall be cited in milligrams per kilogram.
   e. Soluble salt by electrical conductivity of a 1:2 soil/water sample measured in Millimho per cm.
   f. Cation Exchange Capacity (CEC).
   g. Carbon/Nitrogen Ratio.

4. Submit 5-point minimum moisture density curve AASHTO T 99 test results for each Structural Soil sample without removing oversized aggregate.
5. Submit California Bearing Ratio test results for each Structural Soil sample compacted to peak standard density. The soaked CBR shall equal or exceed a value of 50.
6. Submit measured dry-weight percentage of stone in the mixture.
7. The approved Structural Soil samples shall be the standard for each lot of 500 cubic yards of material.

8. All testing and analysis shall be at the expense of the Contractor.

Maintenance Instructions: Prior to the time of Final Acceptance of the Work, submit maintenance instructions for the use, removal and replacement of Structural Soil from the licensor (Amereq Corp.). The instructions shall be reviewed by the Project Engineer as a pre-condition for Final Acceptance of the Work.
Submit to the Engineer for review a proposed plan and vertical section layout of all Structural Soil.
Submit one cubic foot sample per each 500 cubic yards of required material, and for each sample, the following analysis for all Crushed Stone. The soil testing laboratory shall be approved by the Engineer.

1. Provide a particle size analysis including the following gradient of mineral content:

USDA Designation	Size in mm.
3@	+76 mm
2-1/2@	63-76 mm
2@	50-63 mm
1-1/2@	37-50 mm
1@	25-37 mm
¾@	19-25 mm
Fine gravel	2-19 mm
Sand	0.05-2 mm
Silt	0.002-0.05 mm
Clay	minus 0.002 mm

2. Provide the manufacturers analysis of the following:
   h. Loose and rodded unit weight.
   i. Bulk specific gravity and absorbency.
   j. Stone dimension and surface texture description.
   k. Documentation of acceptance for use as DOT approved aggregate by the FDOT
3. Provide a percent pore space analysis defined as follows:
   a. Rodded Unit Weight divided by the Bulk Specific Gravity X 100

Submit one pound sample of each type of fertilizer and three certificates showing composition and analysis. Submit the purchasing receipt for each fertilizer showing the total quantity purchased for the project prior to installation.
Submit the Landscape or Pavement Material Contractor's qualifications outlining projects of similar quality, schedule requirements and construction detailing over the last five years. Qualifications shall include: the names of all similar projects, year completed, location, description of the scope of work including the types and quantities of planting mix/pavement material installed and the name, address and telephone number of the owner or the owner's representative.

1.5 DELIVERY, STORAGE AND HANDLING

Do not deliver or place soils in frozen, wet, or muddy conditions. Material shall be delivered at or near optimum compaction moisture content as determined by AASHTO T99 (ASTM D 698). Do not deliver or place materials in an excessively moist condition (Beyond two percent above optimum compaction moisture content as determined by AASHTO T 99 (ASTM D 698).
Protect soils and mixes from absorbing excess water and from erosion at all times. Do not store materials unprotected from large rainfall events. Do not allow excess water to enter site prior to compaction. If water is introduced into the material after grading, allow material to drain or aerate

to optimum compaction moisture content.

1.6 EXAMINATION OF CONDITIONS

All areas to receive Structural Soil shall be inspected by the Contractor before starting work and all defects such as incorrect grading, compaction and inadequate drainage etc. shall be reported to the Engineer prior to beginning this work.
The Contractor shall be responsible for judging the full extent of work requirements involved, including but not limited to the potential need for temporary storage and staging of soils, including moving soil stock piles at the site to accommodate scheduling of other work and the need to protect installed soils from compaction, erosion and contamination.

1.7 QUALITY ASSURANCE

Qualifications of Landscape or Pavement material Contractor: The work of this section shall be performed by a Landscape Contracting firm which has a minimum of five years experience successfully installing planting mix of a similar quality, schedule requirement and construction detailing to this project. Proof of this experience shall be submitted as per paragraph, SAMPLES and SUBMITTALS, of this Section.

PART 2 - MATERIALS

2.1 CLAY LOAM

Clay Loam shall be a “loam” based on the “USDA classification system” as determined by mechanical analysis (ASTM D-422) and it shall be of uniform composition, without admixture of subsoil. It shall be free of stones greater than one-half inch, lumps, plants and their roots, debris and other extraneous matter over one inch in diameter or excess of smaller pieces of the same materials as determined by the Engineer. It shall not contain toxic substances harmful to plant growth. It shall be obtained from naturally well-drained areas, which have never been stripped of topsoil before and have a history of satisfactory vegetative growth. Clay loam shall contain not less than 2% or more than 5% organic matter as determined by the loss on ignition of over-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F., plus or minus 9 degrees.
Mechanical analysis for a Loam/Clay Loam shall be as follows:

Textural Class	% of Total Weight
Gravel	less than 5%
Sand	20-45%
Silt	20-50%
Clay	20-40%

Chemical analysis: Meet or be amended to meet the following criteria:

1. pH between 5.5 to 6.5.
2. Percent organic matter 2-5% by dry weight.
3. Nutrient levels as required by the testing laboratory recommendations for the type of plants to be grown in the soil.
4. Toxic elements and compounds below the United States Environmental Protection Agency Standards for Exceptional Quality sludge or local standard; whichever is more stringent.
5. Soluble salt less than 1.0 Millimho per cm.

6. Cation Exchange Capacity (CEC) greater than 10.
7. Carbon/Nitrogen Ratio less than 33:1.

Loam/Clay Loam shall be the product of a commercial processing facility specializing in production of stripped natural topsoil. No topsoil shall come from USDA - classified prime farmland.

2.2 FERTILIZER

Commercial fertilizer complying with State and United States fertilizer laws. Deliver fertilizer in original unopened containers, which shall bear the manufacturer's certificate of compliance covering analysis, which shall be furnished to the Engineer. Fertilizer shall be formulated for mixing into the soil and be certified by the manufacturer to provide controlled release of nitrogen continuously for a period of no less than nine months and no more than 12 months.
Fertilizer percentages of weight of ingredients and application rates shall be as recommended by the soil testing results.

2.3 SULFUR

If following soil testing, deficiencies require the addition of Sulfur it shall be commercial granular, 96% pure sulfur, delivered in containers with the name of the manufacturer, material and analysis appearing on the container.
Sulfur used to lower soil pH above 6.5 shall be ferrous sulfate formulation.

2.4 LIME

If following soil testing, deficiencies require the addition of Lime, it shall be agricultural limestone containing a minimum of 85% carbonates. Minimum gradation: 100% passing 10 mesh sieve; 98% passing 20 mesh sieve; 55% passing 60 mesh sieve and 40% passing 100 mesh sieve.

2.5 CRUSHED STONE

Crushed Stone shall be a DOT certified crushed stone. Granite and limestone have been successfully used in this application. The size of the crushed stone shall be 0.75 inches to 1.5 inches allowing for 5 – 10% to be greater than 1.5 inches, and 5 – 10% less than 0.75 inches.
Acceptable aggregate dimensions will not exceed 2.5:1.0 for any two dimensions chosen.
Minimum 90% with one fractured face, minimum 75% with two or more fractured faces.
Results of Aggregate Soundness Loss test shall not exceed 18%.
Losses from LA Abrasion tests shall not exceed 40%.

2.6 HYDROGEL

Hydrogel shall be a potassium propenoate-propenamide copolymer Hydrogel (Gelscape® Hydrogel Tackifier) as manufactured by Amereq Corp. (800) 832-8788

2.7 WATER

The Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. All work inured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

2.8 STRUCTURAL SOIL

A uniformly blended mixture of crushed Stone, Clay Loam and Hydrogel, mixed to the following proportion:

Material	Unit of Weight
Crushed Stone	100 units dry weight
Loam	as determined by the test of the mix (approx. 20 units)
Hydrogel	0.03 units dry weight
Total moisture	AASHTO T-99 optimum moisture

The initial mix design for testing shall be determined by adjusting the ratio between the Crushed Stone and the clay loam. Adjust final mix dry weight mixing proportion to decrease soil in mixture if CBR test results fail to meet acceptance (CBR #50).

PART 3 - CONSTRUCTION METHODS

3.1 MIX DESIGN

Prepare sample Structural Soil mixes to determine the ratio of mix components. Submit for approval.

1. Submit samples and the test results of each mix component for approval. Based on samples and the analysis of the mix components, the Engineer and the Contractor will jointly determine a mix ratio to be tested for conformance with the requirements of the specifications. For Structural Soil quantities greater than 500 cubic yards, test the mix ratio for each Clay Loam or Crushed Stone where the testing indicates a significant difference in physical analysis of the Clay Loam or Crushed Stone as determined by the Engineer.
2. The Contractor shall prepare the samples of the proposed mix ratio options and obtain soil test as described in paragraph 1.3 C. Submit the samples of each of the mixes with the test results.
3. The Engineer may request additional Structural Soil mix ratio samples to be tested in the event that further refinement of the mix is necessary.
4. Submit to the Engineer proposed fertility amendment recommendations including amounts and types of fertilizers and pH adjustments for each mix ratio. Fertility adjustments shall be included as part of the mixing process.

3.2 SOIL MIXING AND QUALITY CONTROL TESTING

All Structural Soil mixing shall be performed at the Producer's yard using appropriate soil measuring, mixing and shredding equipment of sufficient capacity and capability to assure proper quality control and consistent mix ratios. No mixing of Structural Soil at the project site shall be permitted. Portable pugging may be used.

1. Maintain adequate moisture content during the mixing process. Soils and mix components shall easily shred and break down without clumping. Soil clods shall easily break down into a fine crumbly texture. Soils shall not be overly wet or dry. The contractor shall measure and monitor the amount of soil moisture at the mixing site periodically during the mixing process.
2. A mixing procedure for front-end loader shall be as follows:
   a. On a flat asphalt or concrete paved surface, spread an 8 inch to 12 inch layer of crushed stone.

b. Spread evenly over the stone the specified amount of dry hydrogel.
c. Spread over the dry hydrogel and crushed stone a proportional amount of clay loam according to the mix design.
d. Blend the entire amount by turning, using a front-end loader or other suitable equipment until a consistent blend is produced.
e. Add moisture gradually and evenly during the blending and turning operation as required to achieve the required moisture content. Delay applications of moisture for 10 minutes prior to successive applications. Once established, mixing should produce a material within 1% of the optimum moisture level for compaction.

3. Add soil amendments to alter soil fertility including fertilizers and pH adjustment at the time of mixing at the rates recommended by the soil test.
   a. Soil pH shall be adjusted to fall within a value of 5.5 and 6.5 two months after mixing if the material is stored, unless mixing with a high pH stone. Once pavement is laid, no adjustment should be imposed.
   b. Soil component carbon/nitrogen ratio shall be adjusted to be less than 33:1 within two months after mixing.

The Producer shall mix sufficient material in advance of the time needed at the job site to allow adequate time for final quality control testing as required by the progress of the work. Structural Soil shall be stored in piles of approximately 500 cubic yards and each pile shall be numbered for identification and quality control purposes. Storage piles shall be protected from rain and erosion by covering with plastic sheeting.
During the mixing process, the Contractor obtains two, one cubic foot quality control samples per 500 cubic yards of production from the final Structural Soil. The samples shall be taken from random locations in the numbered stockpiles as required by paragraph 1.3.B of this specification. Each sample shall be tested for particle size analysis and chemical analysis as described in Paragraph 1.3.C.2 and 3 above. Submit the results directly to the Engineer for review and approval.
The quality control sample Clay Loam-Crushed Stone ratios shall be no greater or less than 2% of the approved test sample as determined by splitting a known weight of oven dried material on a #4 sieve. In the event that the quality control samples vary significantly from the approved Structural Soil sample, as determined by the Engineer, remix and retest any lot of soil that fails to meet the correct analysis making adjustments to the mixing ratios and procedures to achieve the approved consistency.

3.3 UNDERGROUND UTILITIES AND SUBSURFACE CONDITIONS

Notify the Engineer of any subsurface conditions which will affect the Contractor's ability to complete the work.
Locate and confirm the location of all underground utility lines and structures prior to the start of any excavation.
Repair any underground utilities or foundations damaged by the Contractor during the progress of this work. The cost of all repairs shall be at the Contractor's expense.

3.4 SITE PREPARATION

Do not proceed with the installation of the Structural Soil material until all curb footings and utility work in the area have been installed. For site elements dependent on Structural Soil for foundation support, postpone installation until immediately after the installation of Structural Soil.
Install subsurface drain lines as shown on the Drawings prior to installation of Structural Soil material.
Excavate and compact the proposed subgrade to depths, slopes and widths as shown on the

Drawings. Maintain all required angles of repose of the adjacent materials as shown on the drawings. Do not over excavate compacted subgrades of adjacent pavement or structures.
Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade and or toward the subsurface drain lines as shown on the drawings.
Clear the excavation of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout silts or other material harmful to plants have been spilled into the subgrade material, excavate the soil sufficiently to remove the harmful material. Fill any over excavation with approved fill and compact to the required subgrade compaction.
Do not proceed with the installation of Structural Soil until all utility work in the area has been installed. All subsurface drainage systems shall be operational prior to installation of Structural Soils.
Protect adjacent walls, walks and utilities from damage or staining by the soil. Use ½" plywood and or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.

1. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day.
2. Any damage to the paving or architectural work caused by the soils installation Contractor shall be repaired by the general contractor at the soils installation contractor's expense.

Maintain all silt and sediment control devices required by applicable regulations. Provide adequate methods to assure that trucks and other equipment do no track soil from the site onto adjacent property and the public right of way.

3.5 INSTALLATION OF STRUCTURAL SOIL MATERIAL

Install Structural Soil in 6 inch lifts and compact each lift.
Compact all materials to peak dry density from a standard AASHTO compaction curve (AASHTO T 99). No compaction shall occur when moisture content exceeds maximum as listed herein. Delay compaction 24 hours if moisture content exceeds maximum allowable and protect Structural Soil during delays in compaction with plastic or plywood as directed by the Engineer.
Bring Structural Soils to finished grades as shown on the Drawings. Immediately protect the Structural Soil material from contamination by toxic materials, trash, debris, water containing cement, clay, silt or materials that will alter the particle size distribution of the mix with plastic or plywood as directed by the Engineer.
The Engineer may periodically check the material being delivered and installed at the site for color and texture consistency with the approved sample provided by the Contractor as part of the submittal for Structural Soil. In the event that the installed material varies significantly from the approved sample, the Engineer may request that the Contactor test the installed Structural Soil. Any soil which varies significantly from the approved testing results, as determined by the Engineer, shall be removed and new Structural Soil installed that meets these specifications.

3.6 FINE GRADING

After the initial placement and rough grading of the Structural Soil but prior to the start of fine grading, the Contractor shall request review of the rough grading by the Engineer. The Contractor shall set sufficient grade stakes for checking the finished grades.
Adjust the finish grades to meet field conditions as directed.

1. Provide smooth transitions between slopes of different gradients and direction.

2. Fill all dips with CU-Soil™ and remove any bumps in the overall plane of the slope.
   a. The tolerance for dips and bumps in Structural Soil areas shall be a 3" deviation from the plane in 10'.
3. All fine grading shall be inspected and approved by the Engineer prior to the installation of other items to be placed on the Structural Soil

The Engineer will inspect the work upon the request of the Contractor. Request for inspection shall be received by the Engineer at least 10 days before the anticipated date of inspection.

3.7 ACCEPTANCE STANDARDS

The Engineer will inspect the work upon the request of the Contractor. Request for inspection shall be received by the Engineer at least 10 days before the anticipated date of inspection.

3.8 CLEAN-UP

Upon completion of the Structural Soil installation operations, clean areas within the contract limits. Remove all excess fills, soils and mix stockpiles and legally dispose of all waste materials, trash and debris. Remove all tools and equipment and provide a clean, clear site. Sweep, do not wash, all paving and other exposed surfaces of dirt and mud until the paving has been installed over the Structural Soil material. Do no washing until finished materials covering Structural Soil material are in place.

END OF SECTION 02910

SECTION 02935

MAINTENANCE OF PLANTING

PART 1 - GENERAL

1.01 WORK INCLUDED

Description covers routine maintenance guidelines for onsite planting and irrigation system.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications Sections, apply to this section.

B. Section 02440: Irrigation System.

C. Section 02900: Trees, Plants and Groundcovers.

1.03 PROTECTION

Protect all plants, site furniture, paved surfaces, and buildings during maintenance procedures and protect all plants in the application of chemicals. Use chemicals and equipment in accordance with manufacturer's directions and specifications. Repair or replace any damage caused through improper use of equipment or application of chemicals. Apply all chemicals in such a manner that the public will not be in contact with or have any real or imagined harm done to them by the application.

1.04 RECORD

A. Weekly checklists shall be completed by the maintenance personnel in the course of their work. The checklists shall indicate the tasks completed, observations of damages, plant materials requiring special care or replacement, and situations detrimental to health and vigor of plantings.

B. Record monthly the use of all fertilizers, herbicides, insecticides and disease control chemicals used for the project.

C. Records shall be submitted to, and / or kept by the City of Tampa Parks and Recreation Department Maintenance Division.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Water: Clean, potable and fresh

B. Fertilizers:

1. Tightly-compressed, slow-release and long-lasting complete fertilizer tablets bearing manufacturer's label of guaranteed analysis of chemicals present.

2. Balanced, yearly application of controlled-release fertilizers with a blend of coated pills which supply controlled-release nitrogen, phosphorus and potassium, and uncoated, rapidly soluble pills containing nitrogen and phosphorus.

3. Top Dress Fertilizer: "Gro-Power" 5-3-1 and Gro-Power Control Release 12-8-8.

C. Herbicides, Insecticides, and Fungicides:

1. Obtain best quality materials with original manufacturers' containers, properly labeled with guaranteed analysis.

2. Use non-staining materials.

D. Replacement Tree Staking: Match existing materials on the site until trees are established; a minimum of one year.

E. Mulch: Shredded hardwood mulch, clean, bright and free of weeds, moss, sticks and other debris.

PART 3 - EXECUTION

3.01 GENERAL

Maintain all plantings in a healthy, vigorous and attractive condition.

3.02 TREES, SHRUBS

A. Watering Basins:

1. Maintain all watering basins around plants so that enough water can be applied to establish moisture through major root zones.

2. In rainy season, open basins to allow surface drainage away from the root crown where excess water may accumulate. Restore watering basins at end of rainy season or until plants are established.

3. For supplemental hand watering of watering basins, use a water wand to break the water force. Do not permit crown roots to become exposed to air through dislodging of soil and mulch.

4. Maintain 3” depth of mulch to reduce evaporation and frequency of watering.

5. Check for moisture penetration throughout the root zone at least once per week.

B. Resetting: Reset plants to proper grades or upright position.

C. Weed Control:

1. Control weeds, preferably by hand weeding; or with pre-emergent herbicides and with selective systemic herbicides.

2. All areas between plants, including watering basins, shall be made weed free on a continuous 14 day cycle..

3. Use only recommended and legally approved herbicides to control weed growth.

4. Avoid frequent soil cultivation that destroys shallow roots and breaks the seal of pre-emergent herbicides.

D. Pruning: Ensure all pruning equipment is clean and sharp. Clean equipment between the pruning of different plant types.

1. Prune trees to select and develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached, and which have vertical spacing of 18 in. to 48 in. and radial orientation so as not to overlay one another.

2. Prune trees to eliminate diseased or damaged growth, and narrow V-shaped branch forks that lack strength. Reduce toppling and wind damage by thinning out crowns.

3. Prune trees to maintain growth within space limitations balancing crown with roots.

4. No stripping of lower branches ("raising up") of young trees will be permitted.

5. Retain lower branches in a "tipped back" or pinched condition to promote caliper trunk growth (tapered trunk). Do not cut back to fewer than six buds or leaves on such branches. Only cut lower branches back after the tree is able to stand erect without staking or other support.

6. Thin out and shape evergreen trees when necessary to prevent wind and storm damage. Do primary pruning of deciduous trees during the dormant season. Do not permit any pruning of trees prone to excessive "bleeding" during growth season.

7. Prune damaged trees or those that constitute health or safety hazards at any time of year as required.

8. Make all cuts clean and close to the trunk, without cutting into the branch collar. "Stubbing" will not be permitted. Cut smaller branches flush with trunk or lateral branch. Make larger cuts (1 in. in diameter or larger) parallel to shoulder rings, with the top edge of the cut at the trunk or lateral branch.

9. Branches too heavy to handle shall be precut in three stages to prevent splitting or peeling of bark. Make the first two cuts 18 in. or more from the trunk to remove the branch. Make the third cut at the trunk to remove the resulting stub.

10. "Drop Crotch" pruning shall be used to prune all trees and shrubs. No hedging on plant material shall be allowed. Specific trees and shrubs shall be shaped to meet the design intent as noted below:

    - Washington Palms: remove dead branches from the palms only after they are completely brown and dry. No over pruning shall occur.
    - Indian Hawthorne Shrubs: Shrubs shall be pruned yearly to a height of 24". Shrubs should not be allowed to encroach on sidewalk.

3.3 GROUNDCOVERS

A. Watering:

1. Check for moisture penetration throughout the root zone at least twice (2x) a month.

2. Water according to watering schedule in Technical Maintenance Plan on Landscape Notes sheet.

B. Weed Control:

1. Control weeds, preferably with pre-emergent herbicides and with selective systemic herbicides on a continuous weekly basis.

2. Minimize hoeing of weeds in order to avoid plant damage.

C. Pruning:

1. Variegated Flax Lily: Remove dead leaves from bottom of plant and flower stalks when they are brown and dry.

2. Dwarf Asian Jasmine: Maintain in a manicured form with edges "hedged" to keep from encroaching on sidewalk. After the last chance of freeze and prior to new spring growth, cut back jasmine to encourage flush of fresh growth. Trim planting at edge of bed with professional grade edger. Ensure clean cuts with minimal fraying.

3. Trim edges at least two times per month or as required for neat appearance. Edging shall be performed with a blade type mechanical edger. String whips shall not be permitted. Vacuum clippings

3.4 INSECTS, PESTS, AND DISEASE CONTROL

A. Inspection: Inspect all plant materials for signs of stress, damage and potential trouble from the following:

1. Presence of insects, fungus, moles, snails and slugs in planting areas.

2. Discolored or blotching leaves or needles.

3. Unusually light green or yellowish green color inconsistent with normal green color of leaves.

B. Personnel: Perform spraying for insect, pest and disease control only by qualified, trained personnel.

C. Application: Spray with extreme care to avoid all hazards to any person or pet in the area or adjacent areas.

3.5 IRRIGATION SYSTEM

A. General:

1. Set and program automatic controllers for seasonal water requirements.

4. Twice (2x) a month, use a probe or other acceptable tool to check the rootball moisture of representative plants as well as the surrounding soil.

B. Water Use Guidelines

Amount of Water Applied

Trees	Saturate soil to a depth of 3'. Apply water according to watering schedule in Technical Maintenance Plan on Landscape Notes Sheet. Water applied should be a slow soaking at 4 GPM maximum.
Groundcover plants	Apply a minimum of 2 gallons of water per plant at each application.

B. Cleaning and Monitoring the System:

1. Continually monitor the irrigation systems to verify that they are functioning properly as designed. Make program adjustments required by changing field conditions.

2. Clean filters as often as necessary to keep the irrigation systems free of sand and other debris.

END OF SECTION 02935

SECTION 03000

CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work included under this section consists of furnishing all materials, forms, transportation and equipment, and performing all necessary labor to do all the plain and reinforced concrete work shown on the Drawings, or incidental to the proper execution of the work, or as herein specified.

B. Composition: Concrete shall be composed of cement, fine aggregate, coarse aggregate, and water, so proportioned and mixed as to produce a plastic workable mixture in accordance with all requirements under this section suitable to the specific conditions of placement.

1.02 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary General Provisions, Special Conditions and Division 1 Specifications sections, apply to this Section.

B. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specified requirements of the specifications.

1.03 SUBMITTALS

A. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement:

1. Cement: Cement for all concrete shall be domestic Portland cement that conforms to the requirements of ASTM Designation C 150, Type I, Type II or Type III. Type III cement for high early strength concrete shall be used only for special locations and only with the approval of the Engineer. Type II cement shall be used in the construction of sanitary sewer manholes, wet wells and pump stations.

2. Only one brand of cement shall be used in any individual structure unless approved by the Engineer. Cement which has become damaged, partially set, lumpy or caked shall not be used and the entire contents of the sack or container which contains such cement will be rejected. No salvaged or reclaimed cement shall be used.

B. Fine Aggregate: Fine aggregate shall conform to the requirements of Section 902 of the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", latest edition and supplements thereto.

C. Coarse Aggregate: Coarse aggregate shall conform to the requirements of Section 901 of the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction", latest edition and supplements thereto, except that slag shall not be used and the gradation shall be grade 5 or grade 9 as approved by the Owner's Engineer.

D. Water: Water shall be taken from a potable water supply and shall be fresh, clean and free from injurious amounts of oil, acid, alkali or organic matter.

E. Admixtures: No admixtures shall be used except by specific approval of the City or Engineer.

F. Membrane Curing Compound: Membrane curing compound shall conform to the requirements of AASHTO Designation M 148, Type 1-clear, or Type 2-white pigmented.

G. Expansion Joint Filler:

1. Preformed expansion joint filler shall be of the non-extruding and resilient bituminous type and conform to the requirements of AASHTO Designation M 213 or AASHTO Designation M 153.

2. Expansion joint sealant shall be flexible epoxy sealant that conforms to ASTM D1751-04.

H. Separation Board: Separation board shall be closed cell, non-extruding, PVC foam Grade #327 as manufactured by AC Horn, Inc., with a 20 psi maximum compressive strength to compress to 75% of thickness.

I. Membrane: Membrane shall be a 6 mil polyethylene film.

J. Reinforcing Steel: (only if required per plans)

1. Reinforcing steel shall conform to the requirements of ASTM Designation A 615, Deformed Grade 60, except where otherwise indicated.

a. The name of the manufacturer of the reinforcing steel shall be called out in the shop drawings together with a sketch showing the pattern of the deformation, including the mill mark.

b. Bar reinforcement shall be accurately fabricated in accordance with the latest CRSI Manual of Standard Practice. The Contractor shall have prepared and shall submit to the Engineer in sextuplicate, necessary shop drawings and bar lists. The Contractor shall be responsible for errors made in shop drawings even though approved by the Engineer.

2. Welded wire fabric for concrete reinforcement shall conform to the requirements of ASTM Designation A 185 and shall be formed with smooth cold-drawn wire.

3. Cold-drawn wire for spirals shall be plain and shall conform to the requirements of ASTM Designation A 82 with a minimum yield strength of 70,000 psi.

4. Bar Supports:

a. Bar supports for reinforcing steel shall conform to the requirements of CRSI Manual of Standard Practice, Chapter 3 and shall be of a height to furnish the concrete cover called for on Drawings. High chairs shall be furnished for bent or top bars in solid slabs. Bar supports to be in contact with exterior surfaces of concrete shall be Class C with plastic caps at least 1-inch in length on the leg tips, or Class E with stainless steel legs. Bar supports shall be spaced not more than 100 times the diameter of the bars to be supported, with not more than 1/4 spacing from the end of the supported bars to the first chair.

b. Bar supports for slabs on grade shall be plain concrete blocks, 3 inches high by 4 inches square with tie wires embedded in support. Concrete strength shall be at 3,000 psi at time of use.

K. Forms: Forms shall be of wood, steel or other approved materials. The sheeting for all exposed surfaces shall be 5-ply plywood, unless otherwise specifically authorized. Forms of like character shall be used for similarly exposed surfaces in order to produce a uniform appearance. Forming for exposed exterior concrete from 1-foot below finished exterior grade to top of structure shall be carefully fabricated so as to provide a smooth finish without defects. The type, size, shape, quality and strength of all materials of which the forms are made shall be subject to the approval of the Engineer. If it is his opinion that the interior surfaces of the forms are too irregular to produce the specified finish, they shall be lined with smooth, dense, moisture resistant hardboard or other material of which he approves.

L. Non-shrink Grout: Non-shrink grout shall be nonmetallic, pre-mixed type and shall be Sauereisen F-100 Level Fill, Master Builders Masterflow 713, Burke Non-Ferrous, Non-Shrink Grout or approved equal.

2.02 CLASSIFICATION AND STRENGTH OF CONCRETE

A. Class and minimum strength requirements for concrete shall be as tabulated below. Unless otherwise specified, Class B concrete shall be used.

B. Strength Requirements: Concrete class and strength shall meet the minimum compressive strength requirements at the age of 7 and 28 days as shown in the following table. The compressive strengths shall be as determined by standard laboratory cylinder tests in accordance with the procedure set forth in ASTM Designation C 31 and C 39. (See Article 3.03 of this Section for quantity and testing of cylinders.)

Compressive Strength In Pounds Per Square Inch

Class	For Design Purposes	Cylinder Average 7 days	Cylinder Average 28 days	3 Consecutive Low Cylinders 7 days	3 Consecutive Low Cylinders 28 days

A	4000	2950	4250	2600	3750
B	3000	2100	3200	1850	2800
C	2500	1800	2700	1550	2300

2.03 PROPERTIES AND DESIGN OF CONCRETE MIX

A. Tests And Design Mix:

1. The Contractor, 30 days before the beginning of concrete work, shall advise the City or Engineer of the proposed sources of the materials, or ready-mixed concrete, which the Contractor intends to use in the work. A design mix which has been used by the concrete supplier before may be submitted for approval provided the proportions and strengths meet the requirements of this specification.

2. The source and manufacturer of material after once having been approved shall not be changed by the Contractor, except as approved by the Engineer, and additional laboratory tests may be required by the Engineer to prove conformance with specification requirements.

3. If during the progress of the work, tests indicate that concrete is not being produced in accordance with these Specifications, the Engineer may order changes in the materials or their proportions so as to secure concrete as specified.

B. Slump: Slumps shall be as low as possible consistent with proper placing. Low slump concrete shall be used for footing and slabs on grade. Medium slump concrete shall be used for walls, columns and suspended slabs. Concrete shall conform to the limits specified in the following schedule:

Class of Concrete	Medium Slump	Low Slump
A	4 to 5 in.	2 to 3 in.
B	4 to 5 in.	2 to 3 in.
C	5 to 6 in.	3 to 4 in.

The City of Tampa will conduct all concrete strength testing. Notify the City five (5) days in advance of concrete pouring.

PART 3 - EXECUTION

3.01 PREPARATION

A. Concrete Mixing:

1. Equipment: The concrete shall be ready-mixed and the equipment shall conform to the applicable requirements of ASTM Designation C 94.

2. Measurement: Equipment necessary to positively determine and control the actual amounts of all materials entering the concrete shall be provided by the Contractor or

the concrete manufacturer. All materials shall be measured by weight, except that water may be measured by volume. A bag of cement weighs 94 pounds.

3.02 INSTALLATION

A. Forms:

1. Construction:

a. Forms shall be built true to line and grade, and shall be mortar tight and sufficiently rigid to prevent displacement or sagging between supports. Particular attention shall be given to adequacy of supports and shoring, which is the Contractor's responsibility. The surfaces of forms used for permanently exposed surfaces shall be smooth and free from irregularities, dents, sags, or holes. Forms for surfaces to receive stucco finish shall be suitable for its application. Bolts and rods used for internal ties shall be so arranged that, when the forms are removed, all metal is at least 1-1/2 inches from any concrete surface. Form ties shall be removed immediately after removal of forms, and holes shall be thoroughly plugged with grout within 24 hours after form removal and kept damp for 4 days to prevent shrinking.

b. Wire ties will not be permitted. All forms shall be so constructed that they can be removed without hammering or prying against the concrete. Unless otherwise indicated, suitable moldings shall be placed to bevel or round exposed edges at expansion joints or at any other corners that are to remain. Beams below grade shall have forms at both sides.

2. Coating: Prior to the placing of steel reinforcement or concrete, forms for exposed surfaces shall be coated with a non-staining paraffin base oil or mineral oil. Forms for unexposed surfaces may be thoroughly wetted in lieu of oiling, immediately before the placing of concrete.

3. Removal: Forms and/or form supports shall not be removed from any concrete until it has obtained sufficient strength to support itself and any live loads it may be subjected to, and then only with the approval of the Engineer.

B. Reinforcing Steel: (only if required per plans) When placed in the forms, reinforcement shall be clean and free of all rust, scale, dust, dirt, paint, oil or other foreign material and shall be accurately and securely positioned in the forms as shown on the Drawings before the placing of concrete. Reinforcing steel shall be wired or otherwise fastened together at intersections and shall be supported by concrete or metal supports, spacers or hangers. Bar supports, where adjacent to the ground, shall be set on pre-cast concrete pads compressed into the subgrade. The Contractor shall obtain the Engineer's approval before fastening reinforcing steel at intersections by welding methods.

1. Splicing of reinforcement shall be held to a minimum and shall be placed at points of minimum stress. Bars shall be lapped at splices a minimum of 24 bar diameters unless otherwise shown on the Drawings or directed by the Engineer, and shall be rigidly wired or clamped.

2. Wire fabric shall be straightened before placing and shall overlap one full space of mesh at ends and edges and shall be securely fastened. Fabric shall be supported so as to occupy its proper location in the concrete as shown on the Drawings. Fabric

shall not cross any expansion joints.

C. Embedded Items: In addition to steel reinforcement, pipes, inserts and other metal objects as shown, specified or ordered shall be built into, set in or attached to the concrete. All necessary precautions shall be taken to prevent these objects from being displaced, broken or deformed. Before concrete is placed, care shall be taken to determine that all embedded parts are firmly and securely fastened in place as indicated. They shall be thoroughly clean and free from paint or other coating, rust, scale, oil, or any foreign matter. No wood shall be embedded in concrete. The concrete shall be packed tightly around pipes and other metal work to prevent leakage and to secure perfect adhesion. Drains shall be adequately protected from intrusion of concrete.

D. Concrete:

1. General: Reinforcement shall be secured in position, inspected and approved before placing concrete. Runways for transporting concrete shall not rest on reinforcing steel. Concrete not placed within 90 minutes from the time mixing is started will be rejected and shall be removed from the job by the Contractor. Concrete shall be deposited as nearly as practicable in final position. Concrete shall not be allowed to drop freely more than six feet. All concrete shall be placed in daylight and (excepting seal concrete) shall be placed in the dry unless otherwise authorized by the Engineer in writing.

2. Slabs Placed On Subgrade: Slab concrete placed on earth or fill subgrade shall be separated from direct contact with the subgrade by 6 mil polyethylene film or other approved material. Sidewalks and walkways will not require a separation sheet. Polyethylene film shall be lapped 4 inches on sides and 12 inches on ends.

3. Compaction: Concrete shall be compacted by internal vibrating equipment, supplemented by hand rodding and tamping as required. Vibrators shall in no case be used to move the concrete laterally inside the forms. Internal vibrators shall maintain a speed of at least 5000 impulses per minute when submerged in concrete. (At least one spare vibrator in working condition shall be maintained at the site during concrete placing operations.) Duration of vibration shall be limited to time necessary to produce satisfactory consolidation without causing segregation. Vibrator shall be moved constantly and placed in each specific spot only once.

4. Bonding: Before depositing new concrete on or against concrete that has set, the surfaces of the set concrete shall be thoroughly cleaned so as to expose the coarse aggregate and be free of laitance, coatings, foreign matter and loose particles. Forms shall be retightened. The cleaned surfaces shall be dampened, but not saturated, and then thoroughly covered with a coat of cement grout of similar proportions to the mortar in the concrete. The grout shall be as thick as possible on vertical surfaces and at least 1/2 inch thick on horizontal surfaces. The fresh concrete shall be placed before the grout has attained its initial set.

5. Protection: Rainwater shall not be allowed to increase the ratio of mixing water nor to damage the surface finish. Concrete shall be protected from disfigurement, damage, vibration, internal fractures and construction overloads.

E. Curing:

1. All concrete, including gunite, shall be water cured by keeping the concrete in a continuously moist condition by wet coverings, plastic sheeting, or continuous saturation by sprinkling. The forms shall be kept wet until removed and upon removal, the curing specified herein shall be started immediately. Concrete shall be cured for a period of 7 days for normal Portland cement or 4 days for high early strength cement. Concrete poured in the dry shall not be submerged until it has attained sufficient strength to adequately sustain the stress involved nor shall it be subjected to flowing water across its surface until it has cured 4 days. Curing of gunite shall be started as soon as possible without damaging surface and not later than 2 hours after placing.

2. Concrete surfaces which will not be coated, painted, plastered, stuccoed, covered with tile or floor covering or requiring a bonding surface may be cured by means of a membrane curing compound in lieu of the wet cure method. The curing compound shall be applied immediately after a satisfactory surface finish has been completed or forms have been removed. The rate of application of membrane curing compound shall be at least one gallon to every 200 square feet of exposed surface to be cured. The membrane curing compound and impervious covering shall be continuous and without defects and shall retain the required moisture in the concrete. Membrane curing compound that becomes damaged by rain, foot traffic or other conditions within 5 days of application shall be re-applied.

F. Finishes:

1. As soon as forms can safely be removed, all irregular projections shall be chipped off flush with the concrete surfaces. All voids produced by spacers or any honeycombing shall be pointed up with grout and troweled flush with the concrete surface immediately after removal of forms and water cured to prevent shrinkage. Honeycombing shall be cut out to expose a sound concrete surface prior to pointing. The use of mortar pointing or patching shall be confined to the repair of small defects in relatively green concrete. Where, in the opinion of the Engineer, substantial repairs are required, the defective concrete shall be cut out to sound concrete and repaired with gunite or the concrete shall be removed and reconstructed as directed.

2. Slabs shall be brought to a true and even finish by power or hand floating in a manner that will not bring excess fines to the surface. The consistency of the concrete shall be such that water does not accumulate at the surface. Unless otherwise shown on the Drawings, the surface shall be floated with a wood float and shall be steel troweled to a smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface. If so directed, the surface shall be brushed lightly with a push broom so as to produce a nonslip surface.

3. Concrete surfaces that are not exposed in the completed work will require no special finish other than such pointing up and rubbing as is necessary to leave them smooth and impervious.

4. Other surfaces which will be exposed in the completed work shall be finished by being rubbed smooth with a float and water or a carborundum brick. The final surface shall be smooth and dense, without pits, irregularities, blow holes or bubbles.

G. Grout:

1. Grout for pointing and patching shall consist of cement and fine aggregate mixed in the proportions used in the concrete and a minimum amount of water to produce a workable grout.

2. Material for grouting column base plates, anchor bolts, reinforcing bars, pipe sleeves and pump base plates shall be of the non-shrink type and shall be mixed and placed as recommended by the manufacturer. Machinery set on grout pads shall not be operated until the grout has cured for at least 24 hours.

3.03 FIELD QUALITY CONTROL

A. General: The quality of the concrete as to conformance to the specifications is the entire responsibility of the Contractor until it is accepted in place in the structure and verified by the final cylinder tests made by the laboratory. The City of Tampa will provide the concrete testing. Arrangements for field testing shall be made by the Contractor with the City of Tampa.

B. Compressive Tests: Standard laboratory compressive test cylinders will be obtained by the laboratory when concrete is discharged from the mixer at the site of the work. A set of 6 cylinders will be obtained for each 60 cubic yards or fraction thereof placed each day, for each type of concrete. The cylinders will be cured under laboratory conditions and will be tested in two groups of three at 7 and 28 days of age, respectively.

C. Slump Tests: The City’s laboratory or their representative will make slump tests of Class A and Class B concrete as it is discharged from the mixer at the site of the work. Slump tests will be made for each 25 cubic yards or "pour" of concrete placed. Slump tests may be made on any batch and failure to meet specified slump requirements will be sufficient cause for rejection of that batch.

D. Reports: Proper reports of all tests performed by the laboratory will be prepared by the laboratory and submitted promptly to the Engineer. Such reports shall be properly labeled so as to identify the portions of the project into which the materials have been placed, and the results of the test indicating whether or not the test met the requirements of these specifications.

3.04 TURNOUTS

Concrete turnouts shall meet the criteria set under the FDOT Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System 2013 edition and the FDOT Standard Specifications for Road and Bridge Construction, 2013 edition.

END OF SECTION 03000

SECTION 01040 - PROJECT COORDINATION

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

SUMMARY

This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

Coordination.
Administrative and supervisory personnel.
General installation provisions.
Cleaning and protection.

COORDINATION

Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.

Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.

Make adequate provisions to accommodate items scheduled for later installation.

Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

Preparation of schedules.
Installation and removal of temporary facilities.
Delivery and processing of submittals.
Progress meetings.
Project Close-out activities.

Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

SUBMITTALS

Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

Show the interrelationship of components shown on separate Shop Drawings.

Indicate required installation sequences.

Refer to Division-15 Section "Basic Mechanical Requirements," and Division-16 Section "Basic Electrical Requirements" for specific coordination Drawing requirements for mechanical and electrical installations.

Staff Names: At the Preconstruction Conference, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

GENERAL INSTALLATION PROVISIONS

Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

Recheck measurements and dimensions, before starting each installation.

Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

CLEANING AND PROTECTION

During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

Excessive static or dynamic loading.
Excessive internal or external pressures.
Excessively high or low temperatures.
Thermal shock.
Excessively high or low humidity.
Air contamination or pollution.
Water or ice.
Solvents.
Chemicals.
Light.
Radiation.
Puncture.
Abrasion.
Heavy traffic.
Soiling, staining and corrosion.
Bacteria.
Rodent and insect infestation.
Combustion.
Electrical current.
High speed operation,
Improper lubrication,
Unusual wear or other misuse.
Contact between incompatible materials.
Destructive testing.
Misalignment.
Excessive weathering.
Unprotected storage.
Improper shipping or handling.
Theft.
Vandalism.

CHANNEL DISTRICT OPERATIONS DURING CONSTRUCTION

Contractor shall perform all work in recognition of, and coordination with, ongoing District activities. Adhere to approved sequence/layout plan and project schedule. Please note the following:

1. Regular work hours for the Project (including deliveries) shall be limited to the hours between 7:00 a.m. and 5:00 p.m., Monday through Friday, in order to restrict project noise and disruption to daytime hours for the surrounding Channel District. No work shall be performed at night and shall normally be discontinued on Saturdays, Sundays, and all State and City designated holidays. Contractor shall submit request to the City Representative in writing at least 2 working days in advance, for permission to work beyond regular work hours.

2. The Contractor shall arrange work related tasks to minimize inconvenience to the public, including vehicular traffic. Provide ribbons, barricades, signage, etc., as needed and/or required to denote construction areas, as well as provide protection of existing materials to remain. All applicable Federal, State and/or Local regulations and permit conditions shall be adhered to.

3. Any adjacent property, sidewalks, streets (including detour routes) consisting of travel lanes, curbs, gutters and shoulders, outside the project area (not designated for construction), which are determined by the Engineer to have been damaged due to construction related operations and/or equipment, shall be restored by the Contractor to its original or better condition without any cost to the City and to the satisfaction of the Engineer.

4. Clean-up on this project is extremely important and the Contractor will be responsible for keeping the construction site neat and clean with debris being removed regularly as the work progresses.

   If project cleanliness and/or dust control reaches an unacceptable level in the opinion of the Engineer, the Engineer will notify the Contractor in writing. If the Contractor does not act to correct the situation within 4 hours in the case of dust control or within 24 hours in the case of general cleanliness, the Engineer may call upon outside forces to provide the appropriate services. Cost of all such activities shall be charged to the Contractor via contract change order.

5. A temporary street closure permit will be required for closure of a street, lane, or sidewalk within Rights-of-Way under the jurisdiction of the City of Tampa.

   These permits will establish the requirements for the closure related to number of lanes and/or time of day lanes or street may be closed. The Contract shall adhere to the requirements as described in the permit(s). The cost for obtaining temporary street closure permits shall be paid for by the Contractor.

   It is required that the construction and maintenance of the traffic conform to the Manual of Uniform Minimum Standards (Green Book), the Standard Index and Specifications current Edition, The M.U.T.C.D., and all other current guidelines, rules and procedures, including any particular Supplemental Specifications.

6. For temporary stockpiling of the excavated material within project limits (and anywhere within City limits) the Contractor shall adhere to the following procedure:

A. Public Right of Way:

The Contractor will not be allowed to stockpile suitable, excavated material within right- of-way for a period in excess of 30 calendar days, unless approved in advance by the City Representative. Unsuitable excavated material shall not be stockpiled within public right-of-way for a period in excess of 7 calendar days.

B. Location other than Public Right-of-Way, the Contractor shall:

1. Obtain written permission from the owner of the property where stockpiling is desired.

2. At its own expense present the above letter and a contour plan of the site to the Engineer for approval of stockpiling site.

3. At the conclusion of the stockpiling activity, the Contractor shall obtain a signed letter of release from the property owner that he/she is completely satisfied with the stockpiling operation and with the restoration of their property. A copy of the letter shall be furnished to the Engineer.

The time periods of stockpiling shall be specified by the Contractor in writing.

Upon removal of stockpiled material, the Contractor shall clean up and grade the site to its original contours and conditions.

The City of Tampa shall not be a party to any agreement between the Contractor and private property owner(s).Regardless of the location of stockpiling, it shall be the Contractor's responsibility to make sure that stockpiling in no way constitutes a public hazard, nuisance and does not interfere with the natural surface runoff in the area.

7. The work specified in this section consists of the application of water within the limits of construction of the project or on streets used as detour routes in connection with the project, in accordance with these specifications. All dust control operations shall be performed by the Contractor at the time, location, and in the amount ordered by the Engineer. The application of water shall be under the control of the Engineer at all times. No water will be used to control dust without authorization of the Engineer. Water ordered by the Engineer to be applied (including on Saturdays, Sundays, or legal holidays) will be considered part of the required work and no additional compensation will be allowed therefore.

   Water used for dust control shall be free from pollution to the extent that its use will not constitute a nuisance or health hazard to anyone living in close proximity to the areas where it is used.

8. Contractor shall perform work in a manner to minimize noise, dust and debris. Use of dumpsters on adjacent property shall not be allowed. Trash and debris shall be removed from the site on a regular basis.

9. Refer to SPECIFIC PROVISIONS for additional requirements.

END OF SECTION 01040