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 21-C-00024

Palma Ceia Water Main Replacement - Phase III

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

MARCH 2021

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

****

BID NOTICE MEMO

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Electronic Bids are not allowed for these projects.

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

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CONTRACT NO.: 21-C-00024; Palma Ceia Water Main Replacement – Phase III

BID OPENING: 1:30PM, Tuesday, May 4, 2021 **ESTIMATE:** $5,500,000 **SCOPE**: Furnishing and installing approximately 150 linear feet of 2-inch, 654 linear feet of 4-inch, 16,113 linear feet of 6-inch, 2,792 linear feet of 8 inch, and 1,071 linear feet of 12-inch water mains of various materials (PVC, HDPE and Ductile Iron) by various methods (open cut trenching, horizontal, directional drilling, and pipe bursting) with all required appurtenances and fittings. Work includes cutting and plugging, roadway and roadside restoration, traffic control, tree protection, grouting of abandoned pipe, valve adjustment and removal, incidental video photography.

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Bids will be opened in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida 33602. The public is not allowed to attend in person.

To view the Bid Opening follow these instructions:
To join the meeting from your computer, tablet or smartphone.

https://global.gotomeeting.com/join/173279197

You can also dial in using your phone. (For supported devices, tap a one-touch number below to join instantly.)
United States: +1 (646) 749-3131 - One-touch: tel:+16467493131,,173279197#

Access Code: 173-279-197

Join from a video-conferencing room or system. Dial in or type: 67.217.95.2 or inroomlink.goto.com
Meeting ID: 173 279 197 Or dial directly: 173279197@67.217.95.2 or 67.217.95.2##173279197

New to GoToMeeting? Get the app now and be ready when your first meeting starts:
https://global.gotomeeting.com/install/173279197

In accordance with the Americans with Disabilities Act ("ADA") and Section 286.26, Florida Statutes, persons with disabilities needing a reasonable accommodation to participate in this public hearing or meeting should contact the City of Tampa's ADA Coordinator at least 48 hours prior to the proceeding. The ADA Coordinator may be contacted by phone at 813-274-3964, email at TampaADA@tampagov.net, or by submitting an ADA - Accommodations Request online form available at http://www.tampagov.net/ADARequest.

Please note that the City of Tampa may not be able to accommodate any request received less than 48 hours before the scheduled public hearing or meeting.

Plans and Specifications and Addenda for this work may be examined at, and downloaded from, www.demandstar.com.
Files are also available at http://www.tampagov.net/contract-administration/programs/construction-project-bidding.

Email Questions to: contractadministration@tampagov.net .

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NOTICE TO BIDDERS
CITY OF TAMPA, FLORIDA
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Sealed Proposals will be received by the City of Tampa no later than 1:30 P.M., May 4, 2021, 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, furnishing and installing approximately 150 linear feet of 2-inch, 654 linear feet of 4-inch, 16,113 linear feet of 6-inch, 2,792 linear feet of 8 inch, and 1,071 linear feet of 12-inch water mains of various materials (PVC, HDPE and Ductile Iron) by various methods (open cut trenching, horizontal, directional drilling, and pipe bursting) with all required appurtenances and fittings. Work includes cutting and plugging, roadway and roadside restoration, traffic control, tree protection, grouting of abandoned pipe, valve adjustment and removal, incidental video photography. 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/contract-administration/programs/construction-project-bidding. 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 a Public Construction Bond within twenty (20) days after receipt of Notice of Award of Contract.

To be eligible to submit a proposal, a Bidder must hold the required and/or appropriate current license, certificate, or registration (e.g. DBPR license/certificate of authorization, etc.) in good standing at the time of receipt of Bids. **Per Section 489.131, Florida Statutes, Proposals submitted for the construction, improvement, remodeling, or repair of public projects must be accompanied by evidence that the Bidder holds the required and/or appropriate current certificate or registration, unless the work to be performed is exempt under Section 489.103, Florida Statutes**.

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.

Pursuant to Section 2-282, City of Tampa Code, during the solicitation period, including any protest and/or appeal, NO CONTACT with City officers or employees is permitted from any bidder or proposer, other than as specifically stated in this solicitation and as follows:
Director of the Contract Administration Department (CAD)
Contracts Management Supervisor, Jim Greiner
Contract Officer, Jody Gray
City legal department

Any Requests For Information must be submitted by email to 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.

Pursuant to Section 287.087, Florida Statutes, under certain circumstances preference may be given to businesses with a drug-free workplace program that meets the requirements of said Section.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.01 GENERAL:

The proposed work is the Palma Ceia Water Main Replacement - Phase III 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.

To be eligible to submit a proposal, a Bidder must hold the required and/or appropriate current license, certificate, or registration (e.g. DBPR license/certificate of authorization, etc.) in good standing at the time of receipt of Bids. **Per Section 489.131, Florida Statutes, Proposals submitted for the construction, improvement, remodeling, or repair of public projects must be accompanied by evidence that the Bidder holds the required and/or appropriate current certificate or registration, unless the work to be performed is exempt under Section 489.103, Florida Statutes.**

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. 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 INSTRUCTIONS TO BIDDERS

SECTION 2 – GENERAL INSTRUCTIONS. Section I-2.07 SIGNATURE AND QUALIFICATIONS OF BIDDERS 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.
>
> 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 County where its principal place of business is. Failure to submit what is required is grounds to reject the bid of that bidder.

SECTION 2 – GENERAL INSTRUCTIONS. Section I-2.14 NONDISCRIMINATION IN EMPLOYMENT is changed to add the following to the end of the existing text:

The following provisions are hereby incorporated into any contract executed by or on behalf of the City. Contractor shall comply with the following Statement of Assurance: During the performance of the Contract, the Contractor assures the City, that the Contractor is in compliance with Title VII of the 1964 Civil Rights Act, as amended, the Florida Civil Rights Act of 1992, and the City of Tampa Code of Ordinances, Chapter 12, in that Firm/Contractor does not on the grounds of race, color, national origin, religion, sex, sexual orientation, gender identity or expression, age, disability, familial status, or marital status, discriminate in any form or manner against said Firm's/Contractor's employees or applicants for employment. Contractor understands and agrees that the Contract is conditioned upon the veracity of this Statement of Assurance, and that violation of this condition shall be considered a material breach of the Award/Contract. Furthermore, Contractor herein assures the City that said Contractor will comply with Title VI of the Civil Rights Act of 1964 when federal grant(s) is/are

involved. This Statement of Assurance shall be interpreted to include Vietnam-Era Veterans and Disabled Veterans within its protective range of applicability. Firm/Contractor further acknowledges and agrees to provide the City with all information and documentation that may be requested by the City from time to time regarding the solicitation, selection, treatment and payment of subcontractors, suppliers and vendors in connection with this Award/Contract. Firm/Contractor further acknowledges that it must comply with City of Tampa Code of Ordinances, Chapter 26.5.

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 547 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 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.

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 the attached and incorporated Special Instructions pages beginning with page INS-1 entitled CITY OF TAMPA INSURANCE REQUIREMENTS, which among other things requires the Contractor to provide a Certificate of Insurance to the City prior to commencing work. The City may from time to time use a third-party vendor to manage its insurance certificates and related documentation which vendor may periodically initiate contact, requests for information, etc. on the City's behalf.

I-1.10 TESTING:

The Contractor shall perform all Quality Control (QC) testing to meet the FDOT requirements in the Florida Department of Transportation, JULY 2020 Standard Specifications for Road and Bridge Construction
.

I-1.11 EQUAL BUSINESS OPPORTUNITY PROGRAM (EBO) REQUIREMENTS / PROJECT SUBCONTRACTING GOAL(S)

BIDDERS MUST SUBMIT COMPLETED AND SIGNED CITY OF TAMPA FORMS MBD-10 AND MBD-20 WITH THEIR BIDS. BIDS SUBMITTED WITHOUT THESE COMPLETED FORMS (INCLUDING SIGNATURES) WILL BE DEEMED NON-RESPONSIVE. INSTRUCTIONS ON COMPLETING THE FORMS ARE INCLUDED AFTER EACH FORM IN THIS BID PACKAGE.

THE CHECKED BOX INDICATES SECTION THAT APPLIES TO THIS BID.

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SUBCONTRACTING GOAL – (WMBE and SLBE)

In accordance with the City of Tampa's EBO Program, Chapter 26.5, City of Tampa Code, the subcontracting goal(s) has/have been established for subcontracting with City-certified underutilized WMBEs (Women and Minority Business Enterprises) and/or SLBEs (Small Local Business Enterprises) on this project (hereinafter "Goal"). *The Goal is based, in part, upon the availability of City-certified firms to perform the anticipated scope of work* ***(Bid is subject to the subcontracting project goal(s) section for which a corresponding numerical percent is indicated).*** **Project Industry Category: Construction**

Project Goal(s):

_____**% U-WMBE (Underutilized Woman and Minority Business Enterprise) (EBO Program)**
per MBD Form-70 the U-WMBE subcontract Classification for Construction is African American (BBE)

_____**% SLBE (Small Local Business Enterprise) (EBO Program)** *only City-certified SLBEs*

20% U-WMBE/SLBE Combined (EBO Program)
per MBD Form-70 the U-WMBE subcontract Classification for Construction is African American (BBE) together with City-certified SLBEs

_____**% WMBE/SLBE ASPIRATIONAL (EBO Program)** An all-inclusive SLBE/WMBE goal; any City certified firm counts towards goal attainment.

BIDDERS MUST SOLICIT ALL COMPANIES ON THE ATTACHED AVAILABILITY CONTACT LIST at least **five (5) City business days or more prior to bid opening as a first step** to demonstrate Good Faith Efforts to achieve the Goal. Substantive documentation that demonstrates Good Faith Efforts to achieve the Goal **must be submitted with the bid**, including emails, faxes, phone calls, letters, and other communication with City-certified firms. Bidders may explore other potential opportunities for subcontracting by consulting the current directory of all certified firms posted by the City of Tampa at https://tampa.diversitysoftware.com as the Availability Contact List may not be inclusive of all firms that could count toward Goal attainment. However, ONLY SUBCONTRACTING with those specific WMBEs designated as "underutilized" by Classification in the appropriate industry category (and, if made applicable by being specifically included in the above Goal, SLBEs) will count toward meeting the Goal. Making Good Faith Efforts through these and other means (not pro-forma) is the responsibility of the Bidder. See the attached Good Faith Effort Compliance Plan (GFECP) (MBD Form-50) for specific requirements.

GOOD FAITH EFFORT COMPLIANCE PLAN (GFECP) REQUIRED (MBD FORM-50). When a Goal has been established, the Bidder **must submit** with its bid a Good Faith Effort Compliance Plan (GFECP) using the attached MBD Form-50 together with supporting documentation as specified therein. **Submittals that do not contain MBD Form-50 when a Goal has been established will be deemed non-responsive**. Additional explanation and documentation is required whenever a City-certified subcontractor's quote is not utilized. Any additional information regarding GFECP (post-bid) shall be only upon the City's request for clarification of information submitted with bid and not to "cure" omissions or deficiencies of the bid.

NOTE: When U-WMBEs are included in a Goal, only those City-certified subcontractors whose WMBE Classification is designated "underutilized" will count toward Goal attainment. Refer to **MBD Form-70** to identify underutilized WMBEs by subcontract Classification for the applicable project industry category. A prime bidder who is a City-certified WMBE and/or SLBE is not exempt from the **GFECP MBD Form-50** requirements.

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SUBCONTRACTING GOAL – (DBE) FDOT DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

The City of Tampa is required to use the Florida Department of Transportation (FDOT) Disadvantaged Business Enterprise (DBE) program on contracts with Federal Highway Administration (FHWA) funds. Effective October 1, 2017 through to September 30, 2020, the overall FDOT DBE aspirational goal is **10.65%** and is *race neutral*, meaning that FDOT believes the aspirational DBE goal may be achieved entirely through ordinary, competitive procurement methods. Despite the absence of a contract specific DBE goal on this project, the City encourages bidders to seek out and use DBEs and other minority, small businesses. For assistance in identifying certified DBEs, FDOT offers the use of its supportive services program accessed via FDOT's Equal Opportunity Office at http://www.fdot.gov/equalopportunity/serviceproviders.shtm. FDOT DBE rules and regulations apply to this solicitation, including the requirement to report bidder opportunity information in the FDOT Equal Opportunity Compliance (EOC) web-based application within three (3) business days of submission of the bid for ALL subcontractors who quoted bidder for this specific project. The five (5) char/digit LAP Agreement Contract Number for this project is G_____. The web address to the EOC system is: https://fdotwp1.dot.state.fl.us/EqualOpportunityCompliance/Account.aspx/LogIn?ReturnUrl=%2fEqualOpportunityCompliance

NOTE: Regardless of FDOT DBE program applicability, for data collection purposes bidder still **must submit** City Forms MBD-10 and MBD-20 completed and signed with its bid or the bid will be deemed non-responsive.

DIVERSITY MANAGEMENT INITIATIVE (DMI) DATA REPORTING FORMS REQUIRED FOR ALL CONTRACTS

Bidder **must submit**, with its bid, completed and signed Forms MBD-10 and MBD-20 to be considered a responsive bid. Specifically, the 'Schedule of All Solicited Sub-(Contractors/Consultants/Suppliers) (Form MBD-10)' listing all subcontractors (including non-certified) solicited and 'Schedule of All -To Be Utilized Sub-(Contractors/Consultants/Suppliers) (Form MBD-20)' listing all subcontractors (including non-certified) to be utilized. Supplemental forms, such as 'Form MBD-40 Official Letter Of Intent' (LOI), can be submitted with the bid or once declared lowest-responsive bidder. After an award, 'DMI Sub-(Contractors/Consultants/Suppliers) Payment Form (Form MBD-30)' is to be submitted with payment requests to report payments to subcontractors and using the on-line automated MBD compliance software system available at https://tampa.diversitysoftware.com

For additional information about the WMBE and SLBE programs contact the Minority and Small Business Development Office at 813-274-5522. (3-18)

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

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 KeyRating Guide Property/Casualty.

I-1.12 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 issued and executed by (a) surety company(ies) acceptable to the City and licensed to underwrite contracts in the State of Florida. After execution of the Agreement and before commencing work, the Contractor must provide the City a certified copy of the officially recorded Bond.

I-1.13 AGREEMENT

SECTION 2 – POWERS OF THE CITY'S REPRESENTATIVES, new Article 2.05:
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 Article 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 Contractor 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.

SECTION 5 – SUBCONTRACTS AND ASSIGNMENTS, Article 5.01, Page A-7, last paragraph:
Change "…twenty-five (25) percent…" to "…fifty-one (51) percent…"

SECTION 8 – CONTRACTOR'S EMPLOYEES, Article 8.03, Page A-9, delete Article 8.03 in its entirety and Replace with the following new article:

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 and must not maintain, provide or permit facilities that are segregated.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

SECTION 10 – PAYMENTS, Article 10.05, Page A-10, 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…"

SECTION 10 – PAYMENTS, Article 10.05, Page A-10, 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…" Note: Retainage as referenced in Article 10.05 is limited to a maximum of five percent (5%).

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.02, Page A-12, 1st Paragraph, 2nd Sentence:
Delete the 2nd Sentence in its entirety and replace it with the following new 2nd Sentence:

Without limiting application of Article 11.07, below, 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, defend, and hold harmless the City Indemnified Parties (as defined below) from any and all Claims (as defined below) 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 damages which may be incurred by reason of such infringement at any time during the prosecution or after completion of the work.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.03, Page A-12:
Delete Article 11.03 in its entirety and replace with the following new article:

ARTICLE 11.03 INTENTIONALLY OMITTED.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.07, Page A-12:
Delete Article 11.07 in its entirety and replace with the following new article:

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.

Contractor releases and agrees to defend, indemnify and hold harmless the City, its officers, elected and appointed officials, employees, and/or agents (collectively, "City Indemnified Parties") from and against any and all losses, liabilities, damages, penalties, settlements, judgments, charges, or costs (including without limitation attorneys' fees, professional fees, or other expenses) of every kind and character arising out of any and all claims, liens, is entitled to indemnification hereunder. This obligation shall in no way be limited in any nature whatsoever by any limitation on the amount or type of Contractor's insurance coverage.

The parties agree that to the extent the written terms of this indemnification are deemed by a court of competent jurisdiction to be in conflict with any provisions of Florida law, in particular Sections 725.06 and 725.08, Florida Statutes, the written terms of this indemnification shall be deemed by any court of competent jurisdiction to be modified in such a manner as to be in fully and complete compliance with all such laws and to contain such limiting conditions or limitations of liability, or to not contain any unenforceable or prohibited term or terms, such that this indemnification shall be enforceable in accordance with and to the maximum extent permitted by Florida law.

The obligation of Contractor under this Article is absolute and unconditional; it is not conditioned in any way on any attempt by a City Indemnified Party to collect from an insurer any amount under a liability insurance policy, and is not subject to any set-off, defense, deduction, or counterclaim that the Contactor might have against the City Indemnified Party. The duty to defend hereunder is independent and separate from the duty to indemnify, and the duty to defend exists regardless of any ultimate liability of Contractor, the City, and any City Indemnified Party. The duty to defend arises immediately upon presentation of a Claim by any party and written notice of such Claim being provided to Contractor. Contractor's defense and indemnity obligations hereunder will survive the expiration or earlier termination of this Contract.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

Contractor agrees and recognizes that the City Indemnified Parties shall not be held liable or responsible for any Claims which may result from any actions or omissions of Contractor in which the City Indemnified Parties participated either through providing data or advice and/or review or concurrence of Contractor's actions. In reviewing, approving or rejecting any submissions by Contractor or other acts of Contractor, the City in no way assumes or shares any responsibility or liability of Contractor or any tier of subcontractor/subconsultant/supplier, under this Contract.

In the event the law is construed to require a specific consideration for such indemnification, the parties agree that the sum of Ten Dollars and 00/100 ($10.00), receipt of which is hereby acknowledged, is the specific consideration for such indemnification and the providing of such indemnification is deemed to be part of the specifications with respect to the services provided by Contractor.

SECTION 11 – MISCELLANEOUS PROVISIONS, Article 11.12, Page A-13:
Change Article 11.12 to add the following new language after existing text:

The City of Tampa is a public agency subject to Chapter 119, Florida Statutes. In accordance with Florida Statutes, 119.0701, Contractor agrees to comply with Florida's Public Records Law, including the following:

1. Contractor shall keep and maintain public records required by the City to perform the services under this Agreement;

2. Upon request by the City, provide the City with copies of the requested records, having redacted records in total on in part that are exempt from disclosure by law or allow the records to be inspected or copied within a reasonable time (with provision of a copy of such records to the City) 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 records, in part or in total, that are exempt or that are confidential and exempt from disclosure requirements are not disclosed except as authorized by law for the duration of the Agreement term and following completion (or earlier termination) of the Agreement if Contractor does not transfer the records to the City;

4. Upon completion (or earlier termination) of the Agreement, Contractor shall within 30 days after such event either transfer to the City, at no cost, all public records in possession of the Contractor or keep and maintain the public records in compliance with Chapter 119, Florida Statutes. If Contractor transfers all public records to the City upon completion (or earlier termination) of the Agreement, Contractor shall destroy any duplicate records that are exempt or confidential and exempt from public records disclosure requirements. If Contractor keeps and maintains public records upon completion (or earlier termination) of the Agreement, Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City in a format that is compatible with the information technology systems of the agency.

The failure of Contractor to comply with Chapter 119, Florida Statutes, and/or the provisions set forth in this Article shall be grounds for immediate unilateral termination of the Agreement by the City; the City shall also have the option to withhold compensation due Contractor until records are received as provided herein.

IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 813-274-8598, JIM.GREINER@TAMPAGOV.NET, AND CONTRACT ADMINISTRATION DEPARTMENT, TAMPA MUNICIPAL OFFICE BUILDING, 4TH FLOOR, 306 E. JACKSON ST. TAMPA, FLORIDA 33602.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

I-1.14 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 Contractor to perform work pursuant to the contract.

E-Verify. In accordance with Section 448.095, Florida Statutes, the Contractor agrees to register with and utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired during the term of the Contract for the services specified in the Contract. The Contractor must also include a requirement in subcontracts that the subcontractor must register with and utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the Contract term. If the Contractor enters into a contract with a subcontractor, the subcontractor must provide the Contractor with an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. The Contractor shall maintain a copy of such affidavit for the duration of the Contract. If the City has a good faith belief that the Contractor has knowingly violated Section 448.09(1), Florida Statutes, the City shall terminate the Contract with the Contractor, and the Contractor may not be awarded a contract with the City for at least 1 year after the date on which the Contract was terminated. The Contractor is liable for any additional costs incurred by the CIty as a result of the termination of the Contract. If the City has a good faith belief that a subcontractor knowingly violated the law, but the Contractor has otherwise complied with the law, the City shall promptly notify the Contractor and order the Contractor to immediately terminate the contract with the subcontractor.

I-1.15 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, which may be downloaded from the City's web site, at http://www.tampagov.net/contract-administration/programs/construction-project-bidding.

Bidder as part of the solicitation process (and as Contractor if Bidder is successful) may hold, come into possession of, and/or generate certain building plans, blueprints, schematic drawings, including draft, preliminary, and final formats, which depict the internal layout and structural elements of a building, facility, or other structure owned or operated by the City or an agency (singularly or collectively "Exempt Plans"), which pursuant to Section 119.071(3), Florida Statutes, are exempt from Section 119.07(1), Florida Statutes and Section 24(a), Art. I of the Florida State Constitution. Contractor certifies it has read and is familiar the exemptions and obligations of Section 119.071(3), Florida Statutes; further that Contractor is and shall remain in compliance with same, including without limitation maintaining the exempt status of such Exempt Plans, for so long as any Exempt Plans are held by or otherwise in its possession.

I-1.16 PAYMENT DISPUTE RESOLUTION

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

I-1.17 SCRUTINIZED COMPANIES CERTIFICATION

Section 287.135, Florida Statutes, prohibits agencies or local governmental entities from contracting for goods or services of any amount with companies that are on the Scrutinized Companies that Boycott Israel List or are engaged in a boycott of Israel, and of $1 million or more with companies that are on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or are engaged in business operations in Cuba or Syria. Specifically, Section 287.135(2), Florida Statutes, states: "A company is ineligible to, and may not, bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of: (a) Any amount if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725, or is engaged in a boycott of Israel; or (b) One million dollars or more if, at the time of bidding on, submitting a proposal for, or entering into or renewing such contract, the company: 1. Is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473; or 2. Is engaged in business operations in Cuba or Syria."

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

Upon submitting its bid or proposal, a bidder/proposer: (i) certifies the company is not in violation of Section 287.135, Florida Statutes, and shall not be in violation at the time the company enters into or renews any resulting contract; and (ii) agrees any such resulting contract shall be deemed to contain a provision that allows the City, at its option, to terminate such contract for cause if the company is found to have submitted a false certification, been placed on one or any of the foregoing Lists, been engaged in a boycott of Israel, or been engaged in business operations in Cuba or Syria.

I-1.18 FLORIDA'S PUBLIC RECORDS LAW; DATA COLLECTION

Pursuant to Section 119.071(5)(a)2a, Florida Statutes, social security numbers shall only be collected from Bidders and/or Contractor by the City should such number be needed for identification, verification, and/or tax reporting purposes. To the extent Bidder and/or Contractor collects an individual's social security number in the course of acting on behalf of the City pursuant to the terms and conditions of its Proposal or, if awarded, the Agreement, Bidder and/or Contractor shall follow the requirements of Florida's Public Records Law.

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

Prior to commencing any work or services or taking occupancy under that certain written agreement or award (for purposes of this document, Agreement) between the City of Tampa, Florida (City) and Firm/Awardee/Contractor/Consultant/Lessee/non-City party, etc. (for purposes of this document, Firm) to which this document is attached and incorporated as an Exhibit or otherwise, and continuing during the term of said Agreement (or longer if the Agreement and/or this document so requires), Firm shall provide, pay for, and maintain insurance against claims for injuries to persons (including death) or damages to property which may arise from or in connection with the performance of the Agreement (including without limitation occupancy and/or use of certain property/premises) by Firm, its agents, representatives, employees, suppliers, subtenants, or subcontractors (which term includes sub-consultants, as applicable) of any tier subject to the terms and conditions of this document. Firm's maintenance of insurance coverage as required herein is a material element of the Agreement and the failure to maintain or renew coverage or provide evidence of same (defined to include without limitation Firm's affirmative duty to provide from time to time upon City's request certificates of insurance, complete and certified copies of Firm's insurance policies, forms, and endorsements, information on the amount of claims payments or reserves chargeable to the aggregate amount of coverage(s) whether during the term of the Agreement or after as may be requested by the City in response to an issue or potential claim arising out of or related to the Agreement to which Firm's insurance obligations hereunder may apply or possibly help mitigate) may be treated as a material breach of the Agreement. Should at any time Firm not maintain the insurance coverages required, City at its sole option (but without any obligation or waiver of its rights) may (i) terminate the Agreement or (ii) purchase such coverages as City deems necessary to protect itself (charging Firm for same) and at City's option suspending Firm's performance until such coverage is in place. If Firm does not reimburse City for such costs within 10 days after demand, in addition to any other rights, City shall also have the right to offset such costs from amounts due Firm under any agreement with the City. All provisions intended to survive or to be performed subsequent to the expiration or termination of the Agreement shall survive, including without limitation Firm's obligation to maintain or renew coverage, provide evidence of coverage and certified copies of policies, etc. upon City's request and/or in response to a potential claim, litigation, etc.

The City reserves the right from time to time to modify or waive any or all of these insurance requirements (or to reject policies) based on the specific nature of goods/services to be provided, nature of the risk, prior experience, insurer, coverage, financial condition, failure to operate legally, or other special circumstances. If Firm maintains broader coverage and/or higher limits than the minimums shown herein, the City requires and shall be entitled to such broader coverage and/or higher limits maintained by Firm. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City. No representation is made that the minimum insurance requirements are sufficient to cover Firm's interests, liabilities, or obligations. Required insurance shall not limit Firm's liability.

Firm acknowledges and agrees Firm and not the City is the party in the best position to determine applicability (e.g. "IF APPLICABLE"), confirm, and/or verify its insurance coverage. Acceptance by the City, or by any of its employees, representatives, agents, etc. of certificates or other documentation of insurance or policies pursuant to the terms of this document and the Agreement evidencing insurance coverages and limits does not constitute approval or agreement that the insurance requirements have been met or that coverages or policies are in compliance. Furthermore, receipt, acceptance, and/or approval of certificates or other documentation of insurance or policies or copies of policies by the City, or by any of its employees, representatives, agents, etc., which indicate less coverage than required does not constitute a waiver of Firm's obligation to fulfill these insurance requirements.

MINIMUM SCOPE AND LIMIT OF INSURANCE [1]

A. Commercial General Liability (CGL) Insurance on the most current Insurance Services Office (ISO) Form CG 00 01 or its equivalent on an "occurrence" basis (Modified Occurrence or Claims Made forms are not acceptable without prior written consent of the City). Coverage must be provided to cover liability contemplated by the Agreement including without limitation premises and operations, independent contractors, contractual liability, products and completed operations, property damage, bodily, personal and advertising injury, contractual liability, explosion, collapse, underground coverages, personal injury liability, death, employees-as-insureds. Products and completed operations liability coverage maintained for at least 3 years after completion of work. Limits shall not be less than $1M per occurrence and $2M general aggregate for Agreements valued at $2M or less; if valued over $2M, a general aggregate limit that equals or exceeds the Agreement's value. If a general aggregate limit applies; it shall apply separately to the project/location (ISO CG 2S 03 or 2S 04 or equivalent). **(ALWAYS APPLICABLE)**

B. Automobile Liability (AL) Insurance in accordance with Florida law, as to the ownership, maintenance, and use of all owned, non-owned, leased, or hired vehicles. AL insurance shall not be less than: (a) $500,000 combined single limit each occurrence bodily injury and property damage for Agreements valued at $100,000 or less or (b) $1M combined single limit each occurrence bodily injury and property damage for Agreements valued over $100,000. If transportation of hazardous material involved, the MCS-90 endorsement (or equivalent). **(ALWAYS APPLICABLE)**

C. Worker's Compensation (WC) & Employer's Liability Insurance for all employees engaged under the Agreement, Worker's Compensation as required by Florida law. Employer's Liability with minimum limits of (a) $500,000 bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each employee for Agreements valued at $100,000 and under or (b) $1M bodily injury by accident and each accident, bodily injury by disease policy limit, and bodily injury by disease each for all other Agreements. **(ALWAYS APPLICABLE)**

D. Excess (Umbrella) Liability Insurance for Agreements valued at $2M or more, at least $4M per occurrence in excess of underlying limits and no more restrictive than underlying coverage for all work performed by Firm. May also compensate for a deficiency in CGL, AL, or WC. **(ALWAYS APPLICABLE)**

E. Builder's Risk Insurance for property loss exposure associated with construction/renovation/additions to buildings or structures, including materials or fixtures to be incorporated. Must be "All Risk" form with limits of no less than the project's completed value, have no coinsurance penalties, eliminate the "occupancy clause", cover Finn (together with its contractors, subcontractors of every tier, and suppliers), and name City as a Loss Payee. **(IF APPLICABLE)**

F. Installation Floater coverage for property (usually highly valued equipment or materials such as compressors, generators, etc.) during its installation. Coverage must be "All Risk" including installation and transit for no less than 100% of the installed replacement cost value. **(IF APPLICABLE)**

G. Architects & Engineers Liability/ Professional Liability (E&O)/ Contractors Professional Liability (CPrL)/ Medical Malpractice Insurance where Agreement involves Florida-regulated professional services (e.g. architect, engineer, design-builder, CM, accountant, appraiser, investment banker medical professional) at any tier, whether employed or independent, vicarious design liability exposure (e.g. construction means & methods, design supervision), value engineering, constructability assessments/reviews, BIM process, and/or performance specifications. Limits of at least $1M per occurrence and $2M aggregate; deletion of design/ build liability exclusions, as applicable, and maintained for at least 3 years after completion of work/services and City's acceptance of same. **(IF APPLICABLE)**

H. Railroad Protective Liability CRPL) Insurance for construction within 50ft of operated railroad track(s) or where affects any railroad bridge, trestle, tunnel, track(s) roadbed, or over/under pass. Subject to involved rail road's approval prior to commencement of work. **(IF APPLICABLE).**

I. Pollution and/or Asbestos Legal Liability Insurance where Agreement involves asbestos and/or environmental hazards/contamination risks (defined broadly, e.g. lead, mold, bacteria, fuel storage, underground work, cleanup (owned or non-owned sites), pollutant generation/transportation, marine/natural resource damage, contamination claim, restitution, business interruption, mold, fungus, lead-based paint, 3rd party claims/removal, etc.), with limits of at least $1M per occurrence and $2M aggregate, maintained for at least 3 years after Agreement completion. **(IF APPLICABLE)**

J. Cyber Liability Insurance where Agreement involves portals allowing access to obtain, use, or store data; managed dedicated servers; cloud hosting services; software/hardware; programming; and/or other IT services

[1] "M" indicates million(s), for example $1M is $1,000,000

Document updated and approved by Legal and Risk Management as of 08/16/2016

and products are involved. Limits of not less than $2M per occurrence and $2M aggregate. Coverage sufficiently broad to respond to duties and obligations undertaken by Firm, and shall include, but not be limited to, claims involving infringement of intellectual property/copyright, trademark, trade dress, invasion of privacy violations, damage to or destruction of electronic information, information theft, release of confidential and/or private information, alteration of electronic information, extortion, virus transmission, and network security. Coverage, as applicable and with sufficient limits to respond, for breach response costs, regulatory fines and penalties, credit monitoring expenses. **(IF APPLICABLE)**

K. Drone/UAV Liability Insurance where Agreements involves unmanned aerial vehicles/drones. Coverage to include products and completed operations, property damage, bodily injury with limits no less than $1M per occurrence, and $2M aggregate; may be provided by CGL endorsement subject to City's prior written approval. **(IF APPLICABLE)**

L. Longshore & Harbor Workers' Compensation Act/Jones Act for work being conducted near, above, or on "navigable waters" for not less than the above Employer's Liability Insurance limit. **(IF APPLICABLE)**

M. Garagekeeper/Hangerkeeper/Marina Operator Legal Liability Insurance and/or Hull/P&IInsurance where parking lot, valet, dealership, garage services, towing, etc. and/or operation of a hangar, marina, or air plane/ship repairer, providing safe berth, air/watercraft storage/docking (on land/ in water), fueling, tours, charters, ferries, dredges, tugs, mooring, towing, boat/aircraft equipment/repair/alteration/maintenance, etc.; cover- age against liability for damage to vehicles air/watercraft, their machinery in Firm's care, custody, or control both private & commercial. Limits at least equal to greater of $1M, value of max number of vehicles that may be in Firm's custody, or of most costly object in Firm's custody. (IF **APPLICABLE)**

N. Property Insurance and Interruption of Business ClOB) Insurance where premises, building, structure, or improved real property is leased, licensed, or otherwise occupied by Firm. Property Insurance against all risks of loss to any occupant/tenant improvements at full replacement cost with no coinsurance penalty, including fire, water, leak damage, and flood, as applicable, vandalism and malicious mischief endorsements. lOB by which minimum monthly rent will be paid to City for up to 1 year if premises are destroyed, rendered inaccessible or untenantable, including disruption of utilities, water, or telecommunications. **(IF APPLICABLE)**

0. Liquor Liability/Host Liquor Liability where Firm directly or indirectly provides alcoholic beverages, limits of at least $1M per occurrence and $1M aggregate. **(IF APPLICABLE)**

P. Educators Legal Liability Insurance where day care, after school program, recreational activities, etc. limits per G above. **(IF APPLICABLE)**

ADDITIONAL REQUIREMENTS

ACCEPTABILTIY OF INSURERS- Insurance is to be placed with insurers admitted in the State of Florida and who have a current A.M. Best rating of no less than **A-:VII** or, if not rated by A.M. Best, as otherwise approved by the City in advance and in writing.

ADDITONAL INSURED - **City, its elected officials, departments, officers, officials, employees, and volunteers together with, as applicable, any associated lender of the City shall be covered as additional insureds on all liability coverage** (e.g. CGL, AL, and Excess (Umbrella) Liability) as to liability arising out of work or operations performed by or on behalf of Firm including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of Firm. Coverage can be provided in the form of an endorsement to Firm's insurance (at least as broad as ISO Form CG 20 10 11 85 or **both** CG 10 20, CG 20 26, CG 20 33, or CG 20 38 **and** CG 20 37 if later revisions used).

CANCELLATION/NON-RENEWAL – Each insurance policy shall provide that at least 30 days written notice must be given to City of any cancellation, intent to non-renew, or material reduction in coverage (except aggregate liability limits) and at least 10 days' notice for non-payment of premium. Firm shall also have an independent duty to notify City in like manner, within 5 business days of Firm's receipt from its insurer of any notices of same. **If** any policy's aggregate limit is reduced, Firm shall directly take steps to have it reinstated. Notice and proof of renewal/continued coverage/certifications, etc. shall be sent to the City's notice (or Award contact) address as stated in the Agreement with a copy to the following:

☑ Contract Administration Department, 306 E Jackson St, Tampa, FL 33602 ☐ Purchasing Department, 306 E Jackson Street, Tampa, FL 33602

☐ Other:_____

CERTIFICATE OF INSURANCE (COI) – to be provided to City by insurance carrier prior to Firm beginning any work/services or taking occupancy and, if the insurance expires prior to completion of the work or services or Agreement term (as may be extended), a renewal COI at least 30 days before expiration to the above address(es). COIs shall specifically identify the Agreement and its subject (project, lease, etc.), shall be sufficiently comprehensive to insure City (named as additional insured) and Firm and to certify that coverage extends to subcontractors' acts or omissions, and as to permit the City to determine the required coverages are in place without the responsibility of examining individual policies. **Certificate Holder must be The City of Tampa, Florida.**

CLAIMS MADE – **If** any liability insurance is issued on a claims made form, Firm agrees to maintain such coverage uninterrupted for at least 3 years following completion and acceptance of the work either through purchase of an extended reporting provision or purchase of successive renewals. The Retroactive Date must be shown and be a date not later than the earlier of the Agreement date or the date performance/occupancy began thereunder.

DEDUCTIBLES/ SELF-INSURED RETENTIONS (SIR) – must be disclosed to City and, if over $500,000, approved by the City in advance and in writing, including at City's option being guaranteed, reduced, or eliminated (additionally if a SIR provides a financial guarantee guaranteeing payment of losses and related investigations, claim administration, and defense expenses). Firm shall be fully responsible for any deductible or SIR (without limiting the foregoing a policy with a SIR shall provide or be endorsed to provide that the SIR may be satisfied by either the City or named insured). In the event of loss which would have been covered but for a deductible or SIR, City may withhold from any payment due Firm, under any agreement with the City, an amount equal to same to cover such loss should full recovery not be obtained under the policy.

PERFORMANCE- All insurance policies shall be fully performable in Hillsborough County, Florida (the County), and construed in accordance with Florida law. Further, all insurance policies must expressly state that the insurance company will accept service of process in the County and that the exclusive venue for any action concerning any matter under those policies shall be in the appropriate state court of the County.

PRIMARY POLICIES - Firm's insurance coverage shall be primary insurance coverage at least as broad as ISO CG 20 01 04 13 as to the City, its elected officials, departments, officers, employees, and volunteers. Any insurance or self-insurance maintained by the City, its elected officials, departments, officers, employees, and volunteers shall be excess of the Firm's insurance and shall not contribute with it.

SUBCONTRACTORS/INDEPENDENT ASSOCIATES/CONSULTANTS/SUBTENANTS/SUBLICENSEE - **Firm shall require and verify that all such entities maintain insurance meeting all requirements stated herein with the City as an additional insured** by endorsement (ISO FORM CG 20 38, or broader) or otherwise include such entities within Firm's insurance policies. Upon City's request, Firm shall furnish complete and certified copies of copies of such entities' insurance policies, forms, and endorsements.

SUBCONTRACTOR DEFAULT INSURANCE CONTROLLED INSURANCE PROGRAM, WRAP-UP. Use requires express prior written consent of City Risk Manager.

UNAVAILABILTIY- To the fullest extent permitted by law, if Firm is out of business or otherwise unavailable at the time a claim is presented to City, Firm hereby assigns to the City all of its right, title and interest (but not any liabilities or obligations) under any applicable policies of insurance.

WAIVER OF SUBROGATION – With regard to any policy of insurance that would pay third party losses, Firm hereby grants City a waiver of any right to subrogation which any insurer of Firm may acquire against the City by virtue of the payment of any loss under such insurance. Firm agrees to obtain any endorsement that may be necessary to affect such waiver, but this provision shall apply to such policies regardless.

WAIVER/RELEASE AGREEMENT – Where Firm has a defined group of persons who might be exposed to harm (e.g. participants in an athletic event/program, volunteers) any waiver or release agreement used by Firm whereby such persons (and their parent/guardian as applicable) discharge Firm from claims and liabilities, shall include the City, its elected officials, departments, officers, officials, employees, and volunteers to the same extent as Firm.

Document updated and approved by Legal and Risk Management as of 08/16/2016

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

FY21 - Palma Ceia Water Main Replacement Phase III
FY 21 Project 21-C-00024
U-WMBE Availability Contact List
(The Underutilized WMBE Industry Category for Construction Subcontracts is BBE)

This Certified Contact List is the minimum contacts available and may require further searches for certified firms to meet Good Fath Efforts.

#'s	Business Name	Phone	Fax	Email	Address 1	City	tat	Zip	Business Description	FEIN	Cert. Type	Ethnicity
2	Aviman Management, LLC	302-377-5788	302-543-7403	levi@avimanmanagement.com	550 N Reo Street	Tampa	FL	33609	Pipe Supply	320098022	BBE	African American
2	DRD ENTERPRISES LLC	813-476-9933	866-850-1332	deenahd@yahoo.com	4104 Yellowwood Dr.,	Valrico	FL	33594	Pipe Supply	204675317	BBE	African American
2	SUCA Pipe Supply Inc.	813-249-7902		slmau44@yahoo.com	4910 Lowell Rd	Tampa	FL	33624	Pipe Supply	592499571	BBE	African American
2	Suca Pipe Supply, Inc. One	813-249-7902		mactwinau1@yahoo.com	4910 Lowell Road	Tampa	FL	33624	Pipe Supply	263669556	BBE	African American
2	TERRELL INDUSTRIES, INC.	727-823-4424	727-823-3977	gradyterrell@terrellindustries.com	2067 1ST AVENUE NORTH	ST PETERSBU	FL	33713	Pipe Supply	650530148	BBE	African American
3	MBattle Construction llc	727-214-4301	727-517-3774	moebattle@hotmail.com	470 maple way	safety harbo	FL	34695	Pipe Grouting	760840117	BBE	African American
3	PROMISE CONST. & REPAIR SOLUTIONS, LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	PO BOX 291568	TAMPA	FL	33687	Pipe Grouting	464723775	BBE	African American
5	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Asphalt Pavement	593362663	BBE	African American
5	City Wide Paving, LLC	813-325-4250	813-849-1723	citywidepavingcwp@yahoo.com	2508 N. 32nd St.	Tampa	FL	33605	Asphalt Pavement	270559624	BBE	African American
7	Cornerstone Barricades Inc.	352-373-8001	352-377-8976	seyi.falade@cornerstonebarricades.com	3201 SW 42nd Street	Gainesville	FL	32608	Maintenance of Traffic	810763816	BBE	African American
8	City Wide Paving, LLC	813-325-4250	813-849-1723	citywidepavingcwp@yahoo.com	2508 N. 32nd St.	Tampa	FL	33605	Pavement Markings & R	270559624	BBE	African American
9	Associated Cost Engineers of Delaware, Inc.	407-704-7803	407-704-7937	jwade@aceconstructionmanagement.com	801 North Pine Hills Road	Orlando	FL	32808	Reinforced Concrete	522333771	BBE	African American
9	Provisions Construction & Development, Inc.	407-985-2442	407-985-2440	marrington@provisionscdi.com	3401 Lake Breeze Drive Bldg 601	Orlando	FL	32808	Reinforced Concrete	462802435	BBE	African American
10	Excel 4 LLc	407-480-8976	407-480-8976	excel4llc@yahoo.com	318 N. John Young Parkway Ste #6	Kissimmee	FL	34741	Sidewalks	454149326	BBE	African American
10	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Sidewalks	592345574	BBE	African American
11	Excel 4 LLc	407-480-8976	407-480-8976	excel4llc@yahoo.com	318 N. John Young Parkway Ste #6	Kissimmee	FL	34741	Curbing	454149326	BBE	African American
11	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Curbing	592345574	BBE	African American
12	Kerrick Williams Photography, LLC	404-966-8145	866-571-7149	kerrick@kerrickwilliams.com	5508 n. 50th Street	Tampa	FL	33610	Video Photography	272468473	BBE	African American
12	RICH & COMPANY FLORIDA, LLC	727-351-2243		richandcofl@gmail.com	14245 Alistar Manor Drive	Wimauma	FL	33598	Video Photography	824538175	BBE	African American
12	Shine Photo Entertainment	813-638-1602		hello@shinephotoentertainment.com	9506 Amberdale Ct. 201	Riverview	FL	33578	Video Photography	820853961	BBE	African American
12	Snappy Plum Photos	253-222-4737		snappyplumphotos@gmail.com	2780 E. Fowler Ave #243	Tampa	FL	33612	Video Photography	821760273	BBE	African American
12	Ubora Films LLC	813-220-2051		uborafilms@gmail.com	17847 D Sailfish Drive	Lutz	FL	33558	Video Photography	821230551	BBE	African American
12	Warped Vision LLC	813-361-1679		studio@warpedvision.org	9212 Freedom Hill Dr	Seffner	FL	33584	Video Photography	833373824	BBE	African American
13	Ariel Business Group, Inc. (The)	813-207-0003	813-286-7037	contactus@arielbusinessgroup.com	3706 W. McKay Avenue	TAMPA	FL	33609	Public Outreach	593359574	BBE	African American
13	KJS CONSULTING, LLC	813-990-7379		kay@kjsconsult.com	5156 Lakecastle Drive	Tampa	FL	33624	Public Outreach	823718969	BBE	African American
13	KVJINC	813-335-9887		kimberly@kvjincpr.com	5013 E. Cluster Ave.	Tampa	FL	33617	Public Outreach	010977013	BBE	African American
13	THE SHINE FIRM, LLC	813-551-1730		INFO@THESHINEFIRM.COM	406 N Hubert Avenue	Tampa	FL	33609	Public Outreach	814878223	BBE	African American
13	Vistra Communications LLC	813-961-4700	813-961-4702	BRIAN@CONSULTVISTRA.COM	18315 N US HWY 41	Lutz	FL	33549	Public Outreach	141993874	BBE	African American
14	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Sodding	593362663	BBE	African American
14	Cut-Ups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powhatan Ave.	Tampa	FL	33610	Sodding	611412916	BBE	African American
14	Davids lawncare	813-334-4096		davidrasheed2@gmail.com	9885 Morris Glen Way	Tampa	FL	33687	Sodding	189662164	BBE	African American
14	Dean's Environmental Inc	813-428-2011		deank8859@gmail.com	11809 Autumn Creek Dr	Riverview	FL	33569	Sodding	474774375	BBE	African American
14	Fresh Start Development, Inc.	813-758-5345	813-333-5949	freshstartdevelop@yahoo.com	5508 N 50th St	Tampa	FL	33610	Sodding	203857845	BBE	African American
14	Grass & Landscaping Hunters LLC	813-770-6795		grasslandscapinghunters@hotmail.com	914 Burlwood St	Brandon	FL	33511	Sodding	821161283	BBE	African American
14	Lawn Conquerors LLC	813-444-0466	813-000-0000	lawnconquerors@gmail.com	2409 E Annie St	Tampa	FL	33612	Sodding	852605386	BBE	African American
14	Moses & Wourman Maintenance Inc.	813-244-7134	813-920-1430	ctmoses11@msn.com	13014 N Dale Mabry Ste 136	Tampa	FL	33618	Sodding	650105210	BBE	African American
14	T.C.C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHATAN AVE	TAMPA	FL	33610	Sodding	463223645	BBE	African American
14	Trimen Precision Lawn Care, LLC	813-863-9328		account@trimenlawn.com	1004 Lady Guinevere Drive	Valrico	FL	33594	Sodding	474625126	BBE	African American
14	Twenty-Nine 11 Property Services, LLC	813-420-4987		twentynine11propertyservices@gmail.com	13736 Ogakor Dr	Riverview	FL	33579	Sodding	841949792	BBE	African American
14	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key Drive	Odessa	FL	33556	Sodding	472682190	BBE	African American
14	Williams Landscape Management Co., Inc.	813-628-8048	813-628-8041	tonywilliams@wlmslandscape.com	5710 N 50th St	Tampa	FL	33610	Sodding	593516370	BBE	African American
14	Works of Nature, LLC	813-531-2324		Trj@workofnature.info	1016 E.33rd Ave.	Tampa	FL	33603	Sodding	814965789	BBE	African American
15	Barnes, Ferland and Associates, Inc	407-896-8608	407-896-1822	pbarnes@bfaenvironmental.com	1230 Hillcrest Street, Suite 100	Orlando	FL	32803	As-Built Survey	593237612	BBE	African American
15	Spectra Engineering & Research, Inc.	407-951-8844	407-951-8848	spectra@spectraengr.com	1060 Maitland Center Commons, Ste 340	Maitland	FL	32751	As-Built Survey	593009648	BBE	African American

African American/Black Business Enterprises (BBE) shall count toward the subcontract goal. Refer to MBD Form 70 - Procurement Guidelines.

FY21 - Palma Ceia Water Main Replacement Phase III
FY 21 Project 21-C-00024
SLBE Availability Contact List

This Certified Contact List is the minimum contacts available and may require further searches for certified firms to meet Good Fath Efforts.

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
2	2 Meyer Corp.	813-210-4864	813-645-5634	Renatonjr@aol.com	6308 Lake Sunrise Dr.	Apollo Beach	FL	33572	Pipe Supply	562384669	SLBE	Caucasian
2	DRD ENTERPRISES LLC	813-476-9933	866-850-1332	deenahd@yahoo.com	4104 Yellowwood Dr.,	Valrico	FL	33594	Pipe Supply	204675317	SLBE	African American
2	Mar Supply Co.	941-286-3240	941-761-6500	info@marsupplyco.com	1660 63rd Avenue East	Bradenton	FL	34203	Pipe Supply	270206845	SLBE	Hispanic American
2	MBE Supply of Florida, Inc.	813-781-6583		mbesupplyofflorida@gmail.com	4306 W. Osborne Avenue	Tampa	FL	33613	Pipe Supply	463284565	SLBE	Caucasian
2	SUCA Pipe Supply Inc.	813-249-7902		slmau44@yahoo.com	4910 Lowell Rd	Tampa	FL	33624	Pipe Supply	592499571	SLBE	African American
2	Suca Pipe Supply, Inc. One	813-249-7902		mactwinau1@yahoo.com	4910 Lowell Road	Tampa	FL	33624	Pipe Supply	263669556	SLBE	African American
3	MBattle Construction llc	727-214-4301	727-517-3774	moebattle@hotmail.com	470 maple way	safety harbor	FL	34695	Pipe Grouting	760840117	SLBE	African American
3	PROMISE CONSTRUCTION AND REPAIR SOLUTIONS, LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	PO BOX 291568	TAMPA	FL	33687	Pipe Grouting	464723775	SLBE	African American
5	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Asphalt Pavement	593362663	SLBE	African American
5	City Wide Paving, LLC	813-325-4250	813-849-1723	citywidepavingcwp@yahoo.com	2508 N. 32nd St.	Tampa	FL	33605	Asphalt Pavement	270559624	SLBE	African American
6	Quick Construction Solutions, LLC	813-377-9997	813-374-5849	quickcs@outlook.com	4501 N. Saint Vincent St.	Tampa	FL	33614	Brick Pavement Restoration	900972890	SLBE	Hispanic American
7	Beato Group, Inc.	813-250-0196		Info@BeatoGroup.com	8961 Turnstone Haven Place	Tampa	FL	33619	Maintenance of Traffic	454003966	SLBE	Hispanic American
7	Cornerstone Barricades Inc.	352-373-8001	352-377-8976	seyi.falade@cornerstonebarricades.com	3201 SW 42nd Street	Gainesville	FL	32608	Maintenance of Traffic	810763816	SLBE	African American
7	SAFETY ZONE SPECIALISTS	863-984-1385	863-984-0139	ofcmgr@safetyzonespecialists.com	8341 EPICENTER BLVD	LAKELAND	FL	33809	Maintenance of Traffic	844519704	SLBE	Caucasian
8	City Wide Paving, LLC	813-325-4250	813-849-1723	citywidepavingcwp@yahoo.com	2508 N. 32nd St.	Tampa	FL	33605	Pavement Markings & Ram	270559624	SLBE	African American
9	2 Meyer Corp.	813-210-4864	813-645-5634	Renatonjr@aol.com	6308 Lake Sunrise Dr.	Apollo Beach	FL	33572	Reinforced Concrete	562384669	SLBE	Caucasian
9	H.B. Underground Inc	813-455-5815		hugo726b@gmail.com	11500 N Dale Mabry Hwy	Tampa	FL	33618	Reinforced Concrete	842208449	SLBE	Hispanic American
#	CARJA CONSTRUCTION, INC	813-304-7158		Carly@puleosconcrete.com	2010 Chickwood ct.	tampa	FL	33618	Sidewalks	463665283	SLBE	Caucasian
#	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Sidewalks	592345574	SLBE	African American
#	H.B. Underground Inc	813-455-5815		hugo726b@gmail.com	11500 N Dale Mabry Hwy	Tampa	FL	33618	Sidewalks	842208449	SLBE	Hispanic American
#	Quick Construction Solutions, LLC	813-377-9997	813-374-5849	quickcs@outlook.com	4501 N. Saint Vincent St.	Tampa	FL	33614	Sidewalks	900972890	SLBE	Hispanic American
#	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Curbing	592345574	SLBE	African American
#	JMJ Consulting Solutions LLC d/b/a JMJ Site Development	813-927-2484		jmjsitedevelopment@gmail.com	5902 Audubon Manor Blvd	Lithia	FL	33547	Curbing	273413832	SLBE	Caucasian
#	Quick Construction Solutions, LLC	813-377-9997	813-374-5849	quickcs@outlook.com	4501 N. Saint Vincent St.	Tampa	FL	33614	Curbing	900972890	SLBE	Hispanic American
#	A Business Forms & Pegboard Systems, Inc.	813-933-2788		social@amediamarketing.com	3104 North Armenia Ave, Ste 2	Tampa	FL	33607	Video Photography	591559977	SLBE	Caucasian
#	Frederick Communications & Consulting LLC	813-758-9149	813-281-2006	Frederick.Communications@gmail.com	3853 Northdale Blvd #112	Tampa	FL	33624	Video Photography	800240902	SLBE	Hispanic American
#	Kerrick Williams Photography, LLC	404-966-8145	866-571-7149	kerrick@kerrickwilliams.com	5508 n. 50th Street	Tampa	FL	33610	Video Photography	272468473	SLBE	African American
#	Licencia Para Divertirse	813-992-3110		vanessacahuas@hotmail.com	16814 LE CLARE SHORES DR	TAMPA	FL	33624	Video Photography	454690994	SLBE	Hispanic American
#	Renker Eich Parks Architects Inc.	727-821-2986	727-896-4911	rheadland@reparch.com	1609 Dr MLK Jr Street North	St. Petersburg	FL	33704	Video Photography	592755330	SLBE	Caucasian
#	RICH & COMPANY FLORIDA, LLC	727-351-2243		richandcofl@gmail.com	14245 Alistar Manor Drive	Wimauma	FL	33598	Video Photography	824538175	SLBE	African American
#	Shine Photo Entertainment	813-638-1602		hello@shinephotoentertainment.com	9506 Amberdale Ct. 201	Riverview	FL	33578	Video Photography	820853961	SLBE	African American
#	Snappy Plum Photos	253-222-4737		snappyplumphotos@gmail.com	2780 E. Fowler Ave #243	Tampa	FL	33612	Video Photography	821760273	SLBE	African American
#	Ubora Films LLC	813-220-2051		uborafilms@gmail.com	17847 D Sailfish Drive	Lutz	FL	33558	Video Photography	821230551	SLBE	African American
#	Uppercase, Inc.	813-226-3096		matt@uppercaseincorporated.com	5108 N Nebraska Ave	Tampa	FL	33603	Video Photography	262817255	SLBE	Caucasian
#	Warped Vision LLC	813-361-1679		studio@warpedvision.org	9212 Freedom Hill Dr	Seffner	FL	33584	Video Photography	833373824	SLBE	African American
#	Ariel Business Group, Inc. (The)	813-207-0003	813-286-7037	contactus@arielbusinessgroup.com	3706 W. McKay Avenue	TAMPA	FL	33609	Public Outreach	593359574	SLBE	African American
#	Conversa LLC	813-579-2157		arlene@conversaco.com	730 S Sterling Ave	Tampa	FL	33609	Public Outreach	470961912	SLBE	Hispanic American
#	Dialogue Public Relations, LLC	727-580-9013	000-000-0000	mrobinson@dialogue-pr.com	1850 Castle Woods Dr.	Clearwater	FL	33759	Public Outreach	204556628	SLBE	Caucasian
#	DJ Public Relations Inc	727-992-6928		diane@DJPublicRelations.com	1771 Cameron Ct.	TRINITY	FL	34655	Public Outreach	260663075	SLBE	Caucasian
#	KJS CONSULTING, LLC	813-990-7379		kay@kjsconsult.com	5156 Lakecastle Drive	Tampa	FL	33624	Public Outreach	823718969	SLBE	African American
#	KVJINC	813-335-9887		kimberly@kvjincpr.com	5013 E. Cluster Ave.	Tampa	FL	33617	Public Outreach	810977013	SLBE	African American
#	Licencia Para Divertirse	813-992-3110		vanessacahuas@hotmail.com	16814 LE CLARE SHORES DR	TAMPA	FL	33624	Public Outreach	454690994	SLBE	Hispanic American

FY21 - Palma Ceia Water Main Replacement Phase III
FY 21 Project 21-C-00024
SLBE Availability Contact List

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity	
#	O'Hara Communications	813-428-3182		oharacomm@gmail.com	310 W. Crest Avenue	Tampa	FL	33603	Public Outreach	834678787	SLBE	Caucasian	
#	Price's Writing & Editing Services	813-250-1298	813-250-1298	info@priceswriting.com	3225 S. MacDill Ave, Ste #129-344	Tampa	FL	33629	Public Outreach	203504412	SLBE	Caucasian	
#	Rosie Paulsen Enterprises	813-909-6965	877-896-9466	rosie@rosiepaulsen.com	401 Ashley St	Tampa	FL	33672	Public Outreach	474114572	SLBE	Hispanic American	
#	Sally Dee, LLC	813-789-7122		SDEE@PLAYBOOKPUBLICRELATIONS.COM	3105 W Granada St	Tampa	FL	33629	Public Outreach	461168748	SLBE	Caucasian	
#	THE SHINE FIRM, LLC	813-551-1730		INFO@THESHINEFIRM.COM	406 N Hubert Avenue	Tampa	FL	33609	Public Outreach	814878223	SLBE	African American	
#	Uppercase, Inc.	813-226-3096		matt@uppercaseincorporated.com	5108 N Nebraska Ave	Tampa	FL	33603	Public Outreach	262817255	SLBE	Caucasian	
#	Valerin Group, Inc. (The)	813-751-0478	813-925-4205	valeriec@valerin-group.com	3903 Northdale Boulevard	Tampa	FL	33624	Public Outreach	331142500	SLBE	Caucasian	
#	Vivid Consulting Group LLC.	813-988-8100	813-988-8108	mercedes@vividpros.com	701 W FLETCHER AVE STE A	TAMPA	FL	33612	Public Outreach	814106123	SLBE	Hispanic American	
#	AGRO-TURF CORP.	813-267-8156	813-741-9253	beatriz@agroturf.org	11810 Bullfrog Creek Rd.,	Gibsonton	FL	33534	Sodding	205501762	SLBE	Hispanic American	
#	Always Green Landscaping Inc.	813-516-0823		alwaysgreenlandscapinginc@gmail.com	6501 Sawyer Court	Tampa	FL	33634	Sodding	320580963	SLBE	Hispanic American	
#	Baron's Landscaping Services, Inc.	813-404-1509	813-443-4919	baronslawncare@aol.com	2415 East Sligh Avenue	Tampa	FL	33610	Sodding	650837654	SLBE	Hispanic American	
#	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Sodding	593362663	SLBE	African American	
#	Cardinal Landscaping Services of Tampa, Inc.	813-915-9696	813-915-9695	msmantei@yahoo.com	817 E. Okaloosa Ave.	Tampa	FL	33604	Sodding	593394554	SLBE	Caucasian	
#	Cut-Ups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powhatan Ave.	Tampa	FL	33610	Sodding	611412916	SLBE	African American	
#	D & J LAWN SERVICES OF LAKELAND LLC	863-859-3525		DANDJLAWNSERVICES@HOTMAIL.COM	575 Old Polk City Road	Lakeland	FL	33809	Sodding	273279070	SLBE	Hispanic American	
#	Davids lawncare	813-334-4096		davidrasheed2@gmail.com	9885 Morris Glen Way	Tampa	FL	33687	Sodding	189662164	SLBE	African American	
#	Dean's Environmental Inc	813-428-2011		deank8859@gmail.com	11809 Autumn Creek Dr	Riverview	FL	33569	Sodding	474774375	SLBE	African American	
#	Fresh Start Development, Inc.	813-758-5345	813-333-5949	freshstartdevelop@yahoo.com	5508 N 50th St	Tampa	FL	33610	Sodding	203857845	SLBE	African American	
#	GardenSmith	813-352-3008		gardensmith@me.com	4113 Henderson Blvd	tampa	FL	33629	Sodding	273649269	SLBE	Caucasian	
#	Grass & Landscaping Hunters LLC	813-770-6795		grasslandscapinghunters@hotmail.com	914 Burlwood St	Brandon	FL	33511	Sodding	821161283	SLBE	African American	
#	GREEN EXPECTATIONS LANDSCAPING LLC	813-782-6263	813-315-6461	INFO@GXLFL.COM	37609 Eiland Blvd.	Zephyrhills	FL	33542	Sodding	262054130	SLBE	Hispanic American	
#	Johnson's Excavation & Services, Inc.	813-752-7097	813-719-9052	sales@jescontracting.com	1706 East Trapnell Road	Plant City	FL	33566	Sodding	593031174	SLBE	Caucasian	
#	JTCM Inc	813-935-7724		office@lawnsculptures.net	817 S MacDill Ave	Tampa	FL	33609	Sodding	562418914	SLBE	Caucasian	
#	Moses & Wourman Maintenance Inc.	813-244-7134	813-920-1430	ctmoses11@msn.com	13014 N Dale Mabry Ste 136	Tampa	FL	33618	Sodding	650105210	SLBE	African American	
#	Nelson's Tree Farm and Nursery, Inc.	813-842-4663	813-350-9139	kimberly.martinez33@gmail.com	5027 N Lois Ave	Tampa	FL	33614	Sodding	593404710	SLBE	Hispanic American	
#	RODRIGUEZ SOD RANCH INC	813-886-2163		rodriguezsodranch@yahoo.com	7608 W Linebaugh Ave	Tampa	FL	33625	Sodding	455303273	SLBE	Hispanic American	
#	Sunbelt Sod & Grading Company	813-641-9855	813-645-7263	sunbeltsod@verizon.net	819 - 9th St. N.E.	Ruskin	FL	33570	Sodding	134250933	SLBE	Caucasian	
#	T.C.C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHATAN AVE	TAMPA	FL	33610	Sodding	463223645	SLBE	African American	
#	Trimen Precision Lawn Care, LLC	813-863-9328		account@trimenlawn.com	1004 Lady Guinevere Drive	Valrico	FL	33594	Sodding	474625126	SLBE	African American	
#	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key Drive	Odessa	FL	33556	Sodding	472682190	SLBE	African American	
#	Williams Landscape Management Co., Inc.	813-628-8048	813-628-8041	tonywilliams@wlmslandscape.com	5710 N 50th St	Tampa	FL	33610	Sodding	593516370	SLBE	African American	
#	Works of Nature, LLC	813-531-2324		Trj@workofnature.info	1016 E.33rd Ave.	Tampa	FL	33603	Sodding	814965789	SLBE	African American	
#	Dennis Noto & Associates LLC	813-240-2033		dennis@dnarea.com	PO Box 18525	Tampa	FL	33679	As-Built Survey	810961234	SLBE	Caucasian	
#	Ferguson Land Surveyors, PLLC	727-230-9606	727-230-9234	Ben@FLSurveyors.com	806 Franklin Street	Clearwater	FL	33756	As-Built Survey	475661955	SLBE	Caucasian	
#	Griner Engineering, Inc.	727-822-2335	727-821-3361	joe@grinerengineers.com	3125 Fifth Avenue N	Saint Petersburg	FL	33713	As-Built Survey	591305098	SLBE	Caucasian	
#	Independence Acquisition & Appraisal, LLC	813-773-5400	813-315-6211	kjoslin@iaallc.com	11030 N. US HIGHWAY 301	THONOTOSASSA	FL	33592	As-Built Survey	204003934	SLBE	Caucasian	
#	Land Precision Corporation	727-796-2737	727-796-3326	rcorbitt@landprecision.com	2683 SUNSET POINT ROAD	CLEARWATER	FL	33759	As-Built Survey	593088679	SLBE	Caucasian	
#	MacSurvey, Inc.	727-725-3269	000-000-0000	info@macsurvey.com	22091 US Highway 19 North	Clearwater	FL	33765	As-Built Survey	454022937	SLBE	Caucasian	
#	Northwest Surveying, Inc.	813-889-9236	813-886-3315	jsilva@nsitampa.com	8409 SUNSTATE STREET	TAMPA	FL	33634	As-Built Survey	592899240	SLBE	Hispanic American	
#	Quantum Drone Solutions	813-730-3352		info@quantumdronesolutions.com	552 19th St NW	Tampa	FL	33605	As-Built Survey	823112870	SLBE	Caucasian	
#	Suncoast Land Surveying, Inc.	813-854-1342	813-354-3435	mariesls@tampabay.rr.com	111 Forest Lakes Blvd. S.	Oldsmar	FL	34677	As-Built Survey	592733609	SLBE	Caucasian	
#	W.C. Sherrill and Company, LLC.	813-345-4270	813-345-4270	rick.weigl@gmail.com	26232 Wesley Chapel Blvd.	Lutz	FL	33559	As-Built Survey	611606347	SLBE	Caucasian	

Instructions Regarding Use of the WMBE/SLBE Availability Contact List

Bidders must solicit a subcontracting bid from ALL of the firms listed on the WMBE/SLBEs list provided within the Specifications, and provide documentation of emails, faxes, phone calls, letters, or other communication with the firms as a first step in demonstrating Good-Faith Efforts to achieve the goal set for WMBE/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 WMBE/SLBE participation Goal is based upon the availability of the certified firms indicated on the contact list. The Goal and Requirements of the City's Equal Business Opportunity Program are stated in the Bid/Contract Document, Specifications.

PROPOSAL

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

Legal Name of Bidder: _____

Bidder's Fictitious Name, *if applicable*: _____

Bidder is a/an: ☐ Individual ☐ Partnership* ☐ Joint Venture* ☐ LLC ☐ Corp. ☐ Other:

Bidder is organized under the laws of: ☐ State of Florida ☐ Other:

Bidder Mailing Address: _____

Bidder's Federal Employee Identification No. (FEI/EIN): _____

Bidder's License No.:_____ Bidder's FDOS (SUNBIZ) Doc. No.: _____
(See Ch. 489. FS; use entity's, individual's only if applicable)

Bidder Contact Name**: _____ Email:_____ Phone: (_____) _____

Bidder's own initial application for employment has criminal history screening practices similar in nature to the practices contained in Chapter 12, Article VI, City of Tampa Code *(Responses, whether "Yes" or "No", are for informational purposes only and will not be used as a basis of award or denial, nor as a basis for any protest)*: ☐Yes ☐No

The below named person, appearing before the undersigned authority and after being first duly sworn, for him/herself and on behalf of the entity submitting this Proposal does hereby affirm and declare as follows:

(1) He/She is of lawful age and is authorized to act on behalf of Bidder (the individual, partnership, corporation, entity, etc. submitting this Proposal) and that all statements made in this document are true and correct to the best of my knowledge.

(2) If Bidder is operating under a fictitious name, Bidder has currently complied with any and all laws and procedures governing the operation of businesses under fictitious names in the State of Florida

(3) No person or entity other than Bidder has any interest in this Proposal or in the Contract proposed to be entered into.

(4) This Proposal is made without any understanding, agreement, or connection with any person or entity making Proposal for the same purposes, and is in all respects fair and without collusion or fraud.

(5) 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.

(6) 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.

(7) Bidder has carefully examined and fully understands the Solicitation and has full knowledge of the scope, nature, and quality of the work to be performed; furthermore, 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.

(8) Bidder (including its principals) ☐ has | ☐ has NOT been debarred or suspended from contracting with a public entity.

(9) Bidder ☐ has | ☐ has NOT implemented a drug-free workplace program that meets the requirements of Section 287.087, Florida Statutes.

(10) Bidder has carefully examined and fully understands all the component parts of the Contract Documents and agrees Bidder will execute the Contract, provide the required Public Construction Bond, and will fully perform the work in strict accordance with the terms of the Contract and Contract Documents therein referred to for the following prices, to wit:

* If a Partnership or Joint Venture, attach Partnership or Joint Venture Agreement.
** Someone the City may contact with questions/correspondence regarding this Solicitation and/or permits.

Contract; 21-C-00024 Palma Ceia Phase III Water Main Replacement

Item No.	Description	Unit	Quantity	Unit Price in Words		Unit Price		Total Price
2102	F&I 6" ductile iron pipe with 5' trench or less	LF	573		$		$	
2103	F&I 6" ductile iron pipe with more than 5' trench	LF	14		$		$	
2104	F&I 8" ductile iron pipe with 5' trench or less	LF	48		$		$	
2106	F&I 12" ductile iron pipe with 5' trench or less	LF	148		$		$	
2107	F&I 12" ductile iron pipe with more than 5' trench	LF	30		$		$	
2150	F&I 2" PVC pipe and fittings at various depths	LF	50		$		$	
2151	F&I 4" EagleLok or CertaLok restrained joint PVC pipe	LF	274		$		$	
2159	F&I 6" EagleLok or CertaLok restrained joint PVC pipe	LF	12,186		$		$	
2160	F&I 8" EagleLok or CertaLok restrained joint PVC pipe	LF	2,213		$		$	
2200	F&I 2" HDPE tubing by HDD w/HDPE adapters and HDPE fittings at various depths	LF	109		$		$	
2201	F&I 4" HDPE pipe by HDD w/HDPE adapters and HDPE fittings at various depths	LF	380		$		$	
2207	F&I 6" EagleLok or CertaLok restrained joint PVC pipe by HDD	LF	733		$		$	
2251	F&I 6" HDPE pipe by Pipe Burst w/HDPE adapters and HDPE fittings at various depths	LF	2,607		$		$	
2252	F&I 8" HDPE pipe by Pipe Burst w/HDPE adapters and HDPE fittings at various depths	LF	531		$		$	
2254	F&I 12" HDPE pipe by Pipe Burst w/HDPE adapters and HDPE fittings at various depths	LF	893		$		$	
2300	Furnish install remove 2" temporary services lines	LF	4,031		$		$	
2600	Cut and plug 3" and smaller in diameter pipe	EA	56		$		$	
2601	Cut and plug 4", 6" and 8" diameter pipe	EA	8		$		$	
2602	Cut and plug 10", 12" and 16" diameter pipe	EA	5		$		$	

Contract; 21-C-00024 Palma Ceia Phase III Water Main Replacement

Item No.	Description	Unit	Quantity	Unit Price in Words		Unit Price		Total Price
3001	F&I 6" wedge-action or flange restraint	EA	221		$		$	
3002	F&I 8" wedge-action or flange restraint	EA	24		$		$	
3003	F&I 12" wedge-action or flange restraint	EA	19		$		$	
3041	F&I 6" bell and MJ restraint on existing pipe	EA	5		$		$	
3042	F&I 8" bell and MJ restraint on existing pipe	EA	5		$		$	
3043	F&I 12" bell and MJ restraint on existing pipe	EA	6		$		$	
3050	F&I 4" wedge-action MJ restraints on new PVC pipe	EA	4		$		$	
3051	F&I 6" wedge-action MJ restraints on new PVC pipe	EA	177		$		$	
3052	F&I 8" wedge-action MJ restraints on new PVC pipe	EA	29		$		$	
3060	F&I 4" wedge-action MJ restraints on HDPEP	EA	2		$		$	
3061	F&I 6" wedge-action MJ restraints on HDPEP	EA	44		$		$	
3062	F&I 8" wedge-action MJ restraints on HDPEP	EA	6		$		$	
3063	F&I 12" wedge-action MJ restraints on HDPEP	EA	22		$		$	
3071	Furnish 6" push-on restraint gaskets	EA	7		$		$	
3073	Furnish 12" push-on restraint gaskets	EA	3		$		$	
4001	F&I 4" ductile iron bends, offsets, sleeves or reducers w/DIP, CIP or PVCP	EA	7		$		$	
4004	F&I 6" ductile iron plug or cap w/ DIP, CIP or PVCP	EA	2		$		$	
4005	F&I 6" ductile iron bends, offset, sleeves or reducers w/ DIP, CIP or PVCP	EA	71		$		$	
4006	F&I 6" ductile iron tee w/ DIP, CIP or PVC	EA	32		$		$	
4008	F&I 8" ductile iron plug or cap w/ DIP, CIP or PVCP	EA	1		$		$	
4009	F&I 8" ductile iron bends, offsets, sleeves or reducers w/ DIP, CIP or PVCP	EA	10		$		$	

Contract; 21-C-00024 Palma Ceia Phase III Water Main Replacement

Item No.	Description	Unit	Quantity	Unit Price in Words		Unit Price		Total Price
4010	F&I 8" ductile iron tee w/ DIP, CIP or PVC	EA	6		$		$	
4013	F&I 12" bends, offsets, sleeves or reducers with DIP , CIP or PVCP	EA	8		$		$	
4014	F&I 12" ductile iron tee with DIP, CIP or PVCP	EA	2		$		$	
4050	F&I 4" ductile iron plug or cap w/ HDPEP	EA	1		$		$	
4055	F&I 6" ductile iron bends, offsets, sleeves or reducers w/ HDPEP	EA	2		$		$	
4056	F&I 6" ductile iron tee w/ HDPEP	EA	14		$		$	
4059	F&I 8" ductile iron bends, offset, sleeves or reducers w/ HDPEP	EA	1		$		$	
4060	F&I 8" ductile iron tee w/ HDPEP	EA	5		$		$	
4064	F&I 12" ductile iron bends, offsets, sleeves or reducers w/ HDPEP	EA	2		$		$	
4065	F&I 12" ductile iron tee w/ HDPEP	EA	6		$		$	
5000	F&I full fire hydrant assembly on new or existing mains	EA	31		$		$	
5100	F&I protection post	EA	6		$		$	
5200	Remove & salvage fire hydrant	EA	6		$		$	
6002	F&I 6" gate or tapping valve with box on DIP, CIP or PVCP	EA	74		$		$	
6003	F&I 8" gate or tapping valve with box on DIP, CIP or PVCP	EA	10		$		$	
6004	F&I 12" gate or tapping valve with box on DIP, CIP or PVCP	EA	4		$		$	
6070	F&I 2" gate valve and box on HDPEP	EA	1		$		$	
6072	F&I 6" gate valve and box on HDPEP	EA	8		$		$	
6073	F&I 8" gate valve and box on HDPEP	EA	1		$		$	
6074	F&I 12" gate valve and box on HDPEP	EA	4		$		$	
6080	F&I 2-ft. Valve Nut Extension	EA	2		$		$	

Contract; 21-C-00024 Palma Ceia Phase III Water Main Replacement

Item No.	Description	Unit	Quantity	Unit Price in Words		Unit Price		Total Price
6104	F&I 8" Linestop on Existing Water Main (0-5')	EA	1		$		$	
6108	F&I 12" Linestop on Existing Water Main (0-5')	EA	1		$		$	
6203	F&I 6" TEAM Insertion Valves on Existing Water Main (0-5')	EA	1		$		$	
7001	F&I 6" tapping sleeve and make tap	EA	6		$		$	
7002	F&I 8" tapping sleeve and make tap	EA	4		$		$	
7003	F&I 12" tapping sleeve and make tap	EA	7		$		$	
8100	Furnish tap and install 3/4" or 1" meter service on PVCP, DIP, or CIP (0-15' HDPE)	EA	257		$		$	
8101	Furnish, tap and install 3/4" meter service on PVCP, DIP or CIP (+15-80' HDPE)	EA	265		$		$	
8120	Furnish, tap and install 3/4" or 1" meter service on HDPEP (0-15' HDPE)	EA	22		$		$	
8121	Furnish, tap and install 3/4" meter service on HDPEP (+15-80' HDPE)	EA	19		$		$	
8127	Furnish, tap and install 1" or 1-1/2" meter service on HDPEP (+15-80' HDPE)	EA	1		$		$	
9201	Furnish, place and compact crushed concrete base	CY	919		$		$	
9205	Furnish and install asphalt concrete surface Superpave Type SP-12.5	TN	431		$		$	
9207	Furnish, place, grade and compact Superpave Type SP-9.5 asphaltic concrete overlay	TN	438		$		$	
9208	Mobilization to perform mechanical milling	EA	3		$		$	
9209	Mechanical milling of asphalt roadways in 1-inch increments	SY-IN	7,964		$		$	
9210	Restore 6" thick concrete driveway	SY	791		$		$	
9211	Restore brick pavement, including base material	SY	12,478		$		$	

Contract; 21-C-00024 Palma Ceia Phase III Water Main Replacement

Item No.	Description	Unit	Quantity	Unit Price in Words		Unit Price		Total Price
9224	12" Thermoplastic Striping for Crosswalks	LF	2,500		$		$	
9301	Furnish and install valley curb	LF	1,020		$		$	
9303	Furnish and install Type “F” concrete curb	LF	3,705		$		$	
9307	Furnish and install 4" thick concrete sidewalk	SY	341		$		$	
9309	Grade and sod roadside/ditch bottoms and sides - Bahia	SY	325		$		$	
9310	Grade and sod roadside/ditch bottoms & sides - St. Augustine	SY	3,400		$		$	
9312	F&I detectable warnings on concrete walking surfaces	EA	12		$		$	
9400	Grout abandoned pipe	CY	33		$		$	
9500	Furnish, form and place reinforced concrete	CY	5		$		$	
9504	Replace damaged but not marked sanitary laterals, w PVC	LF	120		$		$	
9505	Video photography	LF	20,789		$		$	
9910	Public Outreach	LS	1		$		$	
9910	Valve Box Adjustment or Removal	EA	56		$		$	
9920	F&I blow-off assembly per Detail 2.16	EA	1		$		$	
9921	F&I 4" blow-off assembly per Detail 2.17A	EA	2		$		$	
9950	F&I new project signs	EA	1		$		$	
9970	As-Built Survey Installed Pipeline	LF	20,789		**$**		**$**	
9980	**Contingency Allownace - to be used by the City**	**LS**	**1**	**Five Hundred Fifty Thousand Dollars and No Cents**	**$**	**550,000.00**	**$**	**550,000.00**
10000	**Mobilization**	**LS**	**1**	**Two Hundred Sixty Thousand Dollars and No Cents**	**$**	**260,000.00**	**$**	**260,000.00**
11000	**Maintenance of Traffic**	**LS**	**1**	**Three Hundred Ten Thousand Dollars and No Cents**	**$**	**310,000.00**	**$**	**310,000.00**
						TOTAL		

Computed Total Price in Words: _____

_____dollars and _____ cents.

Computed Total Price in Figures: $_____

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 ____ #6 ____ #7 ____ #8 ____.

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

Bidder acknowledges that it is aware of Florida's Trench Safety Act (Sections 553.60-553.64, Florida Statutes), and agrees that Bidder together with any involved subcontractors will comply with all applicable trench safety standards. Bidder further acknowledges that included in the various items of this Proposal and the total bid price (as applicable) are costs for complying with the Trench Safety Act. Bidder further identifies the costs and methods summarized below:

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

Total Cost: $ _____

Accompanying this Proposal is a certified check, cashier's check or Tampa Bid Bond (form included herein must be used) for at least five percent (5%) of the total amount of the Proposal which check shall become the property of the City, or which bond shall become forthwith due and payable to the City, if this Proposal shall be accepted by the City and the Bidder shall fail to enter into a legally binding contract with and to furnish the required Public Construction Bond to the City within twenty (20) days after the date of its receipt of written Notice of Award by the City so to do.

FAILURE TO COMPLETE THE ABOVE MAY RESULT IN THE PROPOSAL BEING DECLARED NON-RESPONSIVE.

[SEAL]

Name of Bidder:_____

Authorized Signature:_____

Signer's Printed Name____

Signer's Title: _____

STATE OF _____

COUNTY OF _____

For an entity: The forgoing instrument was Sworn to (or affirmed) and subscribed before me by means of ☐ physical presence or ☐ online notarization, this_____ day of _____ , 2020 , by _____ as _____ of _____, a/n □ Partnership □ Joint Venture □ LLC □ Corp □ Other:_____, on behalf of such entity. Such individual is Personally Known OR Produced Identification. Type of Identification Produced:_____

For an individual: The forgoing instrument was Sworn to (or affirmed) and subscribed before me by means of ☐ physical presence or ☐ online notarization, this_____ day of _____ , 2020 , By _____, Such individual is Personally Known OR Produced Identification. Type of Identification Produced:_____.

[NOTARY SEAL]

_____

Notary Public, State of _____

Notary Printed Name: _____

Commission No.: _____

My Commission Expires: _____

Good Faith Effort Compliance Plan Guidelines

for Women/Minority Business Enterprise\Small Local Business Enterprise Participation
City of Tampa - Equal Business Opportunity Program
(MBD Form 50 – detailed instructions on page 2 of 2)

Contract Name_____ Bid Date _____

Bidder/Proposer_____

Signature _____ Date _____

Name _____ Title _____

The Compliance Plan with attachments is a true account of Good Faith Efforts (GFE) made to achieve the participation goals as specified for Women/Minority Business Enterprises/Small Local Business Enterprises (WMBE/SLBE) on the referenced contract:

□ The WMBE/SLBE participation Goal is Met or Exceeded. See DMI Forms 10 and 20 which accurately report all subcontractors solicited and all subcontractors to-be-utilized.

□ The WMBE/SLBE participation Goal is Not Achieved. The following list is an overview of the baseline GFE action steps already performed. Furthermore, it is understood that these GFE requirements are weighted in the compliance evaluation based on the veracity and demonstrable degree of documentation provided with the bid/proposal:

(Check applicable boxes below. Must enclose supporting documents accordingly with remarks)

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

(2) Provided interested WMBE/SLBEs with adequate, specific scope information about the plans, specifications, and requirements of the contract, including addenda, in a timely manner to assist them in responding to the requested-scope identified by bidder/proposer for the solicitation. □ See enclosed actual solicitations used. □ Qualifying Remarks:

(3) Negotiated in good faith with interested WMBE/SLBEs that have submitted bids (e.g. adjusted quantities or scale). Documentation of negotiation must include the names, addresses, and telephone numbers of WMBE/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 WMBE/SLBEs to perform the work. Additional costs involved in soliciting and using subcontractors is not a sufficient reason for a bidder/proposer's failure to meet goals or achieve participation, as long as such costs are reasonable. Bidders are not required to accept excessive quotes in order to meet the goal.
□ DMI Utilized Forms for sub-(contractor/consultant) reflect genuine negotiations □ This project is an RFQ/RFP in nature and negotiations are limited to clarifications of scope/specifications and qualifications. □ See enclosed documentation. □ Qualifying Remarks:

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

(5) Made scope(s) of work available to WMBE/SLBE subcontractors and suppliers; and, segmented portions of the work or material consistent with the available WMBE/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. □ Qualifying Remarks:

(6) Made good faith efforts, despite the ability or desire of Bidder/Proposer to perform the work of a contract with its own forces/organization. A Bidder/Proposer who desires to self-perform the work of a contract must demonstrate good faith efforts if the goal has not been met. □ Sub-Contractors were not prohibited from submitting bids/proposals and were solicited on work typically self-performed by the prime. □ Qualifying Remarks:

(7) Segmented portions of the work to be performed by WMBE/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 (quantities/scale) to facilitate WMBE/SLBE participation, even when the Bidder/Proposer 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/proposals and were solicited on work typically self-performed by the prime. □ See enclosed comments. □ Qualifying Remarks:

(8) Made efforts to assist interested WMBE/SLBEs in obtaining bonding, lines of credit, or insurance as required by the city or contractor.
□ See enclosed documentation on initiatives undertaken and methods to accomplish. □ Qualifying Remarks:

(9) Made efforts to assist interested WMBE/SLBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, including participation in an acceptable mentor-protégé program. □ See enclosed documentation of initiatives and/or agreements. □ Qualifying Remarks:

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

Note: Provide any unsolicited information that will support the Bid/RFP Compliance Evaluation. □ Named Documents Are:

Participation Plan: Guidance for Complying with Good Faith Efforts Outreach

1. All firms on the WMBE/SLBE Goal Setting List must be solicited and documentation provided for email, fax, letters, phone calls, and other methods of outreach/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 MBD Office and/or researching the on-line Diversity Management Business System Directory for Tampa certified WMBE/SLBE firms.

2. Solicitation of WMBE/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 sent a minimum of a week (i.e. 5 business days or more) before the bid/proposal date. Actual copies of the bidder's solicitation containing their scope specific instructions should be provided.

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

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

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

6. Contractor Shall not preclude WMBE/SLBEs from bidding on any part of work, even if the Contractor may desire to self-perform the work.

7. Contractor Shall avoid relying solely on subcontracting out work-scope where WMBE/SLBE availability is not sufficient to attain the pre-determined subcontract goal set for the Bid or when targeted sub-consultant participation is stated within the RFP/RFQ.

8. In its solicitations, the Bidder should offer assistance to WMBE/SLBEs in obtaining bonding, insurance, et cetera, 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 WMBE/SLBEs, if needed.

10. Contractor should use the services offered by such agencies as the City of Tampa Minority and Small Business Development Office, Hillsborough County Entrepreneur Collaborative Center, Hillsborough County Economic Development Department's MBE/SBE Program and the NAACP Empowerment Center to name a few for the recruitment and placement of WMBEs/SLBEs.

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive

Page 1 of 4 – DMI Solicited/Utilized Schedules
City of Tampa – Schedule of All Solicited Sub-(Contractors/Consultants/Suppliers)
(FORM MBD-10)

Contract No.:_____ Contract Name:_____
Company Name:_____ Address:_____
Federal ID:_____ Phone:_____ Fax:_____ Email:_____

Check applicable box(es). Detailed Instructions for completing this form are on page 2 of 4.
[ ] No Firms were contacted or solicited for this contract.
[ ] No Firms were contacted because:_____
[ ] See attached list of additional Firms solicited and all supplemental information (List must comply to this form)
Note: Form MBD-10 must list ALL subcontractors solicited including Non-minority/small businesses

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

S = SLBE W=WMBE O = Neither Federal ID	Company Name Address Phone, Fax, Email	Type of Ownership (F=Female M=Male) BF BM = African Am. HF HM = Hispanic 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 Response Received Y/N

It is hereby certified that the information provided is an accurate and true account of contacts and solicitations for sub–contracting opportunities on this contract.

Signed:_____ Name/Title:_____ Date:_____

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive
Forms must be included with Bid / Proposal

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 to achieve participation.

- **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 and/or doing business as (dba) if applicable.
- **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 or solicited for this contract.** Checking the box indicates that a pre-determined Subcontract Goal or Participation Plan Requirement 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 (MBD Form-30) must be submitted with every pay application and invoice. 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 or solicited.
- **See attached documents.** Check box, if after you have completed the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/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 either Women/Minority Business Enterprise; **"O" = Non-certified others**.
- **Federal ID.** FIN. A number assigned to a business for tax reporting purposes. This information is critical in proper identification and payment of the contractor/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 materials provided by the subcontractor. NIGP codes aka "National Institute of Governmental Purchasing" are listed at top section of document.
- **Contact Method L=letter, F=fax, E=Email, P=Phone.** Indicate with letter the method(s) 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. Must keep records: log, ledger, documentation, etc. that can validate/verify.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Minority and Small Business Development Office at (813) 274-5522.

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive

Page 3 of 4 – DMI Solicited/Utilized Schedules

City of Tampa – Schedule of All To-Be-Utilized Sub-(Contractors/Consultants/Suppliers)

(FORM MBD-20)

Contract No.:_____ Contract Name:_____

Company Name:_____ Address:_____

Federal ID:_____ Phone:_____ Fax:_____ Email:_____

Check applicable box(es). Detailed Instructions for completing this form are on page 4 of 4.

[ ] See attached list of additional Firms Utilized and all supplemental information (List must comply to this form)
Note: Form MBD-20 must list ALL subcontractors To-Be-Utilized including Non-minority/small businesses

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

[ ] No Firms are listed to be utilized because:_____

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

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

S = SLBE W=WMBE O =Neither Federal ID	Company Name Address Phone, Fax, Email	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 (LOI) if available	Percent of Scope or Contract %

Total ALL 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.

Signed:_____ Name/Title:_____ Date:_____

Failure to Complete, Sign and Submit Both Forms 10 & 20 SHALL render the Bid or Proposal Non-Responsive
Forms must be included with Bid / Proposal

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 (regardless of ownership or size) projected to be utilized must be included on this form. Note: Ability or desire to self-perform all work shall not exempt the prime from Good Faith Efforts to achieve participation.

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 and/or doing business as (dba) if applicable.
- **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/consulting (of any kind) will be performed on this contract.** Checking box indicates your business will not use subcontractors when no Subcontract Goal or Participation Plan Requirement was 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 (MBD Form-30) must be submitted with every pay application and invoice. Note: certified SLBE or WMBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors, including completion and submitting Form-10 and Form-20.
- **No Firms listed To-Be-Utilized.** Check box; provide brief explanation why no firms were retained when a goal or participation plan requirement was set on the contract. Note: mandatory compliance with Good Faith Effort outreach (GFECP) requirements applies (MBD Form-50) and supporting documentation must accompany the bid.
- **See attached documents.** Check box, if after completing the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/documentation relating to the scope/value/percent utilization of subcontractors. Reproduce copies of MBD-20 and attach. All data not submitted on duplicate forms must be in the same format and content as specified in these instructions.

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; **"O" = Non-certified others**.
- **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. Abbreviated list of NIGP is available at http:/www.tampagov.net/mbd "Information Resources".
- **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. For CCNA only (i.e. Consultant A/E Services) you must indicate subcontracts as percent of total scope/contract.
- **Total Subcontract/Supplier Utilization.** – Provide total dollar amount of all subcontractors/suppliers projected to be used for the contract. (Dollar amounts may be optional in CCNA depending on solicitation format).
- **Total SLBE Utilization.** Provide total dollar amount for all projected SLBE subcontractors/Suppliers used for this contract. (Dollar amounts may be optional in CCNA proposals depending on the solicitation format).
- **Total WMBE Utilization.** Provide total dollar amount for all projected WMBE subcontractors/Suppliers used for this contract. (Dollar amounts may be optional in CCNA proposals depending on the solicitation format).
- **Percent SLBE Utilization.** Total amount allocated to SLBEs divided by the total bid/proposal amount.
- **Percent WMBE Utilization.** Total amount allocated to WMBEs divided by the total bid/proposal amount.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Minority and Small Business Development Office at (813) 274-5522.

TAMPA BID BOND
Contract 21-C-00024; Palma Ceia Water Main Replacement - Phase III

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 21-C-00024, Palma Ceia Water Main Replacement - Phase III.

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 Public Construction 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 _____, 20___.

Principal _____

BY _____

TITLE _____

BY _____

TITLE _____

(SEAL)

_____
Producing Agent

_____
Producing Agent's Address

_____
Name of 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 21-C-00024 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, between the City of Tampa, Florida, hereinafter called the City, and _____ hereinafter called the Contractor, as of the _____ day of _____, 20___ when the City Council of the City of Tampa, Florida adopted a Resolution authorizing, among other things, the Mayor's execution of this Agreement.

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 21-C-00024; Palma Ceia Water Main Replacement - Phase III, shall include, but not be limited to, furnishing and installing approximately 150 linear feet of 2-inch, 654 linear feet of 4-inch, 16,113 linear feet of 6-inch, 2,792 linear feet of 8 inch, and 1,071 linear feet of 12-inch water mains of various materials (PVC, HDPE and Ductile Iron) by various methods (open cut trenching, horizontal, directional drilling, and pipe bursting) with all required appurtenances and fittings. Work includes cutting and plugging, roadway and roadside restoration, traffic control, tree protection, grouting of abandoned pipe, valve adjustment and removal, incidental video photography. 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

_____
Jane Castor, Mayor
(SEAL)

ATTEST:

_____
City Clerk

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

_____
Assistant City Attorney

Contractor

By:_____
(SEAL)

Title:

ATTEST:

_____
Witness

STATE OF)
) SS:
COUNTY OF)

For a Corporation:

STATE OF _____
COUNTY OF _____

The forgoing instrument was Sworn to (or affirmed) and subscribed before me by means of ☐ physical presence or ☐ online notarization, this_____ day of _____ , 2020 , by _____ as _____ of _____, a/n ☐ Partnership ☐ Joint Venture ☐ LLC ☐ Corp ☐ Other: _____, on behalf of such entity. Such individual is Personally Known OR Produced Identification. Type of Identification Produced _____.

[NOTARY SEAL]

_____
Notary Public, State of _____
Notary Printed Name: _____
Commission No.: _____
My Commission Expires: _____

For an Individual:

STATE OF _____
COUNTY OF _____

The forgoing instrument was Sworn to (or affirmed) and subscribed before me by means of ☐ physical presence or ☐ online notarization, this_____ day of _____ , 2020 ,
By _____, Such individual is Personally Known OR Produced Identification. Type of Identification Produced:_____.

[NOTARY SEAL]

_____
Notary Public, State of _____
Notary Printed Name: _____
Commission No.: _____
My Commission Expires: _____

For a Firm:

STATE OF _____
COUNTY OF _____

The forgoing instrument was Sworn to (or affirmed) and subscribed before me by means of ☐ physical presence or ☐ online notarization, this_____ day of _____ , 2020 , by _____ as _____ of _____, a/n ☐ Partnership ☐ Joint Venture ☐ LLC ☐ Corp ☐ Other: _____, on behalf of such entity. Such individual is Personally Known OR Produced Identification. Type of Identification Produced _____.

[NOTARY SEAL]

_____
Notary Public, State of _____
Notary Printed Name: _____
Commission No.: _____
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

_____
(Name of Surety)

_____
(Surety Address)

By _____
(As Attorney in Fact)*

_____
Telephone Number of Surety

Approved as to legal sufficiency:

By _____
Assistant City Attorney

Countersignature:

_____
(Name of Local Agency)

_____
(Address of Resident Agent)

By _____

Title _____

_____
Telephone Number of Local Agency

*(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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SPECIFIC PROVISIONS

S-1.01 GENERAL

The Specific Provisions are intended as modifications or supplements to Instructions to Bidders, General Provisions and Agreement.

The City of Tampa reserves the right to require the Contractor to change his "Contractor Superintendent" at any time.

S-2.01 DEFINITIONS

Add or amend the Definitions in Article 1.02 of the Agreement to these documents as follows:

"Department"

Add the following: "Whenever the word "Department" is used in the water portion of the Contract Documents, it shall mean the "City of Tampa Water Department".

"Owner" as it is referred to in the Water Specifications shall mean the City of Tampa Water Department.

"Red-line Drawing" refers to drawing maintained by the Contractor depicting changes (as constructed) from original plans.

"Construction Engineer" as it is referred to in the Water Specifications shall mean the Engineer designated by the City of Tampa's Contract Administration Department Construction Management section.

S-3.01 APPLICABLE CODES OR STANDARDS

When words that have a well known technical or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with such meaning.

When reference is made to codes or standards of organizations as outlined in Section G-4.03 of the General Provisions, it shall mean the latest revision thereof. However, no provision of any reference standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, Engineer or Contractor, or any of their agents or employees from those set forth in the Contract Documents.

S-4.01 LICENSES AND PERMITS

If not previously acquired by the Department, the Contractor must obtain at his own expense, all construction-related permits, licenses, or other legal authorization necessary for the execution of each project or work order issued by the Department. Where applicable (project work results in one acre or more of disturbed earth) the Contractor shall file a Notice of Intent (NOI) to access the generic NPDES permit administered by the Florida Department of Environmental Protection (FDEP). All document preparation, monitoring, reporting and other compliance with the NOI requirements shall be the responsibility of the Contractor and no separate payment shall be made.

The Contractor must comply with all regulations, building and construction codes as may be required by law. Copies of all permits must be kept at the job site during construction. The Contractor shall comply with all the terms and requirements of the permits and will be held liable for the violation of any and all such permits.

The City of Tampa shall provide any permit required by the Florida Department of Health for construction of public water mains.

The Contractor shall obtain a City of Tampa right-of-way permit. The Contractor shall provide traffic control plans to all right-of-way owners as required.

S-5.01 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 of 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.

S-6.01 ORDER AND TIME OF WORK

The work shall be coordinated with the Department and shall be prosecuted in the order it directs. This applies to both locations and items of construction. Where any of the work requires an interruption of water service or water plant operation, permission must be received from the Department and the work performed at times designated by it. The Contractor shall not be allowed to file claims for extra compensation of work prescribed by the Department. The Contractor shall make whatever arrangements are necessary and provide temporary lines and connections where designated by the Department.

S-7.01 LAYOUT DATA

The City will provide horizontal and vertical control or reference points for each project, if required. From these control or reference points, the Contractor will set construction layout stakes and/or offsets necessary to complete the required work. All work shall be subject to field changes as directed by the Engineer. Compensation for construction layout will be included in the price of the various respective pay items for pipeline installation. Prior to commencement of construction, the Contractor shall obtain the Engineer's acceptance of the layout. It shall be the Contractor's responsibility to protect said stakes and/or offsets until (in the opinion of the Engineer) they have served their designated purpose. If re-staking and/or re-offsetting are required, the cost of re-staking and/or re-offsetting will be at the Contractor's expense.

S-8.01 EXISTING UTILITIES

Any costs incurred as a result of damage to an "incorrectly" marked existing utility structure or appurtenances (except sanitary laterals – see S-14.01) are to be resolved with the owner of the damaged utility and are not the responsibility of the Water Department. "Incorrectly" marked (as defined in F.A.C. 556, the Underground Facility Damage Prevention and Safety Act) shall mean the hit location was more than 24" either side of the marking for 6" or smaller diameter pipe, or 24" outside of the marking (or double lines, if so marked) for pipes larger than 6" diameter.

S-9.01 DEFECTIVE MATERIALS

All pipe, fittings, valves, etc., except as otherwise defined in the Water Specifications for this project, shall be furnished by the Contractor, and it shall be the responsibility of the Contractor to examine each item to ensure that it is new, unused, and in first class condition. Should a defect be discovered after the item has been placed in the trench, the replacement will be at the Contractor's expense. It will further be required of the Contractor that materials be hauled in a safe and careful manner to avoid possible damage. Should any damage be done, the Contractor shall be fully responsible. Materials may be stored along the installation routes in a manner acceptable to the Department.

Any materials that are furnished by the Department to the Contractor shall be obtained at the Department's storage yard. The Contractor shall furnish all labor and equipment necessary to load, transport, and unload the materials in the manner directed by the Department.

Materials accepted by the Contractor must be signed for by his authorized representative. After acceptance, the Contractor will be held accountable and responsible for the materials. No materials will be issued or returned without a written directive from the Department.

S-10.01 TEMPORARY FACILITIES AND CONTROLS

A) Temporary Water Supply

In lieu of the requirements outlined in Article G-7.01 of the General Provisions, all reasonable amounts of water required by the Contractor for the water main testing and flushing under this agreement will be furnished by the City from the existing water system without cost to the Contractor. The Contractor shall request temporary hydrant meters with backflow prevention devices when connecting to existing water system hydrants. A security deposit for the meter is required. The deposit will be returned when the meter is returned by the Contractor. City Crews will install the meter with backflow-preventer on the hydrant. The Contractor shall make any necessary water supply connections at his own expense at a point designated by the City. These connections shall be maintained by the Contractor, who shall furnish all pipe, valves, and such other equipment necessary or required. Temporary piping may run above ground when there is no possibility of traffic, and it can be done safely. Otherwise, it must run underground and, in such manner, as to meet the approval of the City. No water shall be wasted.

At the discretion of the City, unnecessary waste of water after notification will be cause for use of water to be discontinued. After temporary lines have served their purpose, they shall be removed by the Contractor and all connections closed or plugged to the satisfaction of the City.

B) Temporary Sanitary Facilities

Necessary sanitary conveniences for the use of all employees shall be erected and maintained in a satisfactory and sanitary condition, per G-7.03. Upon completion of the work they shall be removed leaving the premises clean.

C) Temporary Traffic Control

The Contractor shall arrange his work in order to obstruct traffic as little as possible. Maintenance of traffic (MOT) shall conform to the requirements of Articles G-10.01 and 10.02 of the General Provisions and all requirements stated herein. All applicable Federal, State, Local regulations and permit conditions will be adhered to. All MOT plans require approval from the right-of-way regulatory agency.

To protect persons from injury and to avoid property damage, adequate barrier walls, barricades, construction signs, torches, flashers, and guards as required shall be placed and maintained during the progress of the construction work and until it is safe to use the construction area for its normal purposes. Whenever required, the Contractor shall provide a watchman to prevent accidents. Rules and regulations of Local, State and Federal authorities in regard to safety provisions shall be observed. In addition, the installation of all mains and appurtenances shall comply with all requirements of the Occupational Safety and Health Administration (OSHA). The safety of the public and the work crews must be considered at all times. Because of the numerous conditions that must be considered, special traffic control planning must be made for each area within the construction limits.

In the absence of other regulatory requirements, the traffic control devices, the arrangement or position of the devices and the distances of the devices must be in conformance with the policies, procedures and regulations of the regulatory authority in charge of the right-of way or Part VI of the Manual on Uniform Traffic Control Devices (MUTCD), as a minimum standard. In FDOT rights-of-way, the MUTCD, the "Standard Specifications for Road and Bridge Construction" and the "FDOT Roadway and Traffic Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System" shall be used. The Contractor shall not use fewer control devices, or reduce the signing, barricading or coning distances, to below these Minimum Standards. The Contractor is expected to expand or improve the installation whenever the need is indicated. Traffic movement through the work site is to be observed, and maintenance of all traffic control devices is expected during the construction period.

Prior to commencing work, the Contractor shall obtain permission from the appropriate Federal, State or local agency before construction starts and before making full or partial street closures, if such is allowed. When the appropriate agency requires plans for maintenance of traffic, the Contractor shall provide the necessary signed and sealed plans to the agency and to the Engineer. The Contractor shall be responsible for the re-routing of all traffic occasioned by the closure and will provide all necessary barricades, guards, signs, etc. If it becomes necessary to block vehicular or pedestrian access to private property, the Contractor shall prior to proceeding with the excavation, make arrangements acceptable with the owners or occupants and the Engineer.

S-11.01 STREET AND TRAFFIC SIGNS

Removal and relocation of all street or traffic signs shall be approved through the City of Tampa Department of Public Works Traffic Engineering Division, Hillsborough County Traffic, Florida Department of Transportation, City of Temple Terrace or other applicable permitting agency.

S-12.01 MAINTENANCE AND RESTORATION OF JOB SITE

The Contractor shall conduct his operations in such a manner that 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 as determined by the Engineer. All restoration must be performed to an equal or better condition than that which existed prior to construction.

Good housekeeping on this project is extremely important and the Contractor will be responsible for keeping the construction site neat and clean, with debris being removed daily as the work progresses or as otherwise directed by the Engineer. Good housekeeping at the job site shall include: removing all tools and temporary structures, dirt, rubbish, etc.; hauling all excess dirt, rock, etc. from excavations to a dump provided by the Contractor; and all clean-up shall be accomplished to the satisfaction of the Engineer. Immediately after construction is completed in an area or part thereof (including restoration), barricades, construction equipment and surplus and discarded materials shall be removed by the Contractor.

In the event that the timely clean-up and restoration of the job site is not accomplished to the satisfaction of the Engineer, the Engineer may make arrangements to effect the necessary clean-up by others. The Contractor shall be back-charged for these costs. If such action becomes necessary on the part of and in the opinion of the Engineer, the Department shall not be responsible for the inadvertent removal from the work site of materials which the Contractor would not normally have disposed of had he affected the required clean-up.

At the completion of each workday, the Contractor shall fill all open trenches and pits. Trenches and pits may remain open only if the Contractor has obtained permission from the appropriate permitting agency and all protection and warning devices are in place in working order.

The Contractor shall replace all open cut road pavements with a temporary compacted surface capable of supporting sustained vehicular loads as soon as possible once the trench or pit has been filled and compacted in 6-inch lifts. The temporary surface shall be maintained by the Contractor at the elevation of the adjacent road surfaces.

The Contractor is responsible for the security of all tools, materials and equipment required for this project and must make all arrangements for safeguards he may deem necessary. The City will assume no liability for any such security or losses resulting from lack of security.

S-13.01 CONTRACTOR'S SCHEDULE

The Contractor shall submit a weekly schedule to the Construction Engineer. The weekly schedule shall indicate his proposed water work plan for the forthcoming week. Such shall be delivered to the Contract Administration Dept., Construction Management Div. - Water, 3808 E. 26th Avenue, Tampa FL 33605 by noon of each Friday preceding the work plan week, unless other arrangements

have been made for this submittal.

S-14.01 WATER MAIN AND SANITARY HOUSE CONNECTION CONFLICTS

Where sanitary house laterals are damaged or broken due to water main construction, such laterals shall be restored by the Contractor according to the City of Tampa Sanitary Sewer Department's specifications and to the satisfaction of the Engineer. No extra compensation shall be paid for the work to replace sanitary laterals properly marked in the field and/or identified on the plans. For existing sanitary laterals "improperly" marked and not identified on the plans, work shall be paid at the contract unit price for sanitary laterals, and no additional compensation shall be paid for this work. Contractor has the burden of proof that the sanitary lateral was marked "improperly". Contractor shall cease work immediately upon hitting the sanitary lateral in order to mitigate the amount of damaged incurred.

S-15.01 LINES AND GRADES OF WATER MAIN INSTALLATION

In addition to requirements of Section 8 of the General Provisions, the Contractor is responsible for confirmation of the location of the pipe installation both horizontally and vertically where stated on the plans. These locations are indicated by station and offset. Any deviation from the plans shall be documented by confirmation of vertical and horizontal locations and approved by the Engineer.

All elevations shall be referenced to the following datum: NGVD88

Note: The Contractor is to use existing City as-built drawings cautiously as the drawings may have been prepared using the NGVD 29.

S-16.01 GRADES AND DRAINAGE AT STREET INTERSECTIONS

The Contractor shall pay careful attention to the proper reconstruction of the pavement adjacent to the gutters and at street intersections to obtain satisfactory drainage to the inlets from the intersecting streets. Prior to construction, the Contractor shall determine the flow of water along a street and document where standing water is present.

S-17.01 NOTICE AND 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 Department in writing), 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 such office.

All notices required to be delivered to the Department shall, unless otherwise specified in writing to the Contractor, be delivered to the Contract Administration Dept., Construction Management Div. - Water, 3808 E. 26th Avenue, Tampa FL 33605, and any notice to or demand upon the Department shall be sufficiently given as delivered to the office of the Engineer, 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 or to such other

representative of the Department or to such other address as the Department may subsequently specify in writing to the Contractor 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.

S-18.01 ENVIRONMENTAL PROTECTION

The Contractor will be held liable for the violation of any and all environmental regulations and permit conditions. Violation citations related to environmental regulations and permit conditions carry civil penalties and, in the event of willful violation, criminal penalties. The fact that the permits are issued to the City does not relieve the Contractor in any way of his environmental obligations and responsibilities.

The Contractor shall evaluate and assess the impact of any adverse effects on the natural environment which may result from construction operations and shall operate to minimize pollution of air, ground or surface waters and vegetation and afford the neighboring community the maximum protection during and upon completion of the construction. The Contractor shall comply with Article 14.01 of the General Provisions and submit a plan to the Engineer for review and acceptance prior to implementation of the plan. Such plan can be combined with other control plan submittals and shall address protective measures to be taken along the route during pipeline construction.

The Contractor shall take sufficient precautions to prevent pollution of streams, lakes, ponds and other water sources with fuels, oils, bitumen, calcium hypochlorite (HTH) or other harmful materials. He shall conduct and schedule his operations so as to avoid pollution or siltation of streams, lakes, etc., including the use of silt barriers, straw bales or other related control methods, as outlined in the FDOT Standard Specifications. Where there is a high potential for erosion, the Contractor shall not expose, by construction operations, a larger area of erosive land at any one time than the minimum necessary for efficient construction operations, and the duration of exposure of the uncompleted construction to the elements shall be as short as practicable. Erosion control features shall be constructed concurrently with other work and at the earliest practicable time.

S-19.01 USE OF PRIVATE PROPERTY

In accordance with Section 10, Paragraph G-10.07 of the General Provisions, all construction activities necessary to complete the project in accordance with the plans and specifications shall be confined to public rights-of-way, unless the Contractor makes specific arrangements with private property owners for his use of their property. The City assumes no responsibility for damage to private property in such instances. The Contractor is responsible for protection of private property abutting the work areas on this project.

S-20.01 STANDARD DETAILS

In addition to the various Water Details included in the plans, the current City of Tampa Water Department Standard Construction Details shall apply to this work, if applicable.

S-21.01 MAINTENANCE OF CONTINUOUS WATER SERVICE

At the conclusion of every workday, the Contractor is responsible for ensuring that all water

customers within his effective work area are in service. If a water customer contacts the Department to advise that they have no water service and it is determined to be within the Contractor's work area, the Contractor will be notified of the interrupted service through the Department dispatcher and/or Inspection Division. Upon notification, the Contractor must mobilize to the site and reinstate the customer's water service.

If the Contractor fails to mobilize his forces to make the repairs, the Department will mobilize its own forces to reinstate the customer's water services. In this event, the Contractor shall be charged a five hundred dollar ($500.00) flat rate fee plus actual direct department costs for labor, materials, and equipment used to reinstate the water service. The five hundred-dollar fee and Department cost will be charged for each additional service reinstated. The amount charged will be deducted from the Contractor's payment.

S-22.01 SHUTDOWNS

Unless otherwise approved by the Engineer in an emergency situation, scheduled shutdowns may only occur on Mondays, Tuesdays and Wednesdays. The Contractor shall notify the Engineer at least two weeks in advance of the need for a scheduled shutdown.

Where connections are made to the existing mains, or where other occurrences require a shutdown, the Contractor shall work with the City to perform the work necessary to complete the shutdown. The City will make every effort in advance to perform pre-valve shutdowns, but there are no guarantees as to whether or not all valves will properly seat in order to guarantee a complete shutdown. In the event of an emergency, the Contractor shall immediately notify the City.

At the Pre-Construction Meeting to be held with the Water Department (required) the Contractor will be notified of the policies and procedures to coordinate with the Water Department for shutdowns. Preliminary outline of these procedures is provided in the Water Technical Specifications for this project, in Sections T1.02A and T1.02B.

S-23.01 VALVE OPERATION ON NEW WATER MAINS

Valves operated on new mains that have been connected to the City of Tampa water distribution system in order to flush and clear lines are to be opened and closed very slowly. Damages to the existing water system due to Contractor(s) closing valves on the new main too quickly will be assessed to the Contractor.

S-24.01 AS-BUILT PLANS AND RECORD DRAWINGS

During construction records shall be kept of any changes or adjustments made in the work (red-line drawings) and of completed installations. All such changes and installations shall be incorporated into the Record Drawings as defined in this section. The City will provide the Contractor with the approved Contract Drawings in AutoCAD (.dwg) format) for Contractor use in developing Record Drawings.

Following completion of construction and testing, the Contractor shall submit the following as-built information to the Engineer:

1) CD containing the following "Record" drawing files:

   a) AutoCAD files:
      - One (1) AutoCAD 2017 or later DWG file with all associated XREFs, blocks, sheets, survey drawings, details, profiles, DWF underlays, raster images, data point files, point file format descriptors, TIN and FLT files.

   b) PDF files:
      - One (1) PDF file containing a complete set of Record Drawings for the Project. The PDF file shall include the entire project plan set, from cover sheet through the final details, saved at 24-inch by 36-inch, 300 DPI with bar scale.

      - One (1) color PDF of the Contractor's red lined mark-ups (As-built plan set).

2) Two (2) sets of rolled 24-inch by 36-inch blue or black line prints of the Record Drawings, all pages signed and dated in ink and sealed by a Florida registered Surveyor. (Digital sign-and-seal is acceptable.)

Record drawings shall include:

1) X-Y-Z coordinates [Easting (x), Northing (y), Elevation (z)] at the top of pipe and at finished grade for all types of fittings, to include bends, tees, reducers, sleeves, plugs, caps, taps, valves, hydrants, high and low points, etc.

2) Installed top of pipe (X-Y-Z coordinates) and finished grade elevations at a minimum of 100 feet intervals along the water pipeline.

All horizontal and vertical data shall be accurate to 5/100ths of a foot. Record Drawings shall be geo-referenced to the Florida State Plane Coordinate System, Traverse Mercator, West Zone of 1983 in feet (NAD 83-90 FT). All vertical elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88).

Contractors electing to use RTK GPS for field data collection are encouraged to tie into the Florida Permanent Reference Network maintained by the Florida Department of Transportation. Registration is required and all appropriate access information is available on the FPRN website.

All drawing revisions shall be consistent in style, color, line weight, font, symbol, and layer with the original construction documents. No additional colors, fonts, line weights, or block symbols shall be accepted.

Record drawings must reflect all changes to the approved construction plans. They must be a "clean" set of drawings, free from cross-outs, clouds, and other free-hand notations, delineating only the actual, installed condition of the project. The completed Record Drawings shall have the look and appearance of the original construction plans, meeting the standards set forth in approved drawing files provided to the Contractor.

Record Drawings shall include the following information:

a) Offsets from edge of pavement and right-of-way to pipelines shall be shown at not greater than 100 feet intervals.

b) Location of casing pipe, concrete encasement, and sheeting by X-Y-Z coordinate. Include size (diameter), length, material type and wall thickness of casing.

c) Grade elevations.

d) Datum information.

e) Record changes in alignment or elevation of other utilities due to construction. Record all found utilities not shown on approved construction plans.

f) Installed pipe diameter, material type, and AWWA/ASTM/ANSI classification.

g) If abandonment of existing facilities is directed (and/or approved by the Engineer) provide size, type, depth, location, and limits (XYZ coordinates) of any abandoned pipe. Also include the method of abandonment (i.e., grout filled, etc.).

h) Cross-sectional details shall be provided where utilities cross.

The Contractor shall comply with the above requirements and shall submit one check print set of the plans at the same scale as the construction plans, and all the supporting survey data files, to the Engineer for review within three weeks of substantial completion of the project. Final payment for the project shall not be made until the As-Built information is received for review, any corrections are made, and approval granted by the Engineer. Upon approval, the Contractor shall provide the final As-Built submittals outlined in this section.

S-25.01 GUARANTEES, WARRANTIES, BONDS

The Contractor, together with his Surety, shall guarantee all the work furnished under the Agreement for a period of one full year from the date of final acceptance, as outlined in Article 6.04 of the Agreement, or within such longer period of time as may be prescribed by law, or by special guarantee or provision of the Contract Documents. Under this guarantee, the Contractor agrees to make good without delay, at his own expense, any failure of any part of the work due to faulty materials or manufacture, or the failure of any equipment furnished to perform satisfactorily all the work within the limits of the Agreement. He will also make good any damage caused by such failure. Any such repair work shall receive a similar guarantee for a similar period of time. This guarantee shall be exclusive of manufacturer's guarantees or warranties exceeding this period.

S-26.01 PROJECT SIGNAGE

The Contractor shall furnish one project signs as shown on the detail included herein and install it in the construction area as directed by the Engineer within five (5) days of the Notice to Proceed date.

S-27.01 CONTRACTOR’S PRESENCE

The Contractor or his authorized representative shall be present at the job site at all times while the work is in progress. Contractor shall make readily accessible copies of both the Contract Documents and the latest approved working drawings at the job site.

S-28.01 TREE REMOVAL

The Contractor shall be extremely careful and make all efforts to preserve existing trees, plants, and shrubs within the construction area.

The Contractor is responsible to protect all trees (public and private) within the vicinity of proposed construction in accordance with Chapter 13 of the City of Tampa code, and standards therein. Excavation within the protective radius of trees requires root pruning with the appropriate equipment to assure roots are severed clean at the approved radius. Excavations shall not be performed in tree root zones without cutting roots cleanly -- cutting roots via backhoe blade is unacceptable. Branch pruning must be approved by the City of Tampa Planning and Development Department, Natural Resource Section, and if authorized shall be completed by a certified arborist, and in compliance with ANSI A-300 tree trimming standards.

Any existing trees, plants, and shrubs to be removed shall be with the prior approval of the Engineer and in accordance with City of Tampa Landscape Ordinance No. 89-262, latest edition, or the requirements of the local agency responsible for overseeing those activities.

WATER MATERIALS SPECIFICATIONS

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 potable water shall be listed by the National Science 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 designated to be "domestically assembled" may be foreign-manufactured but shall be 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 or 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 City of Tampa Water Department (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 Department, are inferior or are lower grade than indicated, specified or required, shall not be accepted. All materials used in this contract must be approved in advance by the Engineer. In conformance with section G-4.02 of these contract documents, any two items of the same kind, type or classification, and being used for identical types of service, shall be made by the same manufacturer. Unless approved in advance by the engineer, only one manufacturer may be used for each item under this contract.

POLYETHYLENE ENCASEMENT

1. GENERAL

Polyethylene encasement shall conform to the requirements of ANSI/AWWA C-105/A21.5 Method A and shall be 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 < 10% of nominal)
Melt Index	0.4 maximum

3. QUALITY CONTROL AND TESTING

When submitting for approval polyethylene not listed in Section 4, manufacturer shall include drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the polyethylene may be rejected at the sole option of the City.

4. MANUFACTURER

All polyethylene encasement shall be domestically manufactured.

TRANSITION COUPLING

1. GENERAL

Transition coupling shall be used to connect two plain end pipes of equal or slightly different outside diameters. Transition coupling shall also be used to connect different types of pipe. The transition coupling shall operate by placing two plain ends of pipe inside a rigid sleeve, and drawing in two compression glands upon two un-cut full circle gaskets to produce a seal between the ends of the rigid sleeve and the adjacent outside wall of the existing pipe.

2. PRODUCT

a. Transition coupling shall be composed of three parts: rigid sleeve, compression glands, and gaskets.

b. The rigid sleeve shall be manufactured of ferrous material that is protected against corrosion by epoxy coating or approved method during the working life of the fitting. The rigid sleeve shall be the "long-body" type.

c. The compression gland shall be manufactured of ferrous material that is protected against corrosion during the working life of the fitting by epoxy coating or approved method. The glands shall be drawn in mechanically by bolts and nuts made of high-strength, low-alloy steel such as "Corten", "Usalloy", or "ACIPalloy".

d. The gasket shall be EPDM. The gasket shall be resistant to permanent set during the working life of the fitting.

e. Transition coupling for nominal size pipe of 2-inch shall be capable of connecting McWane enamel cast iron pipe to 2-inch PVC, SDR 21, pipe. Working pressure ratings shall be:

Type of Pipe	Size (in.)	Rated Pressure	O.D.
McWane Cast Iron	2	200	2.50
McWane Cast Iron	2.25	200	2.75
PVC (SDR 21)	2	200	2.38

The transition coupling shall be manufactured to meet these stated diameters.

f. Transition coupling for nominal size pipe, 3-inch and greater, shall be capable of joining standard ductile iron pipe to pit cast iron pipe Class C-D, Asbestos-Cement pipe, PVC sch 40, PVC sch 80, or PVC pressure rated pipe. Transition coupling shall join different diameter pipes by the following means:

1) by a coupling designed for stated diameters,

2) by a coupling designed with a variable range using a compressible gasket,

3) by a coupling with a variable range using different gaskets,

4) or a coupling using any combination of described designs.

3. QUALITY CONTROL AND TESTING

When submitting for approval transition coupling not listed in Section 4, manufacturer include drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the transition coupling may be rejected at the sole option of the City.

4. MANUFACTURER

Transition coupling for nominal size pipe 2 to 3 inches shall be Baker 200, Ford FCI/2/3, Dresser 38/138/40, JCM 212, Rockwell 411/413/431/441/433, ROMAC 602 Viking Johnson, or approved equal.

Transition coupling for nominal size pipe 3-inches and greater shall be Baker 200/204/213, Ford FCI/2/3, Dresser 38/138/40/162, Rockwell 411/413/431/433/441, JCM 212, Mueller H1020, ROMAC 501/602 Viking Johnson, or approved equal.

BRASS FITTINGS

1. GENERAL

All brass fittings for service lines shall be included under this specification. Brass fittings include any and all required 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 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.

d. 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.).

e. All brass fittings shall be made of a "No-Lead Brass", defined for this specification as brass alloy containing not more than one fourth of one percent (0.25% or less) total lead when used with respect to the wetted surfaces of the fitting, as defined by NSF/ANSI 61, Annex G and Annex F.

f. All brass fittings shall be integrally stamped or cast with the manufacturer's name and a marking or trademark identifying that the fitting contains a "no lead" brass alloy (as defined herein), e.g., 'NL', 'EB2', or 'FED', etc.

g. Manufacturer shall provide a copy of a letter from NSF International (on NSF letterhead) documenting compliance with NSF/ANSI 61 Annex F.

h. All curb stops/meter valves shall be full-port and have a flow passage area equivalent to the fitting outlet flow area.

i. Curb stops shall be of the ball valve design with a full-port opening ball no less than ¾-inch. 1-inch and larger curb stops shall be provided with padlock wings cast on stop body and operating tee cap to provide for locking the stop in closed position. ¾-inch curb stops shall be provided without padlock wings. Curb stops for use with copper or plastic service shall have an inlet connection with a pack joint compression nut (w/set screw) and an outlet connection with female iron pipe thread (FIP), as manufactured by:

Ford Meter Box Company (FMBC) [B41 for ¾-inch; B41W for ≥1-inch];
Mueller [P-25170N]; A.Y. McDonald [6102 for ¾-inch; 6102W-22 for ≥1-inch], or approved equal.

Curb stops with Inside Iron Pipe Thread (FIP) inlet connections and an Inside Iron Pipe Thread outlet connections shall be:

FBMC [B11 for ¾-inch; B11W for ≥1-inch]; Mueller [B-20200];
A.Y. McDonald [6101W], or approved equal.

j. Meter valves shall be of the ball valve design with a full-port opening ball no less than 3/4-inch. 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. Meter valves for use with copper or plastic service shall have an inlet connection with a compression joint and a swivel nut outlet connection.

Angle meter valve:
FBMC BA43W, Mueller P-24258N, A.Y. McDonald 4602B-22, or approved equal;

Straight meter valve:
FBMC B43W, Mueller P-24350N, A.Y. McDonald 6100MW-22, or approved equal.

Straight meter valves with Inside Iron Pipe Thread inlet (FIP) and a Meter Swivel Nut outlet connection shall be: FMBC B13W; Mueller B-24351N; A.Y. McDonald 6101MW, or approved equal.

k. Corporation stops shall be of the ball valve design. Corporation stop inlet connection shall be the AWWA Taper thread. The outlet connection shall be CTS pack-joint for copper or plastic tubing. Corporation stops for sizes 3/4" – 2" shall be: FMBC FB-1000, A.Y. McDonald 4701B-22, Mueller P-25008N, or approved equal.

l. Meter re-setters 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. Meter re-setters shall be FMBC VB40 Series, Mueller B-24118R, A.Y. McDonald Series 18, or approved equal.

m. Branch connections shall be brass construction with copper compression joint inlet and male iron pipe size outlets, as manufactured by FMBC U48, Mueller P-15363N, A.Y. McDonald 08U2M, or approved equal.

3. MANUFACTURER

Brass fittings shall be domestically manufactured by Mueller Company, Ford Meter Box Company, A.Y. McDonald Mfg. Company, or approved equal.

THREADED BRASS FITTINGS

1. GENERAL

Threaded brass fittings provided under this specification shall be manufactured in accordance with specifications stated herein.

2. PRODUCT

a. Threaded brass fittings ("Fittings") provided shall be manufactured in accordance with ANSI B16.15., 125 lb.

b. Fittings shall be of material conforming to ASTM B62 or B584.

c. Threads on all fittings shall be N.P.T. in conformance with ANSI B1.20.3, right hand and shall be smooth, clean and true to form.

d. Fittings shall be legibly cast or dye stamped such that the manufacturer's name, initial or other mark can be easily identified.

e. 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.

f. 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.).

g. All brass fittings shall be made of a “No-Lead Brass”, defined for this specification as brass alloy containing not more than one fourth of one percent (0.25% or less) total lead when used with respect to the wetted surfaces of the fitting, as defined by NSF/ANSI 61, Annex G and Annex F.

h. All brass fittings shall be integrally stamped or cast with the manufacturer's name and a marking or trademark identifying that the fitting contains a “no lead” brass alloy (as defined herein), e.g., ‘NL’, ‘EB2’, or ‘FED’, etc.

i. Manufacturer shall provide a copy of a letter from NSF International (on NSF letterhead) documenting compliance with NSF/ANSI 61 Annex F.

3. QUALITY CONTROL AND TESTING

Certification of the aforementioned standards must be available and provided, if requested by the City of Tampa. If requested, an Affidavit of Compliance to these standards and specifications shall be signed and submitted by an officer of the manufacturing firm.

4. **MANUFACTURER**

None specified.

SERVICE SADDLES – (FOR SERVICE LINE CONNECTION)

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 Fahrenheit 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. QUALITY CONTROL AND TESTING

When submitting for approval of a service saddle not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the service saddle may be rejected at the sole option of the City.

4. MANUFACTURER

Service saddles for 2-inch or less pipe and 3-inch or greater pipe shall be as follows:

2-inch or less:

Clow 3401	Ford 570/590	JCM 401/402/403/405 (DI)
Jones J-995	Rockwell 313/317	Ford FS-/ FC-202; F101/202
Smith Blair 311		Mueller H-13420/10475-76

3-inch or greater:

Cascade C-S22/CDS2/CNS2/CSC2	Mueller H-105XX series
Rockwell 313 (DI) /317/323	Clow 3408/3410
JCM 402 cortin strap (for DIP)	Smith Blair 311
Ford FS- or FC-202 series	JCM 406 (for PVC)

or approved equal.

BLOW-OFF ASSEMBLY

1.0 GENERAL

Blow-off assemblies shall be used to remove sediments and stagnant water from non-looping or "dead-end" water lines.

2.0 PRODUCT

2.1 GENERAL

a. There are two approved Std. Construction Details for blow-off assemblies - one for four-inch and larger pipe, the second for two-inch pipe.

b. The Contractor shall furnish all parts for the complete assembly, including but not necessarily limited to gate valves, hydrant adapters, meter boxes, valve boxes, caps or plugs on the water main, a cap on the hydrant adapter, one MJ restraining device or MJ adapter for the cap or plug on the main and all related appurtenances.

c. The outlet shall have 2-1/2-inch fire hydrant threads and a cap.

2.2 BLOW-OFF ASSEMBLY for 4-INCH AND LARGER PIPE

a. Blow-off assembly shall connect to the end of the existing pipe through a tapped plug or cap. A two-inch corporation shall be threaded into the tapped cap/plug. Two-inch HDPE tube shall run from the two-inch corporation to a two-inch gate valve.

b. The gate valve shall have a standard operating nut and have a standard valve box, brought to grade in conformance with the appropriate standard detail.

c. Two-inch HDPE tubing shall run from the gate valve and terminate in 2-1/2-inch NST by 2-inch MIP brass hydrant adapter. The adapter shall have a threaded cap and shall be placed in a #37 meter box, set to grade.

3. QUALITY CONTROL AND TESTING

The installation shall conform to the appropriate Standard Detail.

WATER METER BOXES & COVERS

1. GENERAL

Water meter boxes ("Meter Boxes") and covers ("Covers) shall be manufactured in accordance with these specifications.

Covers provided shall be designed to withstand incidental loading or heavy traffic ("extra-heavy") loading as specified herein.

Meter boxes and covers provided shall be in accordance with City of Tampa Water Department "Standard Details" for meter boxes (see Details 5.10A, 5.11A, 5.12A & 5.13).

Meter boxes and covers provided for potable water service shall be black in color and meet loading requirements as specified herein.

Meter boxes and covers provided for reclaimed water (RCW) service shall be colored Pantone purple. Covers for RCW meter boxes shall include "NO BEBER", and the universal symbol for DO NOT DRINK (the glass with a line (or "x") through it).

2. PRODUCT

2.1 Meter Boxes

Meter boxes shall be LLD- or HD-polyethylene of one-piece molded construction, with dimensions as shown in the referenced drawings. The boxes shall be designed to meet the requirements for AASHTO Incidental Traffic H-10 loading.

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 (except reclaimed water meter boxes shall be purple). Interior wall shall be of smooth finish and black or white color (except reclaimed water meter boxes shall be purple).

Meter boxes shall not exceed 25 lbs. in weight, shall have pre-cut pipe entry areas, and be designed to be securely stackable.

Meter boxes shall be dimensioned to accommodate meter box covers as specified below.

2.2 Meter Box Covers shall:

i. be made of modified polyethylene or bulk molded compound composite material to prevent floating in high water conditions;

ii. be one-piece molded construction, with dimensions and lettering as shown in the referenced meter box Std. Detail drawings;

iii. be designed to meet the requirements for AASHTO Incidental Traffic H-10 loading;

iv be "anti-float", demonstrated by having a specific gravity >1.0 gm/cm^3 (ASTM D792).

v. include snap-lock pockets (slide mounts) on the underside to receive an AMR/AMI device endpoint. Snap-lock slot shall be of size sufficient to allow for a finger force install of an AMI transmitter, and pocket height shall be sufficient to allow a minimum 1/8" air gap.

vi, include minimum #3 rebar or other tested and proven means of enabling magnetic location of the cover when it is buried.

vii. be sized to fit the appropriate Brooks Products, Inc., Orlando, Florida concrete meter boxes, numbers 36, 37, 66 and Dual H:

Description	**¾" Dual**	**¾" or 1" Single**	**1½"-2" Single**	**Dual w/BFP**
Meter Box Type	**Dual H**	**#37**	**#66**	**13 x 24**
Meter Box	16-9/16" x 14-	18-1/8" x 11-	30-1/2" x 17-1/2"	13 ¾" x 23 ¼"

Composite covers shall have a minimum coefficient of friction of >0.5 (ASTM 1028), to prevent pedestrian slip hazard. Polyethylene covers shall have a molded tread-pattern for skid resistance.

"Extra-heavy" covers provided shall be designed to meet the requirements for AASHTO Full Traffic H-20 loading.

3. MANUFACTURER

Water meter boxes and meter box covers provided shall be equal to or better than:

Meter Boxes:
DFW Plastics, models:
DFW37C-12-BODY; DFW39C-12-BODY;
DFW1730CH-12-BODY; DFW 1324C-12-BODY
(for RCW boxes, insert a 5 after the "C "or "CH" in the model name)

Oldcastle Enclosure Solutions, models:
1015-12 BCFXL (#36); 1118-12 BCFXL (#37); 1416-12 BCFXL (Dual);
1730-12 BCFXL (#66); 1324-12 BCFXL (Dual Meter & w/BFPs).

Meter Box Covers:
DFW Plastics, models:
DFW37C-AF1EA TPA-LID; DFW39C-AF1EATPA-LID;
DFW1730C-AF1EA TPA LID; DFW1324C-AF1EA TPA-LID

(for DFW RCW covers, change the 1 to a 5 in the model name)

Oldcastle Enclosure Solutions "Fibrelyte", models:
FL9X (36), FL12 (37), FL1416 (Dual), FL36 (66), FL30 (Dual BFP)

RESTRAINT DEVICES
(for Push-on-, Mechanical-, and Flanged Joint Pipe and Fittings)

1. GENERAL

Mechanical restraint devices shall be used to restrain plain ends of ductile iron, PVC or HDPE pipe to push-on, mechanical, or flange joints, or fittings which meet ANSI/AWWA C-110/A21.10 and ANSI/AWWA C-111/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 (the lug) which, when activated, imparts multiple wedging actions against the pipe, thereby increasing its restraint on the pipe as the joint tries to separate. "Twist-off nuts" shall be used to ensure proper actuating of the restraining device.

Restraint devices used with PVC pipe shall be those designed for (and recommended by the pipe manufacturer) for use on PVC pipe. PVC restraining devices shall meet or exceed all requirements

of ASTM F1674 "Standard Test Method for Joint Restraint Products for Use with PVC Pipe".

When mechanical restraint devices are used for connecting plain ends of HDPE pipe to mechanical joint fittings and valves, manufacturer recommended stainless steel inserts are required.

2. PRODUCT

a. Push-on Joint Restraint

Restraint of push-on joint ductile iron pipe may be with "locking" or "gripper" gaskets, consisting of an EPDM rubber gasket with high-strength stainless steel locking elements vulcanized into the gasket, which when activated develop wedging action between the pairs of stainless steel elements spaced around the gasket and the pipe.

b. Flange Joint Restraint

Flange joint restraint fittings shall include 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 (or C-153/A21.53) and 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

The wedge action follower glands shall be manufactured of ductile iron conforming to ASTM A536-80. The wedging lug and bolt shall be manufactured of ductile iron which has been heat-treated to a minimum hardness of 370 BHN.

Wedge action glands shall be dimensioned such that they can be used with standard mechanical joints and have tee-head bolts conforming to ANSI/AWWA C-111/A21.11 and ANSI/AWWA C-153/A21.53, latest revision.

d. Existing Pipe Joint Restraint

(1) Split-restraint fittings for mechanical joints on existing pipe installations shall be manufactured in accordance with these technical specifications; however, split-restraint fittings shall be segmented to allow restraint of existing ductile iron mechanical joints meeting AWWA C111.

(2) Split-restraint fittings for existing pipe bell-and-spigot joints shall consist of split restraint rings, one installed on the pipe barrel behind the bell. Restraint devices shall be ductile iron per ASTM A536, latest revision, min. Grade 60-42-12. Threaded rods shall be high strength low-alloy steel per AWWA C111, latest revision.

e. Coatings

(1) Flange Adapters shall be provided with painted "shop coat" or approved equal.

(2) Retainer glands shall be provided with a bituminous coat.

(3) Existing pipe push-on joint 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 -	4" - 16"	min. 350 psi
	>16"	min. 250 psi
Flanged Joint -	4" - 36"	min. 250 psi

4. MANUFACTURER

a. Ductile iron pipe push-on joint restraint devices shall be U.S. Pipe "Field-Lok" Gasket, American "Fast-Grip" Gasket, or approved equal.

b. Ductile iron pipe flange joint restraint devices shall be approved, equal to, or better than 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 pipe mechanical joints shall be equal to or better than EBAA Iron "Megalug, Series 1100", Tyler/Union TUF Grip TLD, Sigma One-Lok Model SLD (4" to 36") or approved equal.

d. Split, wedge-action restraints devices for restraint of existing ductile iron pipe and fitting joints shall be EBAA Iron "Megalug, Series 1100-SD, or -HD", or approved equal.

e. Restraint of PVC pipe bell-and-spigot joints shall be made with Uniflange 1350C; Uniflange 1390C; Megalug 1600; Sigma PV-Lok Series PVP; or approved equal.

f. Restraint of PVC pipe spigot-end to the mechanical joint of fittings or valves shall be made with the Megalug 2000PV; Tyler/Union TUF Grip TLP; Uniflange 1300C; Sigma One-Lok Models SLC or PVM; or approved equal.

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. All pipe materials used in potable water systems shall comply with NSF Standard 61. Unrestrained joint pipe shall be either the rubber-ring compression-type push-on joint or mechanical joint.

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 monomer (EPDM) rubber, except: Acrylonitrile butadiene (NBR) gaskets shall be used for potable water mains that are located in soil that is contaminated with low molecular-weight petroleum products or non-chlorinated organic solvents or non-aromatic organic solvents. Fluorocarbon (FKM) gaskets shall be used for potable water mains that are located in soil that is contaminated with aromatic hydrocarbons or chlorinated hydrocarbons. Fluorocarbon (FKM) gaskets shall be used for potable water mains if the soil is contaminated with aromatic hydrocarbons or chlorinated hydrocarbons, and is also contaminated with low molecular-weight petroleum products or organic solvents. 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” to 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 of high-strength, low-alloy steel such as "Corten", "Usalloy", or "Acipalloy". 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

c. Flexible Joint Pipe

- Flexible-joint pipe shall be push-on, ball-and-socket, freely deflecting, and restrained using a corrosion resistant locking device. Thickness class shall be as follows:

Diameter	Min. Thickness Class
6”	54
Diameter	**Min. Thickness Class**
8”	55
12”	56
16”	57

The joint shall be capable of a full 15^{o} free deflection with no reduction in the waterway.

d. Manufactured Restrained Joint Pipe

- Joints shall be push-on in accordance with ANSI/AWWA C-111/A21.11. Joints shall be secured by wedged locking shims or a follower gland which shoulder against a retaining ring permanently fastened to the spigot end of the pipe within the joint. Gaskets for manufactured restrained pipe joints shall be made of EPDM rubber.

- Pressure Class shall be as follows:

Diameter	Min. Pressure Class
4”’ - 16"	350
> 16"	250

3. QUALITY CONTROL AND TESTING

a. All pipe shall meet or exceed all hydrostatic, performance and acceptance tests as set forth in ANSI/AWWA C-151/A21.51, latest revision.

b. When submitting for approval of ductile iron pipe not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, pressure class or thickness class, performance standards, etc. If this documentation is omitted, the ductile iron pipe may be rejected at the sole option of the City.

4. MANUFACTURER

a. All ductile iron pipe, unless specified below, shall be by U.S Pipe, American Cast Iron Pipe Company, McWane Cast Iron Pipe Company, Griffin Pipe Products Company, or approved equal.

b. Flexible Joint pipe shall be American Ductile Iron “Flex-Lok Boltless Ball Joint Pipe", U.S. Pipe “USI FLEX Boltless Flexible Joint Pipe", Griffin Pipe Products “Snap-Lok River Crossing Pipe”, or approved equal.

c. Manufactured Restrained Joint pipe shall be American Ductile Iron “Flexring", U.S. Pipe “TR-Flex", McWane Cast Iron Pipe Company “Super-Lock" (20” & 24” pipe) and “Thrust-Lock” (30” &36”), Griffin Pipe Products “Snap-Lok”, or approved equal.

d. All ductile iron pipe shall be domestically manufactured in the United States.

PVC PIPE for DIRECTIONAL DRILL

1. GENERAL

PVC potable water mains installed via HDD methods shall be Certa-Lok® C900 Restrained Joint Integral Bell (RJIB) pipe as manufactured by North American Pipe Corporation.

All PVC pressure pipe shall be manufactured in accordance with AWWA Standard C-900, latest revision.

2. PRODUCT

a. Pipe - PVC pipe shall be DR-18 (minimum) pressure class 235 with ductile iron pipe equivalent ODs. The pipe shall be approved by the National Sanitation Foundation for use as a potable water main. Pipe color shall be blue and the nominal laying length per pipe section shall be 20-ft.

Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

Each length of pipe shall be hydrostatically tested to four (4) times its class pressure by the manufacturer in accordance with AWWA C900. PVC pipe material shall meet the requirements of ASTM D1784, manufactured from compounds with minimum cell classification 12454. Restrained joint PVC pipe shall be furnished with push-on integral bell type restrained joints meeting requirements of ASTM D313,9 and shall be supplied with elastomeric gaskets installed meeting the requirements of ASTM F477.

b. Joints - Joints shall be "push-on" and shall be made by joining pipe spigot end and integral wall-thickened bell end. All gaskets shall be made of EDPM rubber.

c. Restrained Couplings – Certa-Lok PVC pipe installed by HDD shall have restrained joints via integral bell design. However, use of Certa-Lok restrained couplings is acceptable where necessary for end connections, or as approved by the Engineer. All restrained couplings shall

be furnished in DR-14.

Each joint and/or coupling shall be restrained utilizing precision-machined grooves on the pipe and in the bell or coupling which, when aligned, allow a high-strength flexible plastic spline to be inserted, resulting in a fully circumferential restrained joint that locks the pipe and/or coupling together. A flexible elastomeric seal (O-ring) in the bell and/or coupling provides a hydraulic pressure seal. Pipe and couplings shall be designed as an integral system and shall be provided by a single manufacturer for maximum reliability and interchangeability.

No external pipe-to-pipe restraining devices that clamp onto or otherwise damage the pipe surface as a result of point-loading shall be permitted to join pipes. Couplings shall be designed as minimum for use at the rated pressures of the pipe with which they are utilized, and shall incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F477. Assembled joints shall meet the leakage test requirements of ASTM D3139. Allowable axial jacking loads shall be supplied by the manufacturer. The Engineer and Contractor shall utilize appropriate instrumentation to insure that these loads are never exceeded. Coupling edges shall be beveled to reduce drag force when pipe is installed by HDD.

d. Service Taps- All service taps on PVC mains shall require a service saddle, manufactured specifically for PVC pipe, equal to or better than Ford FS- or FC-202, or JCM 406. The cutting tool shall be a shell type for PVC pipe (hole) cutter with internal teeth or double slots and be designed to accommodate AWWA C-900 pipe (twist drill bits and auger bits shall be prohibited). The saddles used should provide full support around the circumference of the pipe and provide a bearing area of sufficient width along the axis of the pipe (2" minimum), ensuring that the pipe will not be distorted when the saddle is tightened.

e. All PVC pipe shall be installed with tracer wire, per the Tracer Wire specifications.

3. MANUFACTURER

Restrained joint PVC pipe shall be equal to or better than North American Pipe Corporation's Certa-Lok C900 RJIB PVC pipe.

LOCATING (TRACER) WIRE

1. GENERAL

All tracer wire installed shall be insulated, blue coated, solid UF (Underground Feeder per National Electric Code Article 339) copper tracer wires for water main location purposes by means of an electronic line tracer.

2. PRODUCT

Tracer wire for direct bury installations shall be approved insulated copper clad steel (CCS) wire. Wire insulation shall be minimum 30 mil high-density, high molecular weight polyethylene (HDPE) colored to meet the APWA color code standard for identification of buried utilities. Conductor must be at 21% minimum conductivity for locate purposes, and be able to withstand a minimum 450 lb. break load.

Wire splices must be with wire connectors suitable for buried service (be corrosion- and moisture-proof) such as the
Sizes (gauges) for direct bury pipe tracer wire shall be as follows:
16-in. and larger ductile iron pipe: **10 AWG**
PVC pipe: **12 AWG**
Long-side meter service line (direct bury and directional drilled): **12 AWG**

Tracer wire for directional drilled or bored-in pipe shall be approved insulated **10 AWG** copper clad steel wire insulated with 45 mil, high-density, high molecular weight polyethylene (HDPE), and rated for direct burial use at 30 volts minimum. Conductor must be at 21% minimum conductivity for locate purposes, and be able to withstand a minimum 1150 lb. break load.

Tracer wire for Pipe Bursting shall be approved insulated copper clad steel wire, insulated with a 50 mil, high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts minimum. Conductor must be at 21% minimum conductivity for locate purposes, and be able to withstand a minimum 4700 lb. break load.

3. MANUFACTURER

Tracer wire shall be:
for direct bury pipe:
Copperhead High Strength Tracer Wire, or
Pro-Trace HF-CCS PE45 Tracer Wire
for directional drilled pipe:
Copperhead SoloShot™ extra-high-strength copper-clad steel (EHS-CCS
for pipe bursting:
Copperhead Industries SoloShot™ *Xtreme,* 7x7 stranded Copper Clad Steel
Wire splices for tracer wire:
DBR Kit (by 3M), Snakebite (by Copperhead Industries),

or approved equal.

HDPE TUBING

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 4710, 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 PE 454474 E 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

a. Environmental stress cracking resistance testing shall be performed in accordance with ASTM D1693, Condition C, and shall have no failures after 5000 hours duration.

b. When submitting for approval of HDPE not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the HDPE may be rejected at the sole option of the City.

4. MANUFACTURER

All HDPE tubing shall be manufactured by Performance Pipes "DriscoPlex", Endot EndoPure", Vanguard "Bruiser", Charter Plastics "Blue Ice" or approved equal.

GATE AND TAPPING VALVES, RESILIENT SEAT

1. GENERAL

All gate valves shall conform to AWWA C-509 or AWWA C-515 and requirements contained herein.

2. PRODUCT

AWWA C-509 VALVES (Cast Iron or Ductile Iron) and AWWA C-515 (Ductile Iron)

a. General

1) Resilient Seat Gate Vales ("Valves") provided under this specification shall be suitable for installation on ductile iron or cast iron pipe, and C-900 PVC. Valves shall be manufactured in accordance with AWWA C-509 or AWWA C-515, latest editions, as applicable, and as specified herein.

2) "Standard valves" shall refer to resilient seat gate valves with mechanical joints at both ends meeting specifications stated herein.

3) "Tapping valves" shall refer to resilient seat gate valves with one end mechanical joint, and one end flanged, meeting specifications stated herein.

4) Resilient seats for valves shall be made of EPDM rubber.

5) Mechanical joint gaskets shall be made of EPDM rubber.

b. Standard and Tapping Valves

1) Valves shall be of the non-rising stem type that shall open by turning a two-inch square AWWA operating nut clockwise (open right).

2) Valve stems shall be stainless steel and manufactured in accordance with AWWA C-509/C-515. Stems, stem-nuts and wedges shall act independently. Stems shall be sealed by at least two O-ring seals, one located both above and below the thrust collar. Stems shall be provided with low friction torque reducing thrust bearings. Thrust washers may be used to separate the thrust collar from iron surfaces.

3) Valve bodies and gates shall be cast iron or ductile iron manufactured in accordance with ASTM A126 or ASTM A536 respectively, and AWWA C-509 or AWWA C-515 as applicable, latest revisions. All internal and external exposed ferrous surfaces of the valve body and gate shall have an epoxy coating applied to a minimum of eight mils, in accordance with AWWA C-550 latest edition. Non-metallic resilient seats shall be bonded to the gate; mechanically attached seats will not be accepted. The method of bonding shall be approved by ASTM D429 A or B as specified in AWWA C-509/C-515. Hollow gates shall be provided with a drain in the bottom to flush the internal cavity of foreign material and stagnant water each time the valve is operated.

4) All bonnet bolts, gland bolts, nuts and other trim hardware exposed to the outside environment

shall be stainless. Thrust collar tie-rod bolts shall be stainless steel.

5) Mechanical joints and accessories shall be manufactured in accordance with AWWA Standard C110 and C111, latest revision, with exceptions noted herein. Mechanical joint bolts-and-nuts shall be manufactured of high-strength, low-alloy steel such as "Corten", "USalloy", or "ACIPalloy". Joints requiring a shorter bolt than called for in AWWA Standard C111 shall be supplied as required. Mechanical joint gaskets shall be made of EPDM rubber.

c. Tapping Valves

1) Tapping valve interior waterway shall be a full-opening and capable of passing a full-sized shell cutter through the valve. Tapping valve shall be provided with a tapping-flange and flanged joint accessories. Tapping-flanges shall conform to dimensions and drillings of ANSI B16.1, Class 125, ANSI/AWWA C110/A21.10 latest edition, and NAPF 200.

2) Tapping-flange shall have a raised face or lip designed to engage a corresponding recess in a tapping sleeve as defined in MSS SP-60. Mechanical joint accessories shall be provided for mechanical joint end as stated above.

3) All tapping valves shall be interchangeable with multiple makes of tapping sleeves.

4) Mechanical joint gasket shall be made of EPDM rubber.

3. QUALITY CONTROL AND TESTING

a. Catalogs and maintenance data shall be provided as required by the Engineer. The catalogs and maintenance data shall contain sufficient detail to serve as a guide in the valve assembly, valve disassembly, the ordering of repair parts, complete valve lubrication and valve maintenance information.

b. Valves shall meet or exceed test specifications as set forth in AWWA C-509/C-515, latest editions, as applicable.

c. The Water Department may request samples of proposed valves. Samples shall be supplied and/or returned to the Contractor at the Contractor's expense.

d. Failure to submit samples within 10 calendar days after the date of a written request shall result in rejection of that item.

e. Bolt manufacturer’s certification of compliance shall be provided with each mechanical joint accessory package.

f. The resilient seat shall be bubble-tight against a 200-psi water working pressure and maintain zero leakage at all times.

4. MANUFACTURER

a. Standard valves shall be domestically assembled and shall be Clow F-6100, U. S. Pipe Metroseal 250, AVK Series 25, Mueller Co. (2360 for 2"-12", 2361 for 14"-24"), American Flow Control Series 500 or Series 2500, Kennedy KenSeal 4571, or approved equal.

Tapping valves shall be domestically assembled and shall be equal to or better than Clow F-6114, U. S. Pipe Metroseal 250, Mueller Co. (2360 for 2"-12", 2361 for 14"-24"), American Flow Control Series 500 or Series 2500, Kennedy KenSeal 7571, American AVK Series 25, or approved equal.

2" GATE VALVE, RESILIENT SEAT

1. GENERAL

Resilient Seat Gate Valves (Valves) provided, push-on or threaded joint shall be manufactured in accordance with AWWA C-509 latest edition and as specified herein. The valves described in these technical specifications are to be furnished including accessories.

2. PRODUCT

a. Valves shall be the non-rising stem type that shall open by turning a 2-inch square AWWA operating nut clockwise, open right.

b. The wedge shall be bronze manufactured in accordance with ASTM B62. It shall be fully encapsulated with rubber molded in place and bonded in accordance with ASTM D429. The wedge rubber coating shall be ethylene propylene diene (EPDM) rubber. Rubber mechanically attached with screws rivets and similar fasteners shall not be acceptable.

c. Stems shall be sealed by a minimum of two O-rings; stem seals shall be replaceable with the valve full open and while subjected to full rated pressure.

d. Low friction torque reduction thrust bearings shall be located both above and below the stem collar.

e. All bonnet bolts, gland bolts, nuts and other trim hardware exposed to the outside environment shall be stainless. Thrust collar tie-rod bolts shall be stainless steel.

f. The valve shall be coated inside and out by epoxy coating meeting AWWA C-550, latest edition.

g. Valve Ends:

1) Valve ends for push-on joint valves shall conform to AWWA C-111 latest edition and shall be suitable for use with iron pipe size plastic pipe as well as iron pipe.

2) Valve ends for threaded joint valves shall have female iron pipe connections compatible with N.P.T. threads as specified in AWWA C-800.

3. QUALITY CONTROL AND TESTING

a. Valves shall meet or exceed all testing requirements set forth in AWWA C-509, latest edition.

b. Certified shop drawings showing the valves to be in conformance with these technical specifications and referenced standards shall be required at the City's request. Failure to submit shop drawings upon request shall result in rejection of the valve.

4. MANUFACTURER

All valves shall be domestically assembled and shall be equal to or better than the following:

a. Push-on end valves - Clow 6110 (for PVC) / 6100 (for MJ), Waterous Series 500 - P.O.

b. Threaded end valves - Clow 6103, Waterous Series 500 – Threaded

c. American Flow Control, or AVK.

VALVE BOXES
(Class 35 Grey Iron)

1. GENERAL

Valve boxes provided under this specification shall be designed to provide access to an underground valve 2-inch operating nut at a depth of 2-feet or greater. Valve boxes shall be suitable for installation in areas subject to heavy vehicle traffic loading.

2. PRODUCT

Valve boxes shall include removable valve box cover with "WATER" label as shown on the Standard Dimension detail titled "Valve Box". All valve boxes shall be manufactured of Class 35 grey iron. All valve boxes shall consist of four parts: valve box covers, risers, top sections, and bottom sections. All valve boxes shall be the same dimension, within manufacturing tolerances, as shown in Standard Dimension Detail "Valve Box".

3. QUALITY CONTROL AND TESTING

When submitting for approval of valve boxes not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the valve boxes may be rejected at the sole option of the City.

4. MANUFACTURER

Valve box manufacturers shall have a domestic presence. Valve boxes shall be equal to or better than those made by Union Foundry, Sunshine Foundry, or Pipeline Components, Inc.

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

a. Tees

(1) Both joints on the run of all anchor tees shall be mechanical joint in accordance with AWWA Standard C-111, latest edition.

(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.

(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 ANSI/AWWA C-111/A 21.11.

b. 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 ANSI/AWWA C-111/A 21.11.

c. Joint Accessories

(1) All T-head bolts and nuts for joints shall be domestically manufactured high-strength, low-alloy steel such as "Corten", "Usalloy," or "ACIPalloy."

(2) All joint accessories shall be furnished with anchoring fittings.

(3) All gaskets shall be EPDM rubber.

d. All anchoring fittings shall be furnished with either: i) a standard thickness cement mortar lining seal coated in accordance with AWWA Standard C-104, latest edition, and an exterior, asphalt coating which conforms to ANSI/AWWA C-151/A21.51; or, ii) have factory-applied fusion bonded epoxy coatings both inside and outside, in accordance with AWWA C550.

e. All fittings shall have a minimum pressure rating of 350 psi.

3.0 QUALITY CONTROL AND TESTING

a. All anchor fittings shall meet or exceed acceptance, performance and hydrostatic testing in accordance with AWWA Standard C-153 and C-111, latest editions.

b. When submitting for approval of ductile iron compact anchor fittings not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the ductile iron compact anchor fittings may be rejected at the sole option of the City.

4.0 MANUFACTURER

Ductile iron compact anchor fittings shall be manufactured by U.S. Pipe and Foundry Company, Clow, American Ductile Iron Pipe, McWane, Pipeline Components, Inc. or approved equal.

COMPACT MECHANICAL JOINT FITTINGS-DUCTILE IRON

1. GENERAL

a. Ductile iron compact mechanical joint fittings 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 Mechanical Joint 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. 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.

b. 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 be domestically manufactured of high-strength, low-alloy steel such as "Corten", "Usalloy", or "ACIPalloy". 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.

c. Exterior Coating and Interior Lining

Mechanical Joint fittings furnished shall have either of the exterior coating and interior lining systems described below:

(1) Cement Mortar Lining: Fittings furnished shall have a standard thickness cement mortar lining and be seal coated in accordance with ANSI/AWWA C-104/A21.4, latest revision. Fittings shall be listed by an approved certifying agency as conforming to all requirements of ANSI/NSF 61 and shall have an asphalt exterior coating which conforms to ANSI/AWWA C-153/A21.53.

(2) 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

a. All fittings specified herein shall meet or exceed all hydrostatic, performance, and acceptance tests in accordance with ANSI/AWWA C153/A21.53 latest revision.

b. When submitting for approval ductile iron compact MJ fittings not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the ductile iron compact MJ fittings may be rejected at the sole option of the City.

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/Union Pipe, American Ductile Iron Pipe, McWane, Pipeline Components, Inc., Sigma, Star Pipe, or approved equal.

4. MANUFACTURER

Mechanical joint bolts and nuts specified herein shall be domestically manufactured of Cor-Ten or approved equal by Birmingham Foundry, National Set Screw Corporation or approved equal.

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 made of high-strength, low-alloy steel such as "Corten", "Usalloy", or "Acipalloy". 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.

b. When submitting for approval of solid sleeves not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the solid sleeves may be rejected at the sole option of the City.

4. MANUFACTURER

a. All ductile iron mechanical joint solid sleeves shall be manufactured by U.S Pipe, Sigma, Tyler/Union, American Cast Iron Company, Clow, or approved equal.

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

a. 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.

b. 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.

c. 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 shall thread or twist-lock 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.

d. 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) shall be 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 of high-strength, low-alloy steel equal to or better than "Cor-Ten". Main valve gasket and mechanical joint (MJ) gasket made of EPDM.

e. 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.

f. 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.

g. Hydrant operating threads shall be lubricated with anti-seize compound paste upon assembly. Approved anti-seize compounds are Bostik Never-Seez food-grade (888-603-8558), or Permatex part #82448 (food-grade anti-seize compound). (877-376-2839), or MobilGrease FM102 (food-grade). 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.

h. 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,.

i. Hydrant coatings shall be as specified in AWWA C502 Section 4.02. Additionally, above-ground exterior hydrant coatings shall be minimum 4 mil Dry Film Thickness white primer coating, compatible with Porter high-grade enamel final paint to be applied in the field.

j. 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

a. The following shall be provided upon request of the Engineer:

1. Certified affidavit from an officer of the manufacturer that hydrant conforms to AWWA C502, latest revision, and these specifications.

2. Certified test results from an independent testing laboratory indicating that the hydrant conforms to Section 2.8 of this specification.

3. Certification of Underwriter's Laboratories listing.

4. Certification of compliance with Associates Factory Mutual Fire Insurance Companies specifications.

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.

6 Failure to submit any of the above certifications or information with the bid package may result in rejection of the bid.

7. 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. Failure to submit samples within 15 working days after the date of a written request shall result in rejection of the bid.

4. MANUFACTURER

a. 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.

b. Hydrants shall be manufactured by American (Darling B-84-B 5¼), U.S. Pipe (Metro 250 M94, 5 ¼), Kennedy (Guardian K81-D, 5¼), or American AVK (Series 2780, Nostalgic, 5¼).

TAPPING SLEEVES
(Mechanical Joint)

1. GENERAL

Tapping sleeves (mechanical joint) shall be constructed of ductile iron. All tapping sleeves shall be suitable for tapping cast iron, ductile iron pipe, C-900 PVC pipe, and all pipe manufactured in accordance with ANSI A21 Standard, AWWA, and these specifications.

2. PRODUCT

a. Tapping sleeves shall be of the split sleeve design; one half shall contain the outlet hub, gasket, and tapping flange; the other shall form the back of the sleeve. A ¾" NPT test plug shall be provided on the outlet throat of the sleeve for pressure testing the sealed sleeve at 150 psi prior to tapping the pipe. All tapping sleeves shall allow a full-size cutting head to pass through the outlet of the hub.

b. Tapping sleeves shall be constructed of ductile iron and shall be manufactured in accordance with ASTM A536.

c. All bolts and nuts joining the two halves of the sleeve shall be high strength, low alloy steel, such as Cor-Ten, in accordance with AWWA C-111, latest revision.

d. Tapping sleeve connection flanges shall conform to AWWA C-110/ANSI B16.1 Class 125 with counter bore per MSS SP-60 dimensions.

e. Mechanical joint tapping sleeves shall form a mechanical joint at each end of the sleeve after bolting the halves together. The sleeve shall then be sealed to the pipe by assembling the mechanical joint using split gaskets and follower glands.

f. All ductile iron sleeves shall have an outside bituminous coating in accordance with AWWA C-110, latest revision.

g. End and side gaskets shall be made of EPDM rubber.

3. QUALITY CONTROL AND TESTING

When submitting for approval of tapping sleeves (mechanical joint) not listed in Section 4, of this specification include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the tapping sleeves (mechanical joint) may be rejected at the sole option of the City.

4. MANUFACTURER

Tapping sleeve (mechanical joint) shall be domestically assembled. Tapping sleeves (mechanical joint) shall be manufactured by U.S. Pipe Mechanical Joint Tapping Sleeve, Mueller Co. H-615, American Flow Control or approved equal.

TAPPING SLEEVES
(Steel, "O-Ring" Type)

1. GENERAL

Tapping sleeves (steel/"O-ring" type) shall be constructed of high strength steel and shall be manufactured in accordance with ASTM A285. Steel tapping sleeves shall be suitable for tapping ductile iron pipe, C-900 PVC pipe, and all pipe manufactured in accordance with ANSI A21 Standards, AWWA, and these specifications.

2. PRODUCT

a. All tapping sleeves (steel or "O-ring" type) shall be split sleeve design; one half shall contain the outlet hub, gasket and tapping flange; the other half shall form the back. A ¾" NPT test plug shall be provided on the outlet throat of the sleeve for pressure testing the sealed sleeve at 150 psi prior to tapping the pipe. All tapping sleeves shall allow a full-size cutting head to pass through the outlet of the hub.

b. All bolts and nuts joining the two halves of the sleeve shall be high strength, low alloy steel, such as Cor-Ten, in accordance with AWWA C-111, latest revision.

c. All tapping sleeve connection flanges shall be a Class 125 flanged joint, conforming to AWWA C207 Class D, ANSI 150 lb. with a counter bore per MSS SP-60 dimensions.

d. Tapping sleeves shall seal to the pipe by the use of a confined "O-ring" gasket around the tap opening between the sleeve and pipe or by a full circumferential gasket between the sleeve and pipe. Gasket shall be made of EPDM rubber.

e. All steel tapping sleeves shall be finished with fusion-bonded epoxy coating both inside and outside, in accordance with AWWA C-550, latest revisions.

3. QUALITY CONTROL AND TESTING

When submitting for approval tapping sleeves ("o-ring" type) not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc, which completely substantiates the tapping sleeves compliance with this specification. If this documentation is omitted, the tapping sleeves may be rejected at the sole option of the City.

4. MANUFACTURER

Tapping sleeve (steel/"o-ring" type) manufactures shall be domestically assembled. Tapping sleeves (steel/"o-ring" type) shall be manufactured by JCM 412, Smith Blair 622, Ford Meter Box FTSC, Dresser 610, Mueller H615, U.S. Pipe T9, or approved equal.

LINE STOPS

1. GENERAL

Line stops shall be used to isolate sections of water mains in order to keep customers in service during water main tie-ins, water main repairs and to compensate for broken valves. The water mains shall remain under pressure during the installation and use.

Line stops shall be constructed of ductile iron or stainless steel (carbon steel is acceptable subject to Engineer approval). All line stop bodies shall be suitable for tapping cast iron, asbestos cement pipe (12" and smaller), ductile iron pipe, C-900 PVC pipe, and all pipe manufactured in accordance with ANSI A21 Standard, AWWA, and these specifications. Line stops on asbestos cement pipe, on pipe greater than 8" and on pipe with taps the same size shall be mechanical joint.

Line stops (steel/"O-ring" type) shall be constructed of high strength steel and shall be manufactured in accordance with ASTM A285. Line stops shall be suitable for tapping ductile iron pipe, C-900 PVC pipe, and all pipe manufactured in accordance with ANSI A21 Standards, AWWA, and these specifications.

2. PRODUCT

a. Line stop fitting shall be full encirclement, pressure retention type split tee. It shall consist of two segments – an upper flange saddle plate and a lower saddle plate. All bodies shall have a ¾" NPT test plug to verify all seals are secure prior to tapping. Cover plate gasket shall be EPDM. Completion plug o-ring shall be EPDM. Gasket shall be molded from elastomer compounds that resist compression setting and are compatible with water in the 32 to 120 deg. F temperature range.

b. Line stop sleeve shall have a full-circle rubber gasket and a flanged outlet for bolting to the line stop tapping valve. Sealing may be accomplished by either split end gaskets and mechanical joint ends or a single rubber gasket around the tap opening.

c. Nuts-and-bolts shall be stainless steel.

d. Outlet flange shall be ductile iron, stainless steel, or machined from a 150 lb. forged steel flange (ASTM A181 or A105) or from pressure vessel quality steel plate (ASTM A285, Grade C), be flat-faced and drilled per ANSI B16.5

3. QUALITY CONTROL

a. Catalogs and manufacturer data shall be provided as required by the Engineer. The catalogs and maintenance data shall contain sufficient detail to serve as a guide in the line stop installation and the ordering of repair parts.

b. The Water Department may request samples of proposed line stops. Samples shall be supplied and/or returned to the Contractor at the Contractor's expense.

c. Failure to submit samples within 10 calendar days after the date of a written request shall result in rejection of that item.

d. The sleeves shall be rated at150 psi hydrostatic with a test pressure of 200 psi. and maintain zero leakage at all times.

4. MANUFACTURER

Line stops shall be domestically assembled equivalent to or better than Advanced Valve Technologies EZ Valve II, Hydra-Stop, JCM 440 Line Stop, or approved equal.

INSERTION VALVES

1. GENERAL

Insertion valves shall be installed in live cast iron, ductile iron, C-900 PVC, and asbestos cement pipelines without requiring the shutdown of water flow through the pipe. The design should allow the insertion valve to be installed into an existing pressurized pipeline while maintaining constant

pressure and service. Insertion valves provided shall be true resilient seat gate valves that will remain in the water distribution piping system after insertion. Insertion valves must safely operate in balanced and unbalanced pressure situations – pressure equalization on the downstream (or upstream) side of the closed valve shall not be necessary to open the valve.

2. PRODUCT

a. Insertion valve shall be capable of pressure-tight assembly to the exterior of the pipe in which flow is to be stopped at working pressures up to 250 psi.

b. Insertion valve shall:

1) have a ductile iron body, bonnet and wedge that provide strength and pressure ratings that meet or exceed the requirements of AWWA C-515 or C-509 Standards.

2) open right (clockwise).

3) be capable of working on Cast/Grey Iron or Ductile Iron Class A B C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body.

4) be suitable for working pressures up to 250 psi. The pressure rating designation must be cast into the body of the insertion valve.

5) have stuffing box, operating stem, and resilient wedge that are removable, repairable, and/or replaceable under pressure.

6) have valve body that provides full mechanical protection of the pipe, and that is permanently restrained to the pipe.

7) have a body of two-piece ductile iron casting manufactured to specifications of ASTM A536, latest revision, min. Grade 65-45-12, with 8-mil (min.) epoxy coating inside and out that meets or exceeds ANSI\AWWA C-550 Standards, and is certified to ANSI\NSF 61.

8) have a ductile iron wedge, fully encapsulated with EPDM rubber by high pressure and high temperature compression or injection mold process. There shall be no exposed iron. EPDM rubber shall be ANSI\AWWA NSF-61 certified.

9) have a wedge that seats on the valve body and not on the pipe. The wedge shall be totally independent of the carrier pipe – it shall not come into contact with the carrier pipe or depend on the carrier pipe to create a seal.

10) have a wedge that rides inside the body channels to maintain wedge alignment throughout its travel control, regardless of high- or low-flow pressure or velocity.

11) the wedge shall be symmetrical and seal equally well with flow in either direction.

12) have gate valve stem and wedge nut made of copper alloy in accordance with Section 4.4.5.1 of AWWA Standard C-515.

13) have a 2" standard (square), NRS (non-rising stem) operating nut in accordance with ASTM A126, Class B.

14) have a NRS stem with integral thrust collar in accordance with Section 4.4.5.3 of AWWA Standard C-515. Two piece stem collars are not acceptable.

15) open and close through AWWA standard turns per inch.

16) have a triple O-ring stem seal with two O-rings located above and one O-ring located below the thrust collar.

17) have mechanical joint (MJ) ends for connection of the valve to the pipeline.

18) the stuffing box, operating stem and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and/or replaceable under pressure. So that, in the event the valve stem is broken or damaged, the bonnet can be removed under pressure.

c. All bolting materials shall meet or exceed the physical strength requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1 (304 SS min.).

d. The sleeve shall be pressure tested prior to cutting the pipe, either through the use of the temporary knife gate installed on the valve body or through a blind flange installed on the valve body, to 150 psi.

e. The tapping cutter shall extract the coupon from the cut pipeline.

f. Restraint devices connecting the valve body castings to the pipe shall be split EBAA Mega-lug, or approved equal, with a working pressure rating of 350 psi. Gland body, wedges, and wedge-actuating components shall be cast from Grade 65-45-12 ductile iron material in accordance with ASTM A536. Torque-limiting twist-off nuts shall be included to ensure

proper actuating of the gripping wedges. Restraint devices shall be listed by Underwriters Laboratories, and Approved by Factory Mutual.

3. QUALITY CONTROL

a. Valves shall meet or exceed test specifications as set forth in AWWA C-515, latest revision, excluding in Section 5.1 Testing: 5.1.13 (leakage test), and 5.1.2.3 (seat test).

4. MANUFACTURER

Insertion valves shall be domestically manufactured. Insertion valves shall be Team Industrial Services "Team InsertValve", or approved equal.

TAPPING SADDLES

1. GENERAL

Tapping saddles shall be constructed of heavy gray cast iron, or ductile iron, with the attachment straps, nuts, and washers constructed of corrosion resistant alloy steel in accordance with AWWA C-111, latest revision.

2. PRODUCT

a. All tapping saddles shall be suitable for Class C & D gray cast iron, ductile cast iron pipe, and all pipe manufactured in accordance with ANSI A21 Standards.

b. Tapping saddles shall seal to the pipe by the use of a confined "O- ring" gasket, and shall be able to withstand a pressure of 150 psi with no leakage in accordance with AWWA C-110, latest revision. A ¾" NPT test plug shall be provided for pressure testing.

c. The outlet branch flange shall be Class 125 flange joint with a counter bore per MSS SP-60 dimensions.

d. Tapping saddles shall have outside bituminous coating in accordance with AWWA C-110, latest revision.

3. QUALITY CONTROL AND TESTING

When submitting for approval a tapping saddle not listed in Section 4, include manufacturer drawings and brochures that clearly indicate size, dimensions, weights, performance standards, etc. If this documentation is omitted, the tapping saddle may be rejected at the sole option of the City.

4. MANUFACTURER

Tapping saddles shall be manufactured by American Ductile Iron Pipe, U.S. Pipe, or approved equal.

ASPHALTIC CONCRETE

1. GENERAL

All asphaltic concrete shall satisfy the requirements of the appropriate regulatory agency having jurisdiction over the affected roadway.

2. PRODUCT

a. Superpave Asphaltic Concrete shall satisfy all provisions of the FDOT Standards for Road and Bridge Construction, Section 334, latest edition.

b. All Type S Asphaltic Concretes shall satisfy all provisions of FDOT Standards for Road and Bridge Construction Section 331, 2000 Edition.

c. Superpave Asphalt Base Courses shall satisfy all provisions of the FDOT Standards for Road and Bridge Construction Section 234, latest edition.

d. All Asphalt Base Courses shall satisfy all provisions of FDOT Standards for Road and Bridge Construction Section 280, 2000 Edition.

3. QUALITY CONTROL AND TESTING

The Contractor will be responsible for providing copies of all necessary plant production tests. The City will be responsible for providing all initial field performance testing in accordance with the aforementioned specifications. The Contractor will be responsible for retesting of any failed sections.

BASE MATERIAL

1. GENERAL

All base material shall satisfy the requirements of the regulatory agency responsible for overseeing that portion of the right-of-way.

2. PRODUCT

a. Shell material shall satisfy all requirements of Section 913, Shell Material, of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, except that testing requirements shall be in conformance with the requirements of the regulatory agency responsible for overseeing the roadway.

b. Limerock base shall satisfy all requirements of Section 911, Limerock Material for Base and

Stabilized Base, of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction latest edition, except that testing requirements shall be in conformance with the requirements of the regulatory agency responsible for overseeing the roadway.

c. Crushed concrete base shall satisfy all requirements of Section 204, Graded Aggregate Base, of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction 2000 Edition, except that testing requirements shall be in conformance with the requirements of the regulatory agency responsible for overseeing the roadway.

d. Superpave Asphalt Base Courses shall satisfy all provisions of Section 234, Superpave Asphalt Base, of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction latest edition, except that testing requirements shall be in conformance with the requirements of the regulatory agency responsible for overseeing the roadway.

e. Asphalt Base Courses shall satisfy all provisions of Section 280, Asphalt Base Courses, of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction 2000 Edition, except that testing requirements shall be in conformance with the requirements of the regulatory agency responsible for overseeing the roadway.

3. QUALITY CONTROL AND TESTING

The Contractor will be responsible for providing copies of all initial materials tests to establish conformance to the contract documents. The City will be responsible for providing all initial field performance testing in accordance with the aforementioned specifications. The Contractor will be responsible for retesting of any failed sections.

TECHNICAL SPECIFICATIONS
(CONSTRUCTION PROCESS AND INSTALLATION REQUIREMENTS)

T1.00 GENERAL REQUIREMENTS

T1.01 Summary of Work

The Contractor shall have access to and inspect the project area prior to beginning construction and ascertain existing conditions as per Section I-2.01 of the Instructions to Bidders.

The work will include the furnishing of all services, labor, equipment and certain materials necessary for a complete installation of water lines and performed in a thorough and workmanlike manner, as outlined in Section G-1.02 of the General Provisions. All items implied, usually included, or required for the construction of a complete operating system shall be installed whether or not shown on the plans or specified herein. In general, pipe shall be provided with a minimum of 36 inches of cover.

The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass adjacent to the sites, as outlined in Sections G-9.02 and G-9.03 of the General Provisions, which do not reasonably interfere with the construction, as determined by the Engineer. It will be the Contractor's responsibility to give written notification, at least 3 days prior to commencement of construction, to any owners or occupants of properties along the construction route. This notification shall be about the pending construction, in order to allow the said owners or occupants an opportunity for removing from the work site any bushes, flowers, plantings, trees etc. they wish to save that are within the limits of construction. The Contractor will be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass by equipment. The Contractor will be liable for or will be required to replace or restore at no additional expense to the City all vegetation not protected or preserved as required herein that may be damaged or destroyed.

City-owned utilities within project limits will include water, wastewater, drainage, and traffic signal cables. All other utilities present within City of Tampa rights-of-way are considered private utilities. Private utilities are responsible for locating their utilities prior to construction and, if required, relocating and/or temporarily supporting their utilities to allow the safe construction of the work under this contract. Private utilities must provide this service without charging a fee to the Contractor.

City-owned utilities and structures not shown on Contract Drawings to be removed and replaced or relocated shall be protected in place and utility service shall be maintained. Where temporary conflicts occur between existing City-owned utilities and the new construction, the Contractor shall protect in place or relocate said utilities and maintain utility service all to the satisfaction of the City. Utilities and structures shown on the drawings to be removed and replaced or relocated by the Contractor shall conform to the requirements of the applicable technical specifications.

Record drawings for existing gravity sewer and laterals along the project route are often not complete. The Contractor shall be prepared to immediately repair any active sewer lateral connection damaged during

construction. If the location of an active sewer lateral conflicts with the proposed location of the water main, the Contractor shall immediately notify the City, who will direct the Contractor on how to resolve the conflict. The Contractor may be required to reroute the sewer lateral either over or under the proposed water main.

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 Contractor's responsibility to alert the Engineer at least two working days in advance of construction, to any conflicts or potential conflicts with the proposed work. Failure of the Contractor to review the job site and alert the Engineer to any conflicts shall relieve the City from compensating the Contractor for any cost arising from any remedial action necessary to resolve the conflict with the proposed work.

All water lines, storm drains, sanitary sewers, gas or other pipe, telephone or power cables or conduits, all individual service connections and all other obstructions, whether or not shown on the plans, shall be supported where adjacent to or crossing the new utility line excavation in a manner acceptable to the Department and the respective utility owner. Wherever existing utility structures or branch connections leading to sanitary sewers or to storm drains, or other conduits, ducts, pipes, or structures present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated, or reconstructed by the Contractor through cooperation with the owner of the respective utility, structure, or obstruction involved. In those instances where their relocation or reconstruction is impractical, a deviation from line and grade will be authorized and the changes shall be made in the manner directed by the Engineer.

Approximate locations of known water, sanitary, drainage, power and telephone installations along the route of the new water mains or in the vicinity of new work are shown according to the best information available at the time of preparation of the drawings, but do not purport to be absolutely correct, and must be verified in the field by the Contractor. The Contractor shall obtain the location, elevations, and dimensions of all existing utilities, structures, and other features affecting his work prior to construction. At least 1,000 feet ahead of construction, the subcontractor shall obtain the elevations of all utilities crossing the proposed water main and, where the required separations cannot be achieved, shall notify the Engineer, in order that necessary changes may be made to permit installation of new pipe, and actual locations be recorded for the City's record drawings.

In addition, careful coordination with the work of other contractors may be required if other work is underway within the project area.

Working adjacent to and crossing other utilities can be expected to be commonplace on this project. The Contractor, as outlined in Article G-1.03 of the General Provisions, 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 of 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 (811) is available to assist in such coordination efforts. This number is for the utility notification center, a program known as Sunshine State One Call of Florida, but may 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 Contract Administration Department (635-3432) of the "Location Request Number" obtained.

The various agencies or utilities possibly affected by the work include but are not necessarily limited to the following:

City of Tampa
Wastewater Department
306 E. Jackson St. (390A6N)
Tampa, FL 33602

Florida Dept. Transportation
2820 Leslie Rd
Tampa, FL 33619

DPW Traffic Transportation
306 E. Jackson St., (290A4E)
Tampa, FL 33602

Hillsborough County
Planning & Development Mgmt. Dept.
P.O. Box 1110
Tampa, FL 33601

Hillsborough County Right of Way Management office
5701 East Hillsborough Avenue
Suite 1222
Tampa, Florida 33610

All utilities shall be kept in operation except with the express written consent of the utility owner. It will be the Contractor's responsibility to preserve existing utilities. Any and all damage to existing utilities as a result of the Contractor's actions shall be repaired to the satisfaction of the utility owner and the City at the Contractor's expense.

Where connections are made to existing mains or other shutdowns are necessary, permission must be obtained and arrangements must be made with the Water Department for removing from service those mains that will be affected. Shutdowns must be held to a minimum in both number and duration, and accomplished at times acceptable to the Water Department. No valve or other control device on the existing system shall be operated by the Contractor except as detailed in the Specific Provisions section titled Shutdowns. Additionally, any service meter that is temporarily removed, after being approved by the Water Department, shall be returned to the original service address from which it was removed.

T1.02A Maintenance of Continuous Water Service

Maintaining continuous water service means that water flows through a water main 24 hours a day seven days a week.

The intent of this project's Plans and Specifications is for water main replacements to be installed as a continuous operation – not in a phased manner. 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.

Whenever the Department agrees to temporarily shut down a water main that has back-feed, the Contractor shall maintain water quality. To maintain water quality, the Contractor may be required to provide flushing hydrants at each dead-end and flush the main at three-day intervals as required to satisfy FDEP requirements. The water main shall be flushed for the duration required to remove two volumes of water from the dead end section. The Contractor shall obtain water samples as required to complete FDEP shutdown requirements. All costs for temporary cutting, required testing, and plugging water mains, and maintaining water quality shall be at the expense of the Contractor with no additional cost to the City.

T1.02B Connections to Existing Systems

The Department requires that its customers be kept in service at all times. If required by the customer, or if the shutdown exceeds the 4-hour window allowed for shutdowns, the Contractor must provide temporary service to customers whose service will be affected by a shutdown. Full outline of policies and procedures applicable to performing shutdowns will be provided at the Pre-Construction meeting with the Water Department.

The Department will allow shut down of customer services only when requested in writing from the Contractor. If customers are impacted by the shutdown, then the request must include why temporary services cannot be provided to customers.

When a shutdown is authorized by the Department and customers will have their water shut off, the Contractor must have pre-assembled all new piping except at the point of the tie-in including service lines being transferred to the new main. The entire pre-assembly shall be successfully pressure tested and bacteriological tested prior to the shutdown. The Contractor shall have sufficient crews on site to accomplish the shutdown in less than four hours.

Policies and procedures for scheduled service interruptions and/or shutdowns of City water mains include that the Contractor must provide two weeks advance notice in writing with a copy of the Atlas sheet where the water main is to be shutdown. If a shutdown cannot be performed as scheduled, then the Contractor must notify the Department five days in advance of the rescheduled shutdown so that the City can provide customers the full 72-hour advance notification of the shutdown.

To minimize the days customers are under boil water conditions, the Contractor shall provide required sampling immediately following placing the water main back in service. All samples must pass two consecutive days of sampling to be approved. In order to issue rescind boil water notices, the City must be notified immediately of passed sample results. Final testing results shall be kept in the job file and

made available upon request to the Hillsborough County Health Department.

T1.02C Existing Water Main Condition

All water mains on this project are in working order. 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. 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 once the pavement is exposed at no extra cost to the City.

T1.03 Field Engineering

Each element of the work is subject to review by the Engineer, prior to proceeding with the next element; however, this shall not relieve the Contractor of the responsibility for delivering to the City a project completed in conformance with the contract plans and specifications and guaranteed as stipulated.

T1.04 Abbreviations and Symbols

Various abbreviations and symbols may be used or referenced in these specifications and contract plans. Symbols are generally explained on the sheet of the plans entitled "Location Map, Legend and General Notes". Abbreviations commonly used, along with their full reference, are as follows:

- Cu.Yds. (CY) - Cubic Yards
- CIP - Cast Iron Pipe
- DIP - Ductile Iron Pipe
- DIPRA - Ductile Iron Pipe Research Association (formerly CIPRA)
- EA - Each
- ED - Each Day
- FDEP - Florida Department of Environmental Protection
- FDOT - Florida Department of Transportation
- FL - Flanged Joint
- HDD - Horizontal Directional Drilling
- HDPEP - High Density Polyethylene Pipe
- Lin. Ft. (LF) - Lineal Foot
- LS - Lump Sum
- mg/l - Milligrams per Liter
- MJ - Mechanical Joint
- MH - Man Hours
- NSF - National Science Foundation
- OSHA - Occupational Safety and Health Administration
- ppm - Parts per Million
- psi - Pounds per Square Inch

- PVCP - Polyvinyl Chloride Pipe
- RPR - Resident Project Representative
- S.P. - Steam Pressure
- Sq. Ft. (SF) - Square Feet
- Sq. Yds. (SY) - Square Yards
- TN - Ton
- W.O.G. - Water, Oil, Gas
- NAVD88 - North American Vertical Datum 1988

T1.05 Submittals, Shop Drawings, Product Data and Samples

The Contractor shall submit 4 copies of shop drawings as stated in Article G-3.02 of the General Provisions, plus those copies necessary for his own requirements in accordance with Section 3 of the General Provisions. The shop drawings shall have been checked and stamped approved by the Contractor and identified as the Engineer may require. This data shown in the shop drawings shall be complete with respect to dimensions, design criteria, materials of construction, and the like, to enable the Engineer to review the information required. The data shown on the shop drawings shall include, in addition to that specified in the General Provisions, reference to specification section, drawing number, item identification on catalog cuts and like information to expedite review. Incomplete submissions will be returned without action.

Items that are on the Water Department's pre-approved material list will not be required to go through the shop drawing submittal process, provided that the list of materials is submitted to and approved by the Engineer in advance of the start of construction.

The Engineer will review and return one (1) set of the shop drawings along with those sets submitted by the Contractor over and above the quantity required by Article G-3.02 of the General Provisions. The returned sets shall bear the Engineer's comments and shall be returned with reasonable promptness. The Contractor's stamp of approval on any shop drawing shall constitute a representation to the Engineer that the Contractor has either determined and verified all field construction criteria, materials, catalog numbers and similar data or he assumes full responsibility for doing so, and that he has reviewed or coordinated each shop drawing with the requirements of the work, contract documents and technical specifications.

The Engineer's review of a shop drawing is only for general conformance with the design concept of the project, and shall not relieve the Contractor from his responsibility for and deviation from the requirements of the contract documents or technical specifications, unless the Contractor has, in writing, called the Engineer's attention to such deviation at the time of the shop drawing submission and the Engineer has given written approval to the specific deviation. Any review by the Engineer shall not relieve the Contractor from his responsibility for errors or omissions in the shop drawings.

One complete set of reviewed shop drawings, product data and samples shall be kept at the site at all times. During the work specified as shown on the shop drawings, the Contractor shall make no deviations from the reviewed drawings, and the changes made thereon by the Engineer, if any.

When required by the Engineer, shop drawings or product data shall be submitted for, but shall not be necessarily be limited to, the following:

- Ductile iron pipe and fittings, including restrained joint type,
- Gate valves,
- Tapping valves and sleeves,
- Fire Hydrants,
- Concrete mix design, reinforcing steel and pre-cast items, if used.
- Line Stops

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 specifications and the referenced specifications and standards.

T1.06 Quality Control

In addition to the inspection and testing outlined in Section 5 of the General Provisions, compaction/density tests also shall be required.

For tests required by the Technical Specifications regarding soil compaction, asphalt testing and concrete cylinder strength, the Department will appoint and employ services of an independent firm to perform inspection and testing. The independent firm will perform inspections, tests, and other services specified individual specification Sections and as required by the Engineer. Reports will be submitted by the independent firm to the Engineer, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. The Contractor shall cooperate with the independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested; notify Engineer and independent firm a minimum of 24 hours prior to expected time for operations requiring services; and make arrangements with the independent firm and pay for additional samples and tests required for Contractor's use. Retesting required due to non-conformance with specified requirements shall be performed by the same independent firm at the direction of the Engineer. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contractor's payment.

T1.07 Materials and Equipment

A) General

Materials and equipment incorporated into the work shall meet the requirements of Section 4 of the General Provisions and these specifications. 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. It will be necessary to submit a copy of all delivery tickets for materials used on the project, regardless of the basis of payment.

Materials, supplies or equipment to be incorporated into the work shall not be purchased by the Contractor or subcontractors subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

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 the Contract Documents. At the time that any piece of equipment is placed in service or operation at the construction site, the Contractor shall arrange for a qualified representative of the manufacturer to be present for the purpose of inspecting, approving and adjusting the equipment installation. He shall remain on the job to instruct the City's personnel in proper operation and maintenance and shall remain until the equipment is operating in a satisfactory manner.

B) Quality Standards

If a standard of quality for items of equipment is established by reference on the plans or in the specifications to specific manufacturer's products, materials or construction and/or fabrication, items of equipment shall equal or exceed the standard of the referenced product as outlined in Section G-4.05 of the General Provisions.

The Engineer shall be the sole judge of material or equipment equality. The burden of proof of equality rests with the Contractor. Qualities described and shown refer to minimum criteria the Engineer will use in considering equipment proposed for the project.

It is not the intent of the Contract Documents to function as proprietary specifications. Where a particular manufacturer make and model are cited and specifically required for interchangeability of parts and to match existing equipment, this has been stated in the specifications.

C) Transportation and Handling

Materials and equipment shall be loaded and unloaded by methods affording adequate protection against damage. Every precaution shall be taken to prevent injury to the material or equipment during transportation and handling. Suitable power equipment will be used and the material or equipment shall be under control at all times. Under no condition shall the material or equipment be dropped, bumped or dragged. When a crane is used, a suitable lift sling shall be used.

The crane shall be placed so that all lifting is done in a vertical plane. Materials or equipment skid loaded, palletized or handled on skidways shall not be skidded or rolled against material or equipment already unloaded.

Materials and equipment shall be delivered to the job site by means that will adequately support it and not subject it to undue stresses. Material and equipment damaged or injured in the process of transportation, unloading or handling shall be rejected and immediately removed from the site. They shall be replaced

with materials that meet all requirements of the contract documents and are suitable to the Engineer.

D) Storage and Protection

Materials and equipment shall be stored in a manner and at a location acceptable to the Engineer to insure the preservation of their quality and fitness for the work and which precludes damage or injury and affords protection against weather staining, corrosion or vandalism. Skidded or palletized materials or equipment shall not be stacked. Electrical equipment shall be stored indoors or under cover. Sheet materials shall be stored in a manner that affords free drainage with no ponding of water. All equipment shall be stored in a secure area.

Replacement of materials or equipment damaged, destroyed or lost through improper, inadequate or careless storage shall be the Contractor's responsibility.

Stored materials and equipment shall be readily and easily accessible to facilitate inspection.

T1.08 Cleaning and Restoring

All damaged areas shall be repaired, and all excess earth and rubble removed. Any and all existing facilities and/or conditions shall be restored to original condition or better.

T1.09 Preconstruction Photography

The Contractor shall furnish all labor, materials, equipment, and incidentals required to videotape all areas within the project as shown in the drawings and as specified herein.

A professional video photographer who is fully experienced and qualified with the specified equipment shall perform the photography.

The total audio-video system and the procedures employed in its use shall be such as to produce a finished product that will fulfill these technical requirements. The video portion of the recording shall produce bright, sharp, clear pictures with accurate colors and shall be free from distortion or any other form of picture imperfection. All video recordings shall, by electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce commentary of the camera operator with proper clarity and be free from distortion at a nominal sound level of 40-50 decibels.

The color video camera used in the recording shall be capable of producing an output viewable in industry standard DVD format. It shall be capable of being viewed utilizing a TV/DVD player and/or a PC with a DVD drive/player. The DVD provided must be capable and authorized to allow reproduction by the City of Tampa and not be copyright protected. The DVD’s provided must be single sided, 4.37 computer GB capacity (DVD-5). Multiple DVD’s

may be provided if necessary to show complete detail of the project. Video output from camera(s) must utilize a minimum of 8:1 zoom. The DVD shall be new and shall not have been used for any previous recording.

Video recording shall be accomplished along all routes approved by the Department which have any construction performed by the Contractor with a total length greater than 100 lineal feet. Videotaping shall include any approved staging and storage areas and the route between the staging and storage areas and the project site when an off-site area is used.

When viewed, the DVD shall show the entire length of construction from right-of-way line to right-of-way line. Existing conditions should be apparent to the viewer along the length of construction. Camera pan, tilt zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects shall be clearly viewed during videotape playback. In addition all other camera and recording system controls such as lens focus and aperture, video level, pedestal, chrome, white balance and electrical focus shall be properly controlled or adjusted to maximize picture quality.

Taping done shall show the proposed construction areas in an oblique view (30 degrees). The average rate of travel during a particular segment of coverage shall be directly proportional to the number and size of the surface features within the construction area's zone of influence.

Coverage shall include, but not be limited to, all existing driveways, sidewalks, curbs, ditches, streets, landscaping, trees, culverts, catch basins, headwalls, retaining walls, fences, visible utilities, and all buildings located within the zone of influence. Of particular concern are any existing faults, fractures, defects or other imperfections exhibited by the above-mentioned surface features. Close-up coverage shall be recorded in these areas. Audio descriptions shall be made simultaneously with support video coverage.

Engineering drawings shall be referenced, by stationing, in the audio on the tapes. If visible, house numbers shall also be mentioned in the audio. All videotapes shall be permanently labeled and shall be properly identified by videotape number and project title.

A record of the contents of each tape shall be supplied on a video log identifying each segment in the tape by location, i.e., street or easement, viewing side, traveling direction, engineering stationing, house or lot numbers, and all referenced by tape counter numbers.

No construction shall start until pre-construction photography is complete, if directed required by the Engineer. Any portion of the video coverage deemed unacceptable by the Engineer will be re-recorded by the Contractor at no additional charge.

T2.00 CONSTRUCTION OF WATER MAINS AND APPURTENANCES

T2.01 Subsurface Investigation

The Contractor shall be responsible for having determined to his satisfaction, the nature and location of the work, and the ground conformation, the character and quality of the substrata, the types and quantity of materials to be encountered, the nature of the groundwater conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions and all other matters which can, in any way affect the work under this Agreement. The prices established for the work to be done will reflect all costs pertaining to that work.

The Contractor will notify the Engineer promptly in writing of any subsurface or adverse physical conditions at the site which differ materially from those that may be indicated by the Contract Documents or earlier subsurface information in accordance with Section I-2.01 of the Instructions to Bidders and Section G-2.04 of the General Provisions. The Engineer will promptly investigate the conditions and advise the Contractor in writing if further surveys or subsurface tests are necessary. If necessary, the Department will promptly obtain the necessary additional surveys and tests and furnish copies to the Contractor.

T2.02 Site Preparation

A) General

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, latest edition, to a minimum depth of 12 inches.

Shrubbery, trees and plants shall be protected as required by the City of Tampa Parks Department ("Parks Department") or the agency having jurisdiction, as shown on the plans, or as directed by the Engineer. Where necessary to remove plantings in order to accomplish the work, such plantings shall be replaced. Trees will be transplanted when feasible, and when a successful transplant is probable. Plantings and trees shall be replaced before the work is accepted.

Foliage, trunks, and roots of trees to remain shall be barricaded by encircling with stakes and flagging at a distance equal to the branch spread or as required by the Parks Department. Stockpiling of materials and movement of equipment shall be avoided within this area. Interfering branches shall be removed without injury to trunks.

Trees, stumps, and large roots within the construction area shall be removed, unless otherwise directed. Topsoil shall be stockpiled for future use. Unsuitable materials shall be removed from the site and properly disposed of by the Contractor. All trees shall be preserved in their natural state unless their removal is directed by the Department. Trees within 20 feet of the construction line shall be protected as indicated on the plans or as directed by the Engineer. Trees with trunk diameters in excess of five inches (measured circumference three feet above ground level and divided by 3.14) shall be preserved unless:

A. their removal is directed;
B. they are located within areas scheduled to be paved; or
C. they interfere with utility or pipe trench alignment.

All trenching performed adjacent to tree trunks shall be accomplished in such a manner as to maintain a minimum clearance of at least 10 feet between the pipe and the base of the tree trunks for trees 5 inches in diameter and larger. A minimum of 20 feet clearance shall be maintained for tree trunks classified a grand tree by the Parks Department. When trenching is to be performed closer than the above minimums, root pruning or other protective measures as directed by the Engineer may be required. Tree trimming and root pruning shall be performed by a competent tree specialist who carries proper insurance and is licensed by the City of Tampa.

T2.03 Dewatering

If subsurface water is encountered in trenching or structural excavation work, the Contractor shall adequately dewater the excavation at his expense. No additional payment shall be made for dewatering operations.

The contractor will be required to do any and all sampling that may be required to be in conformance with the NPDES discharge permit requirements, at no expense to the city.

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 which will cause 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.

T2.04 Trenching, Backfilling and Compacting

Trenching shall be conducted to the limits and grades shown on the plans or as directed by the Department.

The Contractor performing trench excavation on this Contract shall comply with the Occupational Safety and Health Administration's (OSHA) trench excavation safety standards, 29 C.F.R., s.1926.650, Subpart P, including all subsequent revisions or updates to these standards as adopted by the Department of Labor and Employment Security (DLES) as well as The Florida Trench Safety Act as delineated in Florida Statute Chapter 553, Part III.

By submission of his bid and subsequent execution of this Contract, the Contractor certifies that all trench excavation done within his control shall be accomplished in strict adherence with OSHA trench safety standards, including all revisions and updates to these standards as adopted by the Department of

Labor and Employment Security, as well as to The Florida Trench Safety Act as delineated in Florida Statute Chapter 553, Part III.

The Contractor also agrees that he has obtained or will obtain identical certification from his proposed subcontractors that will perform trench excavation prior to award of the subcontracts and that he will retain such certifications in his files for a period of not less than three years following final acceptance.

The Contractor shall consider all available geotechnical information in his design of the trench excavation safety system.

Dewatering operations shall be maintained until pipe-laying is complete and the trench backfilled sufficiently to prevent movement or flotation of the pipe.

The use of trench-digging machinery will be permitted except in places where its operation will cause damage to other utilities, trees, buildings, or existing structures above or below ground, in which case hand-methods will be employed.

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 properly and the backfill to be placed and compacted properly. The minimum width of unsheeted trench, at the bottom where the pipe is to be laid, shall be one 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.

Where sheeting and bracing are used, the trench width shall be increased accordingly. Trench sheeting shall be cut off at a level of at least 1 foot above the top of the installed pipe and shall be left in place until the pipe has been laid, tested for defects, repaired if necessary, and until the earth around the pipe has been compacted to a depth of 2 feet over the top of pipe.

Unless otherwise specified, the trench shall be AWWA C600 Type 2 as shown on the Standard Details "Typical Trench, Bedding and Backfill Detail". The trench shall have a flat bottom conforming to the depth to which the pipe is to be laid. The pipe shall be laid upon sound soil, cut true and even, so that the barrel of the pipe will have equal bearing for its full length. Bell depressions of ample dimensions shall be dug at each joint to permit proper pipe jointing.

In the event the Contractor excavates below the elevation required without approval from the Department, he shall refill with approved material and thoroughly consolidate. If, in the opinion of the Engineer, the trench bottom cannot support the pipe, a further depth and/or width shall be excavated and refilled to pipe foundation grade or other approved means shall be adopted to assure a firm foundation for the pipe.

All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions made

for street drainage. All material removed from the trench on an improved area shall be removed from the site by the Contractor at the Contractor's expense.

Material removed from an unimproved area may be reused if, in the opinion of the Engineer, it is suitable and if local conditions permit reuse. All materials suitable for reuse must be stored separate from the general excavated material. All backfill material must be approved by Engineer prior to placement. If replacement backfill is required, the Contractor must supply the material at his expense.

Backfill material shall be free from cinders, ashes, refuse, organic matter, boulders, rocks or stones, or other material that in the opinion of the Engineer is unsuitable. Rocks up to 6-inches in their greatest dimension may be used for backfill from 1 foot above the top of the pipe up to the subgrade of the pavement unless otherwise specified by the Engineer.

All trenches shall be backfilled by hand, from the bottom of the trench to the centerline of the pipe in layers of 6 inches. Compaction shall be performed by tamping. Backfill material shall be deposited in the trench for the full width on each side of the pipe. From the centerline of the pipe to the specified grade, the pipe shall be backfilled by hand or by approved mechanical methods.

Compaction and consolidation shall be done in accordance with the requirements of the agency having jurisdiction. Unless requirements of the agency having jurisdiction are more stringent, all compaction shall conform to the following:

A. Impervious (paved) Surface Areas

The space between the pipe and the trench sides shall be packed full by hand-shoveled earth, free from lumps, carefully deposited in layers not exceeding 6 inches in depth. Such material shall be placed equally on each side of the pipe, and at the same time tamped in a manner acceptable to the Department, until enough fill has been so placed and compacted to the centerline of the pipe. From this point to 12 inches above the pipe, backfill shall be placed and compacted in uniform loose lifts no greater than 6 inches to a density that is at least 98% of the maximum modified proctor density (as determined by the Modified Proctor Density Test Method (ASTM D-1557)). The balance of the soils backfilled from this point to the top of the trench shall be placed and compacted in loose lifts not to exceed 12 inches to a density at least 98% of the maximum modified proctor density.

B. Pervious (non-paved) Surface Areas

The space between the pipe and the trench sides shall be packed full by hand-shoveled earth, free from lumps, carefully deposited in layers not exceeding 6-inches in depth. Such material shall be placed equally on each side of the pipe, and at the same time tamped in a manner acceptable to the Department, until fill has been placed and compacted from the bottom of the trench to the centerline of the pipe. From this point up to grade, backfilled soils shall be placed and compacted in uniform loose lifts no greater than 12 inches, to a density that is at least 95% of the maximum density as determined by the Modified Proctor Density Test (ASTM D-1557).

T2.05 Pipeline Installation

A) 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 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 Department's approval, cracked pipe shall have the defect cut off at least 12 inches from the break in the sound section of the barrel.

Installations shall be according to AWWA Standard C600 (ductile iron pipe), AWWA C605 (PVCP pipe), pipe manufacturer's recommendations, and as described in these technical specifications. Disinfection of all water mains shall be in accordance with AWWA C651.

All connections to existing piping systems shall be made as shown or indicated on the plans after consultation and cooperation with the Department. No such connection shall be made until all requirements of these specifications 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 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. Some such connections may have to be made during off-peak hours if required by the Department.

B) Underground Pipelines - General

Proper implements, tools and facilities satisfactory to the 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 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's recommendations.

For DIP and PVCP, 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. All ductile iron pipe shall be wrapped in polyethylene encasement (polywrapped) as shown in the Standard Detail. The polywrap and tape shall be blue for potable water and green for sanitary sewer force mains.

Pipe manufactured from materials, which 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's 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.

Pipe interior surfaces 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-inches in diameter and smaller may be cleaned by flushing in place under the supervision of the Engineer 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. All pipe 12-inches in diameter and larger 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. Pipe installed using horizontal directional drill will be installed within the tolerance outline herein.

The work shall at all time 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 or adjustment in the drilling operation.

Ductile iron pipe (and PVC pipe) shall be laid with bell ends facing in the direction of pipe-laying (upstream) unless directed otherwise by the Department. Only EPDM gaskets shall be used for PVC pipe and ductile iron pipe. Wherever it is necessary to deflect ductile iron pipe from a straight line, either in the vertical or horizontal plane, the amount of deflection allowed shall not exceed 80% of that allowed under AWWA Standard C 600 (DIP) for the type of joint being installed and in accordance with the manufacturer's recommendations. Only after the pipe has been properly homed will it be allowed to be deflected. No deflection will be allowed in PVC pipe joints – however, longitudinal bending of PVC pressure pipe in conformance with AWWA C605 will be allowed.

Water mains crossing or parallel to storm sewer, sanitary sewer and gas mains shall have a minimum of 12 inches vertical clearance and a horizontal clearance which shall comply with all State, Local and Federal regulations and requirements. A minimum 3-foot pipe wall to pipe wall clearance shall be maintained

between all utilities and water main. Any exceptions to these standards must be approved in advance by the Engineer. 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 as shown on the plans or, in a manner acceptable to the Engineer. Where ductile iron or PVC pipe water mains are crossing sewer service laterals with less than the require 12 inch minimum clearance, the Contractor shall make the necessary adjustments to center a full joint of water main (18' min.) at the conflict point, or replace 10 feet of the lateral with PVC pipe meeting AWWA C-900 Class 150 centered over the conflict point. Sewer laterals, when replaced, shall be installed in accordance with the City of Tampa Department of Sanitary Sewers technical manual, latest edition.

1. Thrust Restraint

All plugs, caps, hydrants, tees, valves, bends and other fittings on pressure pipelines require pipe joints be restrained up- and down-stream of the appurtenance. Mechanically restrained joints (via gasket-type restraints for new pipe push-on joints and MJ bell restraints for existing pipe) shall be provided as indicated on the plans, or as directed by the Engineer. Thrust blocks or reaction blocks are generally not acceptable, unless and only if approved in advance by the Engineer.

2. Joints

The joints of all pipelines shall be made absolutely tight. The particular joint used shall be acceptable to the Department prior to installation. The gasket material for all joints shall be EPDM and shall be properly positioned before the pipe is lowered into the trench. The joining of the pipe shall proceed in accordance with the manufacturer's requirements. When restraint is required, push-on pipe joints shall be restrained as indicated on the plans, or as directed by the Engineer, with gripper-type restraint gaskets. Exterior metal restraint devices shall not be used to restrain non pipe-to-fitting joints.

a) Push-on Joints

In making up the push-on type joint, the EPDM 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's recommendations. Backhoe buckets or excavation equipment shall not be applied directly to the pipe.

b) Mechanical Joints - N/A

3. Plugs and Caps

Plugs shall be inserted into the bell ends of all open ductile iron pipe, tees or crosses. All plain ends of pipe

and fittings shall be capped.

4. Completion

After the pipe (DIP or PVC) has been installed, inspected by the Engineer and found to be satisfactory, sufficient backfill shall be placed along the exposed areas of pipe to hold it securely in place while conducting the preliminary hydrostatic test. No backfill shall be placed over the ductile iron pipe 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.

C) UNDERGROUND PIPELINES – HORIZONTAL DIRECTIONAL DRILLING, GENERAL

1.1 Scope

This section covers water main installed by horizontal directional drilling (HDD).

The directional drilling method is a multi-stage process that involves site preparation and restoration; equipment set-up; drilling a pilot hole as shown on an approved pilot bore plan, then enlarging the pilot hole to not larger than 1.5 times the outer diameter of the pull-back pipe; and then pulling the product back through the drilled space.

This specification covers Poly-Vinyl Chloride (PVC) and High Density Polyethylene (HDPE) pipe in nominal size(s) 4-inch through 30-inch installed in accordance with the approved NASTT "HDD Good Practices Guideline". Pipe is intended for use as a pressure rated potable water delivery system.

The overall work scope shall include, but not be limited to steerable directional boring equipment, boring pits and equipment, sheeting, location signs as required, maintenance of traffic and miscellaneous appurtenances to complete the entire work as shown on the Contract Drawings, and restoration. Directional boring operations shall be performed within the right-of-way.

The Contractor shall submit proposed locations for entry and exit pits as part of his drilling plan, for approval by the Engineer. The Contractor shall employ licensed, professional land surveyors to locate the entry and exit points, and to establish horizontal and vertical datum for the bore and the pipe layout and fabrication areas.

The Contractor shall take all measures necessary to protect surrounding public and private property, adjacent buildings, roads, drives, sidewalks, and appurtenances from damage due to directional boring work.

The Directional Boring operation is to be operated in a manner to eliminate the discharge of water, drilling mud, and cuttings to nearby water bodies or to the land areas involved during the construction process.

Best Management Practices (BMP's) for erosion control within the Contractor's work area shall be implemented and maintained at all times during drilling and back-reaming operations to prevent siltation and turbid discharges in excess of State Water quality Standards pursuant to Rule 62-302, F.A.C. Methods shall include, but are not limited to the immediate placement of turbidity containment devices such as turbidity screen, silt containment fence, hay bales, and earthen berms, etc., to contain the drilling mud.

The Contractor shall be responsible for preparing and submitting to the Engineer sheeting, shoring, and bracing plan and dewatering plan for all excavations required in the project. The Contractor shall be responsible for obtaining all necessary permits including but not limited to a Generic Permit under F.A.C. 62-621.300 for dewatering activities.

2 Reference Documents

Florida Department of Transportation (FDOT) Utility Accommodation Guide
National Utility Contractor's Association (NUCA)
North American Society for Trenchless Technology (NASTT)
Plastic Pipe Institute (PPI)

3 Submittals

Specifications of materials to be used shall be submitted to the Engineer and shall include the pipe, accessories, drilling mud and additives, and any other materials that are to be permanently installed as part of the project.

Product Data:
Provide manufacturer's product data or specifications to demonstrate conformance with the project requirements or applicability for the intended use.

Manufacturer's Installation Instructions:
Indicate recommended procedures required to install the specified products.

Manufacturer's Certificate:
Certify that products meet or exceed specified requirements.

HDD Submittals:

1. HDD Contractor's Experience Record:

Furnish documentation supporting the directional drilling Contractor's qualifications and experience. This shall include a list of all equipment to be used and a list of personnel and their qualifications and experience. The equipment listing shall include the directional drilling equipment, guidance system, drilling fluid system, and all other equipment to be used.

2. Work Plan.
3. Bore Plan:
   A bore plan shall be prepared and submitted by the drilling contractor for review and approval by the Engineer. The plan shall show the finished grade along the bore path, the deflection and radii of the pilot bore, the length of each bore, and the vertical and horizontal clearances between the bored pipe and any existing/proposed conflicting pipes, conduits, or obstructions. Clearances shall not be less than the guidance system's accuracy tolerance.
4. Training and experience of directional boring machine operator.
5. Directional drilling equipment specifications including calibration Records.
6. Specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the Project. Equipment shall include but not be limited to the following:

   a. Drilling rig
   b. Mud system
   c. Mud motors (if applicable)
   d. Navigational down-hole tools
   e. Guidance and tracking systems (beacon precision and resulting line and grade elevation accuracy
   f. Rig safety system

7. Record Drawings: The HDD locations and elevations shall be shown on the Record Drawing. The General Contractor's Surveyor shall locate the beginning, ending and the surface locations of the driller's log readings, and the locations shall be indicated on the record drawings. The HDD Contractor shall provide a certified report and bore log indicating the horizontal and vertical location at least every 10 linear feet along the pipe. The information provided by the HDD Contractor shall be depicted on the record drawing and identified as having been provided by the HDD Contractor.

   Calibration records for guidance and tracking equipment shall be included.

4 HDD Installer's Experience

The HDD Contractor shall have a minimum of five (5) years' experience and be licensed to provide trenchless services with the specified technology. The Contractor's crew leader shall have completed a minimum of 5 similar installations in scope and size. The similar installations shall consist of critical line, shallow grade and tight fitting bore holes for use in a pressurized

pipe application in an urbanized area with geological conditions similar to those at the project site. River crossing installations and cable or phone duct installations are not considered similar installations due to the significantly different techniques involved.

The Contractor shall submit the names of the directional boring machine operator and directional boring machine navigational equipment operator. Both of these individuals shall have a minimum of three years each of directional boring experience and a minimum of one year each in critical line and grade installations.

5 Work Plan

The Contractor shall submit a HDD Work Plan which shall include the following:

1. A description of all equipment to be used
2. Down-hole tools
3. A list of personnel and their qualifications and experience
4. List of Subcontractors
5. A schedule of work activity
6. A safety plan
7. A traffic control plan
8. An environmental protection plan and
9. Contingency plans for possible problems.

The Contractor shall submit, in writing, the planned procedure for performing the bore(s) within the allowable tolerances as specified herein and at the depth and grade shown on the plans. The Contractor shall, to the satisfaction of the Engineer, provide a means for accurately verifying the location of the pilot bore head and stem at certain points throughout the pipe installation area and provide a method that assures that the bore stem will remain in the correct alignment while back reaming.

The procedure shall, at a minimum, include the verification method for pilot bore location as follows:

a. Verification method for pilot bore location. The Contractor shall provide a means for accurately verifying the location of the pilot bore at certain points throughout the bore.

b. Verification must be by visible detection or physical measurement along with the use of existing electronic detection. If electronic detection alone is to be used, the manufacturer of the electronic detection equipment must supply a guarantee that the equipment is accurate within 2 inches at all points throughout the bore.

c. The procedure must include details of the pilot bore stem placement and stability. To the satisfaction of the Engineer, the Contractor must provide a method that provides a high probability that pilot bore stem will remain in the correct alignment prior to back reaming and installing new water main pipe. The Contractor must ensure that water main pipe joints do not deflect more than 50% of the pipe manufacturer's recommended maximum allowable deflection. Such methods may consist of slow or no rotation of the pilot stem that is in contact with the in-situ soil in a way that does not inhibit the pilot bore process.

d. Grade verification must be verified by actual physical measurement.

6 HDD General Product Requirements

The directional drilling equipment shall consist of the following:

1. A directional drilling rig of sufficient capacity to perform the bore and pullback operations

2. A drilling fluid mixing, delivery, and recovery system of sufficient capacity to complete the drilling

3. A drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be reused

4. A magnetic guidance system to accurately guide boring operations

5. A strike alert safety warning system

6. A vacuum truck of sufficient capacity to handle the drilling fluid volume

7. Trained and competent personnel to operate the system

Soil borings have been performed by the City at several locations and the report is incorporated as part of the contract documents. Costs for additional soil borings as determined by the Contractor shall be prorated and included in the HDD Installation contract Pay Items. Separate compensation will not be provided for additional soil borings.

The HDD shall be performed in a manner that will minimize or eliminate the potential for frac-out/upheaving driveways, sidewalks and roads. At minimum, every 75 feet along the drill path, or at every sanitary lateral, or on each side of a driveway, whichever occurs first, the Contractor shall excavate and install a 16" diameter pressure relief hole/sight holes to control the frac-out and the pressure within the bore hole to prevent upheaving driveways, sidewalks and

roads. The exact procedure for completing the bore shall be the responsibility of the Contractor.

7 Drilling System

The directional drilling machine shall consist of a hydraulically powered system to rotate, push, and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing, and rotating pressure required to complete the line segment. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. The hydraulic system shall be free of leaks. The rig shall have a system to monitor and record maximum pullback pressure during pullback operations. The rig shall be grounded during drilling and pullback operations. There shall be a system to detect electrical current from the drilling string and an audible alarm that automatically sounds when an electrical current is detected.

8 Drilling Pipe

Drill rods shall be of a diameter sufficient for the torque and longitudinal loads and fluid capacities required for the work.

The Contractor shall use high quality drill pipes. The drill pipe shall be inspected periodically by the Contractor and properly maintained within the manufacturer's prescribed limits.

The Contractor shall adhere to the manufacturer's guidelines for using their pipe, and sound practices must be followed to ensure reduced risk of downhole failure, i.e. the Contractor shall not bend the drill pipe sharper than the minimum bend radius stated by the manufacturer, especially on HDD enter and exit locations.

9 Bentonite Drilling Mud

The drilling fluid shall be designed for the geologic conditions to be encountered at the site, as described in the geotechnical report and as anticipated by the Contractor.

Any modification to the basic drilling fluid involving additives must describe the type of material to be used and be included in Contractor's drilling plan. The Engineer retains the right to sample and monitor the waste drilling mud, cuttings and water.

10 Pipe Location Wire

All directional drilled pipe shall be installed with two (2) insulated tracer wires with a 45 mil HDPE jacket and minimum average break load of 1150 lbs. Tracer wires shall be 10 AWG-

Solid CCS EHS Copperhead Directional Drill Wire as manufactured by Copperhead Industries or approved equal. This wire shall to be continuous and brought up in the valve boxes at the ends of each line segment with splices made only by methods per the equipment manufacturer's recommendation. All miscellaneous splicing components shall be furnished and installed by the Contractor.

11 Erosion Control Measures

Provide silt fence as approved under FDOT Standard Specifications for use near open water bodies, wetlands, ditches, inlets or other areas where runoff could pollute nearby water bodies. The Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway, or other area designated for protection by the contract documents, state, federal or local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. The Contractor shall adhere and comply with all applicable permits/permit conditions.

Turbidity barriers shall be installed and maintained at all location where the possibility of transferring suspended solids into wetlands and other surface water exists. Turbidity barriers shall remain in place and shall be maintained in a functional condition at all location until construction is completed and soils are stabilized and vegetation had been established.

Turbidity barriers shall be made of material in which manatees and turtles cannot become entangled, shall be properly secured and shall be regularly monitored to avoid manatee entanglement. Barriers must not impede manatee movement and shall not block manatee entry or exit from manatee feeding areas.

12 Storage and Handling of Materials

Inspect materials delivered to the site for damage. All materials found to have cracks, flaws, cuts, abrasions or other major defects shall be rejected and removed from the job site immediately.

Store materials under cover out of direct sunlight. Do not store directly on the ground. Keep all materials free of dirt and debris.

Disposal of fluids is the responsibility of the Contractor, and shall be performed in accordance with all permits and applicable federal, state or local environmental regulations. Upon completion, the Contractor shall thoroughly clean the entire area of all debris, spilled fluids and damaged plants, and restored to existing or better conditions.

13 HDD General, Execution

The pipe shall be installed in a manner that causes minimal disruption to the surface topography.

All spoil and slurry must be contained in trucks, tanks, approved recirculation pits, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewer, or discharge into the water bodies will not be permitted. All spoils will be transported and disposed of off-site at an approved disposal facility that meets all State of Florida and local requirements.

Perform all work within areas shown on the plans. The Contractor shall provide adequate control of surface water and drilling fluids drainage and runoff, and provide silt fences and hay bales to prevent surface water or drilling fluids from entering the adjacent environmentally sensitive area.

Surface settlement or heave of utilities and other features above the HDD centerlines and within the zone influenced by the HDD construction shall be limited in values that avoid damage. The Contractor shall repair any damage resulting from settlement or heave caused by HDD activities at no additional cost to the City.

It shall be the Contractor's sole responsibility that all work is done in conformance with all applicable federal, state, and local safety requirements. Required safety equipment and procedures shall be employed by the Contractor at all times. All materials and methods of construction shall meet the applicable requirements of the City and the applicable requirements of the State of Florida Administrative Code.

Contractor shall comply with the City of Tampa and/or Hillsborough County's Noise Ordinance. Sound levels in excess of these values are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the Owner for excessive noise shall not relieve the Contractor of the other portions of this specification including, but not limited to, completion of all Work within specified contract time and contract price. The Contractor shall submit a plan prior to construction identifying all noise reduction/abatement procedures. The plan will be approved by the Engineer prior to construction. If mufflers cannot achieve the necessary noise reduction, noise abatement shall be accomplished by the Contractor's installation of baffles (or other acceptable means) positioned to break line-of-sight from the noise source to affected residences and/or commercial structures. Minimum noise abatement measures shall consist of equipping all engines with hospital grade mufflers or silencers.

Contractor shall provide at least seventy-two (72) hours advance written notice to the Engineer of the planned inception of major drilling activities, including pilot bore launch, pre-reaming, reaming, and product pipe pullback. The Contractor shall immediately notify the Engineer, in writing, when any significant problems are encountered or if ground conditions are considered by the Contractor to be materially and significantly different than those represented within the Contract Documents. The Contractor shall perform the pilot bore in the presence of

the Engineer, unless Engineer grants prior written approval to perform such work in Engineer's absence.

All surveying equipment used for tracking of the bore path and drill head shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to the commencement of drilling operations.

The directional boring equipment shall be operated by individuals trained by the manufacturer as experienced operators.

The directional boring equipment shall produce a stable, clay sealed tunnel with a minimum burial depth consistent with the design profile or approved drill profile.

The directional boring equipment shall employ a fluid cutting technique. The soil shall be cut by small diameter, high pressure jets of liquefied clay. The jets shall cut the soil in advance of the boring tool, impregnating and lining the tunnel wall with clay. The clay shall be totally inert and pose no environmental risk. A pilot hole shall be drilled with an appropriately sized drill pipe. The pilot hole will then be increased to the appropriate diameter by a reaming operation. The boring tool will then be connected to the pipe, and the boring tool shall pull the carrier pipe through the clay lined tunnel as it traverses under the surface being crossed. The pulling strength of the boring equipment shall not exceed pipe safety pull strength as per manufacturer's recommendations. Surface excavations shall be limited to small launching and receiving pits. Pits shall be no larger than that required for launching and receiving. Adequate "pit-tail" lengths of service connection piping shall be provided at both the launching and receiving ends to facilitate service connection assembly.

The Contractor shall notify the Engineer immediately in the event that any obstruction is encountered that prevents further advancement of the drill pipe, or pull back of the pre-reamer, reamer, and/or pipe. The Contractor shall make all diligent and reasonable efforts to advance past the object by drilling slowly through the object, pulling back, and drilling along a new bore path that avoids the object, or excavating and exposing and removing the object, and all other reasonable attempts to continue the bore. The Contractor shall notify the Engineer of proposed measures to attempt to advance past the object, prior to initiating the attempt. If the Contractor attempts to pull back and re-drill, the Contractor shall adhere to line and grade tolerances established in this specification section, unless the Engineer approves variance, in writing, prior to the Contractor's attempt to re-drill. The Contractor shall investigate the cause and together determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and re-drilling of a portion of the borehole, or abandonment of the borehole. If abandonment is deemed necessary, the Contractor shall recover, to the extent practicable, any drill pipe, product pipe, and tools in the borehole, and properly abandon the borehole by contact grouting, unless otherwise directed in writing by the Engineer. If the borehole is abandoned, the Contractor shall be allowed to begin a second attempt to install the pipeline at an alternate

location subject to approval, in writing, by the Engineer at no additional expense to the City. The Contractor shall take all reasonable actions to complete the installation with minimal delays.

The Contractor shall monitor for settlement or heave before and during drilling and grouting operations. The Contractor shall measure and record drilling fluid viscosity and density at least three times per shift with at least two hours between readings, using calibrated Marsh funnel and mud balance. These measurements shall be included in daily logs submitted to the Engineer. The Contractor shall document modifications to the drilling fluids, by noting the types and quantities of drilling fluid additives and the dates and times when introduced. The reason for the addition of drilling fluid additives or other modifications shall be documented and reported.

The Contractor shall measure and record the pH on a regular basis (three times per shift with at least two hours between readings) with pH strips, paper or a pH meter.

The Contractor shall constantly monitor and record the circulating volume, particularly for the early detection of drilling fluid losses, or thinning, or the danger of borehole collapse. Ground upheavals can also be detected early from such differences, and necessary action can be implemented to prevent further damage.

14 Pilot Bore

Pilot hole shall be drilled on bore path with no deviations greater than 4 percent of depth over a length of 100-feet. In the event that pilot does deviate from bore path more than 4 percent of depth in 100-feet, the Contractor will notify the City. The City may require the Contractor to pullback and re-drill from the location along bore path before the deviation.

Horizontal and vertical deviations shall be less than plus or minus one foot from the design path centerline. The Contractor shall continuously monitor horizontal and vertical position and record the position at least once per drill pipe length, or at ten (10) feet intervals, whichever is most frequent. The pilot bore shall not contain isolated high points that do not contain a service or hydrant.

The radius of curvature shall not be less than 150% of the manufacturer's recommended pipe bending radius, or the radius shown on the Drawings, whichever is greater. The radius of curvature shall be calculated over the distance of three drill pipe sections.

The Contractor shall be solely responsible for all work necessary to correct excessive deviations from line and grade, including re-drilling, redesigning connections, and acquiring additional easement, at no additional cost to the City and without schedule extension.

15 Reaming

Upon successful completion of pilot hole, the Contractor will ream borehole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor shall not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle. Drilling mud shall then be injected into the hole to stabilize the hole and remove soil cuttings. The type of reamer to be utilized in this phase shall be determined by the types of subsurface soil conditions that have been encountered during the pilot hole drilling operation. The reamer type shall be at the Contractor's discretion.

The Contractor shall not leave any unfilled reamed boreholes. All reamed boreholes that are not used for pipe placement shall be grouted with a mixture that meets the City's approval. In general, this applies to boreholes that are created by pulling the pipe from the ground surface rather from a pilot pit, but may apply elsewhere. The displaced volume for pilot bore stems alone is not of sufficient volume to require grouting.

Any sight relief holes used to visibly verify the location of the pilot bore stem shall be filled with an earthen material unless they are located in areas that receive traffic bearing loads in which case they shall be filled with flowable fill.

16 Pullback Operation

The pipes shall be assembled in a manner that does not obstruct adjacent roads, driveways or public activities adjacent to the layout areas except as directed otherwise by the Engineer.

The Contractor shall provide adequate support/rollers along the stringing area to support the required length of pipe for each bore. Such support/rollers shall be comprised of a non-abrasive material arranged in a manner to provide support to the bottom and bottom quarter points of the pipeline allowing for free movement of the pipeline during pullback. The Contractor must use a sufficient number of pipe rollers or skids to prevent excess sagging of the pipe and/or dragging of the pipe on the ground. Pulling/dragging the pipe on asphalt or concrete shall not be permitted.

Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining.

The Contractor shall perform hydrostatic water pressure test in accordance with the manufacturer's guidelines after installation. Hydrostatic pressure test shall be a minimum 150 psi or per the pipe manufacturer's recommendation.

Tracer wire pulled with the directional drill is to be continuous and brought up in the approved tracer wire boxes at the ends of each line segment with splices made only by methods approved by the Engineer. Trace wires shall be secured to the pipe prior to pulling. The locator wire shall be tested by voltage of at least 12 DC. Test each wire with both positive and negative

charge with not more than 1 volt of loss per 1000 feet will be allowed. The wire will be tested prior to the pressure test of pipeline. If wire fails, pressure test will not be done until wire is repaired.

Pulling Loads: The maximum pull (axial tension force) exerted on the pipelines shall be measured continuously and limited to the maximum allowed by the pipe manufacturer so that the pipe or joints are not overstressed.

Torsion and Stresses: A swivel shall be used to connect the pipeline and tracer wires to the drill pipe to prevent torsional stresses from occurring in the pipe.

Pipeline Support: The pipelines shall be adequately supported during installation so as to prevent overstressing or buckling.

The Contractor shall at all times handle the pipe in a manner that does not overstress the pipe. Vertical and horizontal curves shall be limited so that wall stresses do not exceed 50% of yield stress for flexural bending of the pipe. If the pipe is buckled or otherwise damaged, the damaged section shall be removed and replaced by the Contractor at his expense. The contractor shall take appropriate steps during pullback to ensure that the pipe will be installed without damage.

During the pullback operation, the Contractor shall monitor roller operation and side-booms if required to assist above ground movement of the pipe. Surface damage or cuts that exceed 10% of the pipe wall thickness shall be repaired by Contractor before pulling operations resume.

The lead end of the pipe shall be closed during the pullback operation. If necessary to reduce pull back loads and to ensure that adequate internal pressure is maintained at all points to counter balance collapse pressures, the pipe shall be filled with water as in enters the borehole.

After completion of “pullback” and prior to the final pipe tie-in, pipe shall be provided a sufficient relaxation period as recommended by the specified pipe manufacturer.

The Contractor shall install, maintain, and leave in place any sheeting, underpinning, cribbing, and other related items (other than that required for the boring and receiving pits) to support any structure or facility affected by the boring operations. The Engineer, depending upon existing conditions, may require that additional sheeting for the excavation be left in place.

Damage to the product pipe resulting from manufacturer defects, installation, contact grouting, or grouting of the annulus is the responsibility of the Contractor, including costs for replacement and labor and materials. To confirm no damage to the pipe, upon completion of pull back and grouting, the Contractor shall perform the following test on the completed pipeline:

1. A sphere or pig, one inch less in diameter than the internal diameter of the product pipe, which is capable of allowing water to pass through it, complete with a pulling cable on either side of sphere or pig, shall be pulled through the entire length of the pipeline. If the pig or sphere cannot pass through the pipe, it shall be considered collapsed and damaged.

2. After the product pipe is completely pulled through the borehole, a sufficient relaxation period, if recommended by the pipe manufacturer, shall be provided before the final pipe tie-in.

3. Contractor shall flush, clean, pig and hydrostatically test each pipeline according to the test procedures required.

17 Handling Drilling Fluids and Cuttings

During the drilling, reaming, or pullback operations, the Contractor shall make adequate provisions for handling the drilling fluids, or cuttings at the entry and exit pits. These fluids shall not be discharged into the waterways. Care shall be taken to avoid spillage on sidewalks, roadways or other public thorough fares. Spills shall be cleaned prior to resuming public access to construction area. When the Contractor's provisions for storage of the fluids or cuttings on site are exceeded, these materials shall be hauled away to a suitable legal disposal site. After completion of the directional drilling work, the entry and exit pit locations shall be restored to original conditions. The Contractor shall comply with all Florida Department of Environmental Protection permit provisions.

18 Water

The City shall provide water for construction purposes at no charge to the Contractor, through hydrant meters the Contractor shall obtain from the City Water Distribution Section.

19 Nearby Utilities

The drawings show existing buried utilities that are assumed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that additional utilities may not be present. It will be the Contractor's responsibility to locate all nearby utilities (including water/sewer service laterals) or other subsurface obstructions that may interfere with the work by contacting Sunshine One Call, excavating windows along the pipeline drill alignment, or other means.

20 Responsibility

The Contractor shall be fully responsible for the steerable, clay lined directional drilling operation. Any noticeable surface defects resulting from installation activities or operation of

boring equipment shall be repaired by the Contractor, at his expense. All exploratory, entrance, exit and slurry pits shall be restored by the Contractor to the preconstruction condition or better at no additional cost. Care shall be taken to avoid unnecessary construction equipment traffic on sidewalks, driveways and green spaces. Damage to these areas shall be repaired by the Contractor, at his expense.

Cleaning and Sizing Pigs

After the pipe is in place, cleaning pigs shall be used to remove residual water and debris. After the cleaning operation, the Contractor shall provide and run a sizing pig to check for abnormalities in the form of buckles, dents, excessive out-of-roundness, and any other deformations. The sizing pig run shall be considered acceptable if the survey results indicate that there are no sharp anomalies (e.g. dents, buckles, gouges, and internal obstructions) greater that 2-percent of the nominal pipe diameter, or excessive ovality greater than 5-percent of the nominal pipe diameter. For gauging purposes, dent locations are those defined above which occur within a span of five feet or less. Pipe ovality shall be measured as the percent difference between the maximum and minimum pipe diameters.

22 Successful Completion

The contractor shall be considered as having completed the requirements of any directional boring when he has successfully completed the work and tested the pipe to the satisfaction of the Engineer.

At the completion of construction, the Contractor shall remove all temporary facilities installed by the Contractor. Unused soil, aggregate, and other materials shall be removed and disposed of at approved sites in accordance with all Federal, State, and Local regulations. Any damage to streets, lawns, common areas, and sidewalks shall be restored to original or better conditions. All disturbed areas shall be re-vegetated.

23 Record Keeping

Daily logs and records shall be maintained by the Contractor and shall include annular pressure, drilling lengths, location of drill head, drilling fluid pressures and flow rates, drilling fluid losses, inadvertent returns, drilling times required for each pipe joint, any instances of retraction and re-drilling of the pilot bore or segments thereof, and any other relevant observations, including any observed settlement, heave, frac-outs or surface spills. The drilling fluid pressures shall be measured at the entry point and at the drill head and recorded at least twice per drill pipe length. These records shall be maintained and provided daily to the Engineer. The position of the drill head shall be continuously tracked and recorded by a downhole wireline tracking locator system, Sharewell MGS, Digitrack, or approved equal. A plot of actual locations of the bore path shall be maintained and updated daily, or more frequently, as directed by the Engineer. Contractor shall maintain a daily project log of drilling operations and a guidance

system log with a copy given to Engineer at completion of boring. As built drawings in AUTOCAD format with x, y, z coordinates of the pipe shall be certified by the Contractor, for accuracy and shall be provided to the Engineer within 48 hours after completion of the boring.

Drill profile submitted by the Contractor shall be based on the control elevations and stationing of the applicable construction baseline shown in the drawings.

The Contractor shall submit measured mud and/or drilling fluid weights used during pilot boring and reaming of the bore measured at a minimum of twice per shift or at least once per two hundred (200) feet of drilled or reamed length, whichever is more frequent.

D) HDD SUPPLEMENTAL SPECIFICATION - C900 PVC RESTRAINED JOINT PIPE

SS-1 Scope

This specification shall be applicable for directionally drilled potable water main between 4 inches and 8 inches in diameter as shown on the Drawings.

The Contractor shall supply all labor, equipment, materials and incidentals necessary to install and test all potable water mains and appurtenances as shown on the Drawings and as specified herein.

SS-2 Submittals

Submit shop drawings to the Engineer for review for all pipe, fittings, restrained joints and appurtenances.

The manufacturer shall furnish to the Engineer a notarized affidavit stating all pipe meets the requirements of ASTM, ASCE, ANSI, etc., these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.

Submit to the Engineer for approval prior to beginning work the following:

1. Testing and Disinfection Plan

2. Existing Water Main Abandonment Plan, if applicable

    a. The water main abandonment plan shall show the locations where the contractor intends on cutting the pipe to pump the grout and intermediate cuts in the pipe as specified herein.

b. The water main abandonment plan shall include the estimated quantity of grout in cubic yards that the Contractor estimates will be required to be pumped into each section of pipe. (i.e. show how much grout is to be pump for each section of pipe that is to be abandoned).

SS-3 Connection to Existing Lines

The following work shall be performed where piping of this Contract must connect to existing lines:

Expose buried lines to confirm or determine end connection, pipe material and diameter.

1. Expose buried lines to confirm or determine end connection, pipe material and diameter.
2. Furnish and install appropriate piping and make proper connections.
3. Test all tapping sleeves and valves in the presence of the Engineer's representative.

SS-4 PVC Pipe for Directional Drill

PVC Potable water mains installed via HDD methods shall be Certa-Lok® C900/Restrained Joint (RJ) integral bell (IB) pipe as manufactured by North American Pipe Corporation.

Pipe shall meet the requirements of AWWA Specification C900 "Polyvinyl Chloride (PVC) Pressure Pipe." All pipe shall be Class 235, DR-18 with Ductile Iron Pipe Size (DIPS) Outside Diameter (O.D.), with a 20' standard lay length. Each length of pipe shall be hydrotested to four (4) times its class pressure by the manufacturer in accordance with AWWA C900/C905. PVC pipe shall meet the requirements of ASTM D1784, manufactured from compounds with cell classification 12454. PVC pipe shall be furnished with push-on integral bell type joints per ASTM D3139 and shall be supplied with elastomeric gaskets installed meeting the requirements of ASTM F477.

The Certa-Lok pipe installed by HDD shall be of the integral bell design. Use of Certa-Lok restrained couplings is acceptable where necessary for end connections or as approved by the Engineer. Each joint shall be restrained by utilizing precision-machined grooves on the pipe and in the bell or coupling which, when aligned, allow a spline to be inserted, resulting in a fully

circumferential restrained joint that locks the pipe and coupling together. A flexible elastomeric seal (O-ring) in the bell or coupling provides a hydraulic pressure seal.

Certa-Lok pipe shall be furnished with all required couplings, splines and o-rings.

All PVC pipe and couplings for potable water mains shall comply and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF-61. Pipe color shall be BLUE for all potable water mains.

SS-5 Fittings

All fittings for C-900 PVC pipe (installed by open cut or HDD) four inches (4") to eight inches (8”) in diameter shall be ductile iron, in conformance with the project Technical and Materials Specifications.

SS-6 Restrained Joints

All buried fittings shall be restrained with mechanical restrainers. Restrained joint lengths indicated in the Restraint Length Tables in the Plans represent the length on all sides of fittings and valves within which all joints must be restrained.

SS-7 Couplings

Couplings to connect two plain end sections of PVC pipe, or to connect PVC pipe to ductile iron pipe where no fitting is shown, shall be completed using a mechanical joint solid sleeve in accordance with the project Technical and Materials Specifications.

SS-8 Locator Wire and Identification Tape

Locator Wire

1. All PVC pipe shall be installed with two (2) insulated tracer wires. This wire shall to be continuous and brought up in tracer boxes and test stations as shown on the details. Locator wire may be any of the following:

    a. Open cut applications, #12 AWG Solid (.0641” diameter), steel core soft drawn high strength tracer wire, 282 lb. tensile break load, 30 mil high molecular weight-high density yellow polyethylene jacket complying with ASTM-D-1248, 30 volt rating. as manufactured by Copperhead Industries 1230-HS, or approved equal.

b. For HDD applications, #10 AWG solid (.0808" diameter), steel core hard drawn extra high strength horizontal directional drill tracer wire, 1150# average tensile break load, 45 mil high molecular weight-high density yellow polyethylene jacket complying with ASTM-D-1248, 30 volt rating as manufactured by Copperhead Industries 1245-EHS, or approved equal.

2. Direct bury water proof wire connectors shall meet or exceed UL Standards 486D and be compatible with THHN or THWN insulation thickness (3M-DBR-6 direct bury splice kit; King Innovation; or equal). A silicone insulating gel sealant shall be used.

3. Jacket color shall be BLUE to match the water main use as described in the detail drawings.

Identification Tape

1. Metal Identification Tape: Metal detectable underground tape with solid aluminum foil core, permanent printing under a protective layer and containing a laminated polyethylene reinforcement layer (Empire Level Mfg. Corp.; Merco Tape Company – M225; Presco; or equal) shall be provided. Tape shall have a minimum thickness of 5 mils and a minimum width of 2 inches. The warning label shall be printed in black ink letters over a background color matching the water main use as described in the detail drawings.

2. Marking Tape: Non-detectable adhesive backed identification tape, latex adhesive, minimum width two (2) inches (NADCO, or equal) shall be provided. Background color of marking tape shall be BLUE to match the water main use as described in the detail drawings.

SS-9 General Execution

Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before

laying, and no piece shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer.

All pipe and fittings shall be subjected to a careful inspection just prior to being laid or installed. If any defective pipe is discovered after it has been laid it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional expense to the City. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when installed or laid, shall conform to the lines and grades required.

All buried piping shall be installed to the lines and grades as shown on the Drawings. All underground piping shall slope uniformly between joints where elevations are shown.

Contractor shall exercise extreme care when constructing piping to shore up and protect from damage all existing underground water lines and power lines, and all existing structures.

Potable water service lines may be installed by open cut or horizontal directional drill (HDD) as shown on plans or as directed by Engineer.

SS-10 Pipe Requirements

All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved in laying. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench. Solid sleeves shall be used only where approved by the Engineer.

When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a push-on bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

Push-on joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe is to be aligned with the bell of the pipe to which it is to be joined, and pushed home with a back or by other means.

PVC piping shall be installed in strict accordance with the manufacturer's instructions. The pipe shall be backfilled with selected fine excavated material and thoroughly compacted to one foot above the top of the pipe and thereafter backfilled as specified in Technical Specifications.

Disinfection and testing shall be as directed in Technical Specifications section T-300.

T2.06 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, under any circumstances, be placed 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 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 shall gray iron pipe be used at restrained joints. Ductile iron pipe will be used unless otherwise specified by the Department.

Where reaction or thrust blocking is required, it shall be of concrete meeting the following design criteria:

- Compressive Strength - 3,000 PSI
  90% after 7 days
  110% after 28 days
- % Air Entrainment - 5.0%
- Water/Cement Ratio - 265 lb Water/CY Concrete
- Maximum Aggregate Size - 1½"
- Slump - 3" - 4"

Blocking shall be placed between undisturbed earth and the fitting to be anchored where firm support can be obtained. The area of bearing on the pipe and on the ground in each instance shall be that shown on the plans, the Standard Detail or as directed by the Engineer. The fittings shall be polyethylene encased in a manner acceptable to the Engineer prior to blocking. The blocking shall, unless otherwise shown or directed, be so placed that the pipe and fitting joints will be accessible for repair. If the soil does not provide firm support, then suitable tie rods, bridles, clamps and accessories as specified by the pipe manufacturer to brace the fitting properly shall be provided.

Pre-cast thrust blocks may be used in lieu of poured-in-place blocks on 8-inch and smaller ductile iron water mains only. This type of block must be manufactured in accordance with these Technical Specifications. Size and bearing area of blocks will be as shown in the standard details or as determined by the Department. The Department has the authority to reject any damaged block or any block considered to be of questionable quality. Placement will be in accordance with standard procedures for restraining thrust. Earth behind such blocks will be either undisturbed or compacted to a minimum of 95% (Modified Proctor) density.

Tie rods and pipe clamps when allowed by the Department must be of adequate strength to prevent movement or other suitable means may be used as allowed by the Department. Steel rods, clamps, and washers shall be rustproof treated with bituminous material and polyethylene encased.

T2.07 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, other valves 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 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.

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, and its top is no more than 48-inches from finish grade at the valve. Valves shall be furnished with extension stems if operating nut is greater than 48-inches deep, such that the top of nut is no more than 24-inches from of the top of the valve box (see Detail 3.05). Connection of the extension to the valve shall be with a wrench nut coupling and a set screw(s) to secure the coupling to the valve's operating nut. The coupling and square nut wrench shall be welded to the extension stem. Rock guard and centering plate are required. Extension stems shall be equal to or better than ProSelect Gate Valve Extension – with Centering Plate, or Trumbull Gate Valve Extension Stems, Style B.

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 Department. The pad shall be 24 inches square and shall be centered on the valve box. All 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 so Department personnel can insert a valve key through the valve box and completely open and close the valve. This test will be accomplished before final acceptance of the valve and box into the water system.

T2.08 Taps, Valve Insertions and Linestops

All material supplied shall be disinfected in accordance with Department standards.

After the tapping sleeve and valve have been installed and before the tap is made, the sleeve shall be tested to ensure a watertight joint. A test plug shall be provided in the sleeve and after the sleeve has been installed, it will be filled with water and the pressure increased to between 150 psi and 190 psi. All leaking joints shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

All tapping sleeves shall be wrapped and sealed with polyethylene encasement material in a manner acceptable to the Engineer.

The contractor shall thoroughly clean the pipe surface, check the size and range of the sleeve to verify correct size of the product. Check the pipe surface to make sure it is free of flaws gouges and extreme irregularities. Pipe and face of gasket shall be lubricated with soap and water or gasket lubricating solution. Do not use grease or pipe lubricant.

Position half of body on pipe making sure the outlet is aligned with the branch line to be connected. Never position so that rotation is required. Position back-half of the body and install bolts. Tighten outside bolts first, working toward the center. Tighten bolts evenly alternating from one side of the sleeve to the other. Tighten bolts to the manufacturer required torque levels.

Check the inside of the sleeve and neck to make certain the gasket is properly sealed and not protruding where tapping cutter may damage it. Test assembly seals using test plug provided on sleeve. Once all seals are tight and test is complete, re-check bolt torques and proceed with tapping, valve insertion or linestop.

Install tapping valve per AWWA M-44. Provide for proper valve and pipe trenching, support, restraint and burial per the specifications herein.

T2.09 Hydrants

Fire hydrants (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, and as shown in Water Details 4.01 and 4.02.

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 hydrant’s bottom flange elevation shall be finished-grade plus 3- to 5-inches, and standard depth-of-bury shall be 3- to 5-feet. The Contractor will not be allowed to install hydrant extension kits (or vertical offsets of the hydrant lead) to accomplish required bottom flange elevations…hydrant(s) provided shall be with the appropriate length of riser pipe(s) to achieve elevation(s) and depth-of-bury required for installation in accordance with Water Detail 4.01.

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. Per the Florida Fire Prevention Code, NFPA 1:18.3.4.1,

clearances of seven and one-half feet in front of and to the sides of the fire hydrant are required, and four feet clearance required to the rear of the hydrant.

All fire hydrant leads shall be made of ductile iron pipe. All fire hydrant tees shall be made of ductile iron. 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.

T2.10 Meter and Fire Service Connections

Any water meter and fire service connection made to new water distribution mains shall be at locations called for in the plans, in meter set cards, or as otherwise directed by the Department. No meter or fire service connections are to be installed outside right-of- way limits unless easements have been provided or as directed by the Engineer. 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 specifications or as directed by the Engineer. Meters and double detector check valves shall be handled so as to avoid any damage at all times.

Meter services to be transferred to new replacement water mains or meter service lines in conflict with other proposed construction (designated in the plans as circled meters) shall include new tap of the new water main for the service line, installation of appropriate sized HDPE tubing service line, and new HDPE meter box in accordance with Water Department Meter Details. Locations of existing meters shall remain unchanged, unless otherwise noted on the plans or as directed by the Engineer.

T3.00 TESTING

The Department will require the Contractor to perform the required tests to ensure that all pipe installed including service lines meets the Department's standards. The required tests are as follows:

T3.01 Hydrostatic Testing

1. Pressure Testing

All newly laid pipe, including fittings, valves and service lines shall be pressure tested in accordance with AWWA Standard C600 and these documents where applicable.

The Contractor shall provide all necessary equipment and instrumentation (pressure gauges, volume gauges, hoses pumps, test pipe, test fittings, etc.) required for flushing and testing of the piping systems. Pressure gauges shall be marked in graduated increments that do not exceed 2 pounds per square inch. Gauges used to measure the volume of water necessary to raise post-test line pressure back to the highest pressure achieved during the test duration will be marked in graduated increments which do not exceed 5 ounces. If requested by the Engineer, 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 Department. At the option of the Engineer, 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 1/2 mile. Testing shall be conducted in the presence of and to the satisfaction of the Engineer as a condition precedent to the approval and acceptance of the system. Not less than 3 days of 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 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, 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 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 performing a passing 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.

If the pipeline fails the pressure test twice, then the Contractor shall be required to retest the pipeline and provide to the 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 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:

$$L = (SD \times \sqrt{P})/ 148{,}000$$

where:
L - allowable leakage, gph
S - length of pipeline tested, feet
D - nominal diameter of the pipe, inches
P - average test pressure during the leakage test, psi gage

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, it may be repaired by a suitable clamp. Any split, 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 Department certification by a Professional Engineer registered in the State of Florida that the pipeline has passed the test in accordance with these standards.

T3.02 Disinfection

The Contractor shall disinfect the water mains in accordance with the applicable section of the latest AWWA Specification C651, as summarized below. The Contractor, if directed, shall use the method specified by the Engineer.

Method 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 (fps) 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 fps, 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 (1b)	1% Chlorine Solution (gal)
4	0.013	0.16
6	0.030	0.36
8	0.054	0.65

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

Upon completion of the hydrostatic test and disinfection, the Contractor shall notify and coordinate with the Department's Construction Management Section for bacteriological testing. Bacteriological testing shall be provided by a 3rd party laboratory retained by the Contractor. 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 Contractor will pull a water sample on 2 consecutive days allowing 24 hours for each sample to be processed. Meter transfers and connection of constructed water mains to existing water mains will not be allowed until sample clearance has been received from the Health Department.

Samples for bacterial analysis will be taken and analyzed by the Contractor's lab. The sampling process may only begin on Mondays or Wednesdays. Two consecutive approved samples, taken 24 hours apart, will be required. If the first sample is taken on Monday, the second sample must be taken on Tuesday. If the first sample is taken on Wednesday, the second sample will be taken on Thursday. No samples will be taken on Friday and the sampling process will not begin on Tuesday or Thursday. All drilling and tapping equipment shall be sterilized as directed by the Engineer.

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.

T4.00 RESTORATION

T4.01 WASTE MATERIAL DISPOSAL

The Contractor shall remove and dispose of all debris and excess spoil resulting from clearing, demolition and excavation operations. Natural waterways or bodies water shall not be used for disposal or debris.

All debris shall be disposed of at a site approved and permitted by the State for such disposal. Clean spoil may be disposed on private property only with written authorization of the property Owner.

Burning of brush or debris may be permitted, if allowed by the City, subject to the Contractor's securing permits and providing such fire watch and notification of local fire companies as may be required by local law or ordinance. Such permits, however, shall not relieve the Contractor of his responsibilities or liabilities with regard to protecting public health or properties.

T4.02 REPAIR AND RESURFACING

Where street paving, driveways, sidewalks or curb and gutter is disturbed, restoration shall be made to a condition at least equal to the original. All materials used for restoration shall conform to standard requirements of that particular agency responsible for roadway maintenance where construction takes place.

All restoration work shall also meet the requirements of both the permitting agency as well as the City. The Contractor shall determine, to his own satisfaction, any requirements and procedures, other than those set forth herein, which may affect the type, quality and method of carrying out the restoration to the satisfaction of the Department of areas to be restored.

Base material shall be of the type removed or of equal or greater structural strength as determined by the Engineer. Existing base material from the excavation shall not be reused as base material, but may be used as a stabilizer, or for trench backfill after removal of existing asphalt, unless it is determined by the Engineer to be unsuitable.

Edges of pavement shall be mechanically sawed to provide a neat, straight edge to the width shown on the plans, or greater if necessary, prior to replacement. Base material shall be placed to the depths required by permitting agency and thoroughly compacted to the density required by the Department or to the standard of the governing permitting agency.

The Contractor shall pay careful attention to the proper reconstruction of the pavement adjacent to the gutters and at street intersections to obtain satisfactory drainage to inlets from the intersecting streets.

T4.03 SODDING

All areas to be sodded shall be sodded according to installation procedures and materials outlined herein.

Sod shall be of the same type as the surrounding grassed areas (unless specified otherwise by the Department), be free of weeds, and have well matted roots. The sod shall be live, fresh, and uninjured at the time of placing. Materials for sodding shall meet the applicable requirements of Sections 575 and 981 of the FDOT Standard Specifications, or the requirements of the governing permitting agency. Except as required to match surrounding grassed areas, sod may be St. Augustine, Bahia, or other varieties as selected by the Department.

Areas designated to be sodded shall first be fine graded to match surrounding areas and scarified or loosen to a suitable depth. Sod shall be placed as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted. Methods for sodding shall meet the applicable requirements of Section 575 of the FDOT Standard Specifications, or the governing permitting agency.

T4.04 NON-PERVIOUS SURFACE RESTORATION

1) General

a) The various street surfaces disturbed, damaged, or destroyed during the performance of the work under this Contract shall be restored and maintained as shown, specified, and directed. Included in this classification are permanent pavement surfaces of all types, pavement bases, curb, curb and gutter, alleys, driveways, and sidewalks.

b) The quality of workmanship and materials used in the restoration shall produce a street surface equal to or better than the condition before the work began.

c) Service boxes, manhole frames and covers, and similar structures not conforming to the new work shall be set to established grade at the Contractor's expense, and no separate payment will be made therefor.

d) All portland cement and asphaltic concrete pavements shall be removed in rectangular sections with sawed vertical cuts, or to existing joints, as directed by the Engineer. Concrete pavements shall be cut with a concrete saw. Asphaltic concrete pavements one-inch thick or greater shall be cut with a tool having a square neat edge. The edges of adjacent pavement shall be trimmed to straight lines which a roller can follow. Where reinforced concrete pavement is removed, one foot of existing reinforcement on each side of the excavation shall be left exposed and tied to the replaced reinforcing steel.

e) The equipment necessary for the proper performance of pavement replacement shall be on the site in satisfactory working condition and shall be subject to approval of the Engineer before the work is started.

f) All replaced concrete pavements shall have a minimum bearing on undisturbed earth outside the line of excavations of at least nine (9) inches.

2) <u>Standards</u>

a) The restoration of street pavement shall be performed in strict conformance with the standards relating to equipment, materials, and methods of construction of the authority having jurisdiction over the pavements, unless otherwise specified herein. Pavements to be restored are under the jurisdiction of the several agencies as follows:

i) State Highways are under the jurisdiction of the State of Florida Department of Transportation. Work on such pavements shall conform to the Department of Transportation Standard Specifications for Road and Bridge Construction.

ii) City Streets are under the jurisdiction of the City of Tampa Department of Public Works. Work on such pavements shall conform to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, except that densities (including for subgrade) and other testing requirements shall follow current Department of Public Works specifications. The type and thickness of pavement, base and stabilization shall be as shown, specified, and directed by the Engineer.

iii) County Roads are under the jurisdiction of the Hillsborough County Engineering Department. Work on such pavements shall conform to County specifications.

b) All specifications of the several agencies having jurisdiction over pavement restoration work shall be the current issue of such specifications as of the date of the "Notice to Bidders," except as specified otherwise herein.

3) <u>Temporary Restoration</u>

a) Upon completion of backfilling, the street or sidewalk surface damaged or destroyed shall be promptly placed in condition for safe temporary use. Temporary work shall be maintained in a suitable and safe condition for traffic until the permanent pavement is laid, or until final acceptance of the work.

b) Pavement surfaces shall be temporarily restored by placing thereon, to proper line, grade and transverse profile, a layer or layers of compacted base material, as specified, conforming to all requirements regarding configuration, thickness, and density as detailed in the Plans, specified, and directed by the Engineer. When the compacted thickness of the base layer is greater than 6-inches, the base shall be constructed in multiple courses. Each course shall not exceed 6-inches in compacted thickness. Where the existing pavement has a permanent wearing surface, the temporary pavement shall be finished with a suitable grade of asphalt and sand to provide a temporary wearing course and to eliminate dust nuisance.

c) Curbs, where possible, shall be temporarily reset in place, as part of the work of temporary restoration of pavement.

d) Damaged or destroyed sidewalks shall be temporarily restored, immediately upon placing of the backfill, by placing a compacted layer of crushed concrete or similar material, which shall have a minimum thickness of three inches below the existing finished sidewalk grade.

e) The temporary pavement shall be maintained by the Contractor and all holes and depressions filled until the permanent pavement is placed.

f) Crushed concrete or similar material placed in areas where the existing pavement is shell, limerock, crushed stone, or other similar material shall be classified as nonpermanent pavement, will not be measured for separate payment.

g) Temporary sand and asphalt wearing courses placed on base on which a permanent pavement surface will be constructed shall be incidental to the permanent pavement base work, and no separate payment will be made therefor.

h) Limestone screenings for temporary sidewalk surface shall be incidental to sidewalk replacement, and no separate payment will be made therefor.

i) Base material placed in areas to receive a permanent pavement surface will be measured for payment under the appropriate Contract Item for permanent pavement base.

4) Preparation of Temporary Pavement

a) After due notice and within the time specified, the temporary pavement shall be prepared as the base to receive the new permanent pavement surface.

b) Preparation of the base shall consist of bringing the area to be replaced to a grade conforming to the required grade and cross section, of uniform density, ready to receive the permanent pavement. This is to be accomplished by excavating or backfilling as needed, shaping, watering as required, or permitting to dry to proper consistency, and rolling the entire area with an approved self-propelled roller weighing not less than eight tons. Shaping and rolling shall be continued until the base has been properly prepared and shows that no further compaction of any practical benefit would result from continued rolling. The base shall be tested as to cross section, crown, and elevation. After being properly prepared, it shall be so maintained until the permanent pavement is constructed. Any part of the base area not accessible to the roller shall be thoroughly compacted by hand or by mechanical compaction in a manner acceptable to the Engineer. Preparation shall include sawing, cutting and trimming edges of existing pavements to provide a neat, uniform edge to abut the new pavement.

5) Permanent Pavement Base Densities

a) Permanent base material shall be installed and compacted to the required densities (98% modified proctor) in layers not exceeding six inches.

6) Permanent Pavement Surface Restoration

a) Permanent restoration of pavement shall be pavement of the type and thickness detailed in the Plans, Specifications, or as directed by the Engineer.

b) If the existing type of pavement is classified as nonpermanent pavement, the temporary restoration shall be reworked and completed and left in a condition at least equivalent to the existing nonpermanent pavement.

7) Replacement of Curb, Curb & Gutter, Sidewalk & Driveways

a) All permanent restoration of street curb or curb and gutter shall be of the same type and thickness as the curb or curb gutter which abuts the replaced section(s). The grade of the restored curb and/or curb and gutter shall match the grade of the existing adjacent curb and/or curb and gutter.

b) Except as otherwise specified herein or detailed in the Plans, all permanent restoration of driveways and sidewalks shall conform to the manner of construction as originally placed

and to the pre-construction lines and grades. No patching of concrete driveway areas will be allowed between joints or dummy joints.

c) Where sidewalks are replaced, the replacement shall be the full width of the walk and minimum lengths shall be 60 inches, or from contraction joint to contraction joint, whichever is greater. Restoration of adjacent lawn is incidental to sidewalk replacement, and no separate payment will be made therefor – except sod replacement will be compensated.

8) Replacement of Traffic Markings & Signalization Loops

a) The Contractor shall furnish all labor, equipment and materials to replace, test, and maintain all traffic markings (temporary and permanent) and signalization loops removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified and directed by the Engineer.

b) The replacement of traffic markings (temporary and permanent), signalization loops and all appurtenant work shall be replaced by the Contractor in kind.

c) It shall be the Contractor's responsibility to field verify before construction begins all markings and signalization loops to be replaced.

d) All traffic markings and signalization loops shall conform to the Workmanship and Materials standards set forth in the latest edition of the Florida Department of Transportation Standard and Supplemental Specifications.

e) Payment for the replacement of temporary and permanent traffic markings, signalization loops and all appurtenant work shall be included in the unit bid prices for pavement replacement, and no separate payment shall be made therefor, except for crosswalks at the intersection of W. Bay to Bay Blvd. and S. MacDill Ave. and the intersection of W. Barcelona St. and S. MacDill Ave., which shall be paid at the contract unit price for 12" Thermoplastic Striping for Crosswalks.

Because streets to be encountered for this water main replacement project are primarily City of Tampa maintained, the current City of Tampa Department of Public Works (DPW) roadway restoration standards are included in Technical Specification, as section T4.06.

T4.05 CRUSHED CONCRETE

The work specified under this Section consists of the construction of roadway base utilizing crushed concrete on prepared subgrade, in conformity with the lines, grades, notes and typical cross sections shown in the Plans and specifications, and as directed by the Engineer.

The construction of Crushed Concrete Base shall conform to the requirements of this Section. The Engineer shall have full authority to modify the provisions of this Section as deemed necessary, in his opinion, to meet field conditions and requirements.

Base material shall conform to the following gradation:

Sieve Size	Percent by Weight Passi
2”	100
1-1/2”	95-100
3/4”	65-90
3/8”	45-75
No. 4	35-60
No. 10	25-45
No. 50	5-25
No. 200	0-10

Material for Crushed Concrete Base shall consist only of crushed concrete pavement (Class II or greater) and such additive materials as may be approved by the Engineer for the purpose of facilitating construction and achieving the desired characteristics of the finished in-place product. Material that shows a significant tendency toward adverse chemical or physical change on exposure to moisture will not be acceptable. The material shall be free of any Ferrous Metals.

Mechanical and Physical Properties

The material shall not contain lumps, balls, or pockets of sand or clay material in size or quantity sufficient to be detrimental to the proper bonding, finishing, or strength of the crushed concrete base. The specific mechanical and physical properties of crushed concrete aggregate and any additive materials permitted in the construction of Crushed Concrete Base under this contract shall be determined on the basis of test results as the work progresses. The finished in-place product shall provide at least an LBR of 150 or greater.

1. TESTING OF BASE COURSE

   Tests for base thickness and density shall be located no more than five hundred (500) feet apart and shall be staggered to the left, right, and on the centerline of the roadway. There shall be no less than three (3) tests per street. Test reports for thickness, bearing, and density shall be submitted by the Contractor to the Engineer for as-built records. The City reserves the right to sample and test base material. All testing shall be in accordance with the Testing Schedule.

2. PRIME AND TACK COATS

All bases shall be primed in accordance with the Florida DOT Standard Specifications for Road and Bridge Construction. Tack coat material and construction methods shall conform to the Florida DOT Standard Specifications for Road and Bridge Construction.

3. INSPECTION

Subgrade and base inspections shall be conducted by the Engineer prior to surface course construction.

4. CONSTRUCTION

Placement and Spreading of Material

The material shall be transported to the point where it is to be used, over crushed concrete previously placed where possible, and dumped at the end of the preceding spread. Hauling over the subgrade, or dumping on the subgrade for further placement operations, will be permitted only when, in the opinion of the Engineer, such procedures will not adversely affect the integrity of the completed base and subgrade.

Spreading shall be accomplished by mechanical spreaders capable of producing an even distribution of the crushed concrete aggregate. Spreading by other means shall be permitted only where and as directed by the Engineer.

Base Courses

The minimum thickness of the Crushed Concrete Base constructed under this contract shall be as shown in these specifications and shall be constructed in one course for six inches (6”) and two courses for eight inches (8”) or greater.

Compacting and Finishing Requirements

After spreading is completed the crushed concrete shall be uniformly compacted, with water being added as required, to a density of not less than one hundred percent (100%) of the maximum Proctor density. During final compaction operations, if the blading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such areas shall be completed prior to the performance of density tests on the finished base.

Priming and Maintaining

The prime coat shall be applied only when the base meets the required moisture and density requirements. At the time of priming, the base shall be firm, unyielding, and in such condition that no undue distortion will occur. The Contractor will be responsible for insuring that the true crown and template of the base are maintained, with no rutting or other distortion, and that the base meets all requirements at the time the surface course is applied.

Correction of Defects

All defects in materials and construction shall be corrected by the Contractor, at his expense, and

to the satisfaction of the Engineer, as the work progresses. All segregated areas of fine or coarse crushed concrete shall be removed and replaced with properly graded crushed concrete.

Testing

The Contractor shall be responsible for all testing performed in connection with the construction of the base.

-- beginning of inserted "COT DPW RESTORATION REQUIREMENTS" section--

T4.06 PAVEMENT/RIGHT OF WAY RESTORATION REQUIREMENTS - Rev. 2012

Pavement Options:

PAVEMENT *(Classification)	BASE MATERIAL (Section 1-2)	CONCRETE (Section 1-3)	ASPHALT SURFACE (Section 1-4)	FULL DEPTH ASPHALT (Section 1-5)
A	6"	4"	1"	5"
I	8"	6"	2"	7"
II	12"	8"	3"	10"

***Classification:**
Class A: Alleyways, Residential and Low Volume Commercial Driveways
Class I: 2-Lane Residential Streets and High Volume Commercial Driveways
Class II: Multi-Lane or High Volume 2-Lane Streets (most depicted by centerline markings)

Notes: 1) If existing roadway is stabilized, increase base material thickness by 50 % 2) If original pavement exceeds max. 3" ,match the existing asphalt thickness 3) Minimum 4" of shell marl, crush concrete, or asphalt millings placed in unimproved (dirt) trafficked right-of –way 4) Concrete shock pad required for any utility repaired/ installed less than 30" (needs C.O.T. Engineer approval) 5) Brick pavement shall be restored as specified in Section 1-6 Brick Replacement

SECTION 1
PAVEMENT RESTORATION SPECIFICATIONS

1-1 BACKFILL and SUBGRADE: Replace and compact clean sub-grade material classified as A-1, A-2, A3. Backfill shall be free of objectionable material (bricks, broken pavement, concrete, clay, muck, etc.). If flowable fill is used both mix and installation shall conform to FDOT Standard Specifications for Road and Bridge Construction (January 2000), Section 121-1 through 121-6.

1.1 Density Requirements: Material shall be compacted in lifts not to exceed 12". Densities are required at alternative 1' lifts of vertical fill above excavation bottom of trench and for each prepared trench segment, not to exceed 200'. Density test is not to be taken through succeeding layers. The final subgrade density test shall be taken at elevation beneath Base Material or Full depth.

1.2 Density Specification: Shall meet 98% compaction of AASHTO T-180.

1-2 BASE MATERIAL: Approved by a City of Tampa D.P.W. Engineer and/or meeting the FDOT Standard Specifications for Road and Bridge Construction (January 2000). Submittal may be requested by C.O.T.

2.2 Acceptable Materials: Limerock, Shell Marl, Crushed Concrete, Concrete (3000 min. PSI), and Asphalt Plant Mix.

2.3 Density Requirements: Place and compact in two lifts. Asphalt Plant Mix shall be compacted in accordance to Section 1-4. Densities are required for each trench segment at final grade, not to exceed 200'.

2.4 Density Specifications: Shall meet 98% compaction of AASHTO T-180.

1-3 CONCRETE: 3000 PSI minimum 28 days strength. Placed on compacted, moistened subgrade. Consolidate and cure. Do not load for 72 hours.

3.1 Concrete Specifications: Density test of subgrade may be required at the Inspector's discretion.

1-4 ASPHALT SURFACE: Sawcut all sides a minimum of 6" from replaced base. Paint with RC 70 (or equal) tack. Place and compact in lifts S-1 or S-3 type asphalt plant mix. The finished pavement is subject to inspection and approval by City of Tampa D.P.W. Engineer.

4.1 Density Requirements: Type S-1 lift to be 1¼" min. and 3" max. (if lift exceeds 2", compact with a drum roller type compactor). Type S-3 lift to be ¾" min. and 1 ½" max.

4.2 Density Specifications: Quality assurance testing of the asphalt may be required at the Inspector's discretion. (generally: 96 percent compaction of asphalt plant mix design bulk specific gravity)

1-5 FULL DEPTH ASPHALT: Same as requirements for Section 1-4 ASPHALT SURFACE

1-6 BRICK REPLACEMENT: Brick shall be re-laid according to Section 2 PROCEDURES. Place and grade 1½" of sand over base or concrete. Place brick uniformly, staggered with respect to the adjacent course. Any work area disturbing a street listed as a "Historical Street" shall be required to replace original brick. The contractor is responsible for safe storage of materials until such time the brick is relaid.

6.1 Base Options: A) Limerock, Shell Marl: shall meet Section 1-2 BASE MATERIALS, requires brick joints to be sealed with Asphaltic Steep #7330 or Surebond 1300 Sealer. B) Crush Concrete: Shall meet Section 1-2 BASE MATERIALS, requires brick joints to be sealed with 1:4 sand cement mixture (slurry or moistened to ensure that cement sets). C) Concrete: shall meet Section 1-3 CONCRETE, 4" of concrete is used as base material, requires brick joints to be sealed with 1:4 sand cement mixture (slurry or moistened to ensure that cement sets).

6.2 Density Requirements: Subgrade material shall meet Section 1-1 BACKFILL and SUBGRADE. Base material shall meet Section 1-2 BASE MATERIAL.

6.3 Density Specifications: Shall meet 98% compaction of AASHTO T-180.

SECTION 2
PAVEMENT RESTORATION PROCEDURES

GENERAL:

The Permit holder is to contact D.P.W. Technical Services at (813) 635-622-1949 or Fax. 622-1956, 48 hours prior to starting permitted work. **The material testing results should be forwarded to the department/inspection group performing the inspection**

Testing/Inspection shall be scheduled with D.P.W. Materials Testing and Inspections on any part of the replacement work. Tests will be performed by the City's Testing/Inspections Lab or an approved private engineering testing laboratory. The permittee shall bear all testing costs. Contact: (813) 635-3400.

The Foreman on each project shall maintain on-site, copies of the approved Department of Public Works "Application and Permit for Construction and Maintenance Operations Within Public Rights of Way, including plans, drawings, and the Pavement Restoration Requirements – 2003.

Copies of all applicable material delivery tickets and copies of all test results not taken by D.P.W. Materials Testing and Inspections, shall be forwarded to D.P.W. Technical Services at 3806 26 Ave East, Tampa, Fla. 33605. Fax number (813)-622-1956.

EXCAVATION:

Utility installations shall be placed a minimum of 30" below grade. If, because of utility conflicts or unusual conditions, the 30" minimum depth requirement cannot be maintained, special authorization may be granted for installation at a lesser depth. Installations shall maintain the 30" depth, unless special authorization is granted in writing, by the D.P.W. Engineer.

All trench widths under pavement, including driveways, are to be a minimum of 18", to allow mechanical compaction of backfill and base. Density tests are required and restoration shall meet SECTION 1.

Where pavement and/or base are undermined, disturbed, or otherwise damaged, such areas shall be cut away and the pavement replacement work extended to correct such conditions.

Tunneling under driveways, sidewalks, curbing, retaining walls, and pavement shall not be allowed unless approved prior to work is given by C.O.T. Engineer.

When obstructions are encountered in driving or jacking, pipe shall be cut off, left in place, and filled with a flowable fill type grout to prevent the formation of voids.

Edges of jacking pits, directional bore pits, exit pits, trenches, etc. shall be a minimum distance, equal to the depth of the pit excavation, from any pavement, curbs, sidewalks, or other structures. If this distance cannot be maintained, backfill shall be compacted in lifts not to exceed12" and density tests taken as outlined in SECTION 1-1.

Ditches shall be restored promptly to prevent the formation of sediment in the existing drainage system. Erosion control shall be enforced. The existing ditch grade and cross section profile shall be maintained.

The City will require sodding, sprigging, or seeding and mulching to restore stable cover of vegetation on ditch banks, shoulders, and other areas disturbed by construction. Vegetation restoration will be kept moist and maintained until well established. Staking of sod will be required if ditch slope exceeds 4:1.

Erosion control shall abide by Erosion Control Methods set forth in C.O.T: D.P.W. Standard Drawings where applicable

Lawn and landscaped areas shall be restored to original or better condition. Each situation may require individual attention and differing restoration procedures.

CONCRETE:

Concrete sidewalks, driveways or pavement affected by construction operations will be corrected by removing and replacing full panels. Cuts in concrete sidewalks or driveways shall be sawed in straight lines at panel joints and replaced to full panels.

Concrete replacement shall be a minimum thickness of 6" for driveways and 4" for sidewalks. Concrete and density requirements shall meet SECTION 1-3.

Concrete curb and gutter will be formed and placed as a single unit to conform to City of Tampa Standards.

Expansion joints shall be provided at not more than 50' intervals on curb and sidewalk replacement work.

Expansion material shall be used where new concrete meets existing. Sidewalks shall have tooled construction joints or sawed control joints at 5' intervals for 5' wide sidewalk and 6'intervals for 6'wide sidewalk

BRICK:

Brick pavement shall be re-laid as called for by the street replacement schedule and on a complete and accepted base with a sand cushion and only clean whole, sound brick shall be used.

Brick replacement consists of bringing the area to be repaved to a subgrade and base conforming to the required grade and cross section of uniform density ready to receive the brick. Material and density requirements shall meet SECTION 1-6.

Any part of the subgrade and base area inaccessible to the mechanical compactor shall be compacted by hand or power tamping in a manner acceptable to the engineer.

The brick shall be laid in straight courses, flat on the prepared sand cushion, with the better side of face upward.

The brick shall be laid in close contact and the joints of each course shall be uniformly staggered with respect to adjacent courses. Whole brick shall be used except in starting or finishing a course and in fitting around manhole tops or structures. In general, not less than ¼ of brick shall be used in batting.

The joints shall be filled in accordance with SECTION 1-6.1. The 1:4 sand/cement mixture shall be "soupy" and swept in with street brooms or may be dry mixed, swept in with street brooms, consolidated by vibratory methods, and sufficiently moistened to ensure that cement sets. Excess grout shall be removed from surface.

Joint filler shall take place immediately to prevent joints from filling with foreign matter.

ASPHALT:

Asphalt pavement edges of cuts are to be sawed in straight lines parallel and perpendicular to pavement edges. One uniform parallel line for paving shall exist along edge outside trenchline. When the existing asphalt is less than 3" thick, pavement shall be cut and removed for a minimum distance of 6" from edge of the trench.

Tack coat shall be applied to the surface of the pavement base and adjoining asphalt butted edge joint. No "feathering" of asphalt at the joint will be allowed. These areas are to be free of all loose material and foreign matter before applying tack coat.

Asphalt pavement installation shall be rolled in place in a controlled pattern with a mechanical compactor capable of sufficiently applying enough load to meet density requirements in accordance with SECTION 1-4.2.

If an asphalt overlay is called for, a string line must be used while spreading the material, to obtain neat patches with straight edges. Where a cut is adjacent to or within 3' of a previous patch, the pavement replacement and/or resurfacing shall be extended to include the previous patch.

Final surface restoration must be completed to the City's standards and the City reserves the right to require the entire roadway surface width to be overlaid to lengths determined by the City.

Upon completion of the roadway surface, the contractor shall replace all damaged pavement markings per City standards.

TEMPORARY RESTORATION:

Temporary pavement surfaces and sub surface materials shall be restored conforming to all requirements regarding configuration, thickness, and density as detailed in SECTION 1. The pavement shall be temporary finished with a suitable grade of asphalt and sand to provide a temporary-wearing course and to eliminate a dust nuisance. Temporary pavement shall be restored with the proper permanent surface

within specified time period stated in the legal Permit for Construction and Maintenance Operations within Public Rights of Way.

SODDING:

Scarify or loosen the areas requiring sod to a depth of 6 inches. Prior to sodding, thoroughly water area and allow water to percolate into the soil.

Place sod immediately after ground preparation. Do not use sod that has been cut for more than 72 hours.

Do not sod when weather and soil conditions are unsuitable for proper results. Do not place sod on eroded or washed out sites.

Place the sod on the prepared surface, with edges in close contact and embed it firmly and smoothly by lightly tamping with appropriate tools.

Thoroughly water the sod immediately after placing. Use watering equipment that will prevent damage to the finished surface. Keep the sod in a moist condition until well established.

--end of inserted "COT DPW RESTORATION REQUIREMENTS" section--

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		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

not to scale

Sign Information

Building a Better Tampa

David L. Tippin Water Treatment Facility
Caustic Soda Piping Improvements

Project provides for improvements at the David L. Tippin Water Treatment Facility to improve the reliability and safety of the Sodium Hydroxide System of the water distribution system within the facility.

$TBD investment
Scheduled for completion in TBD 2014

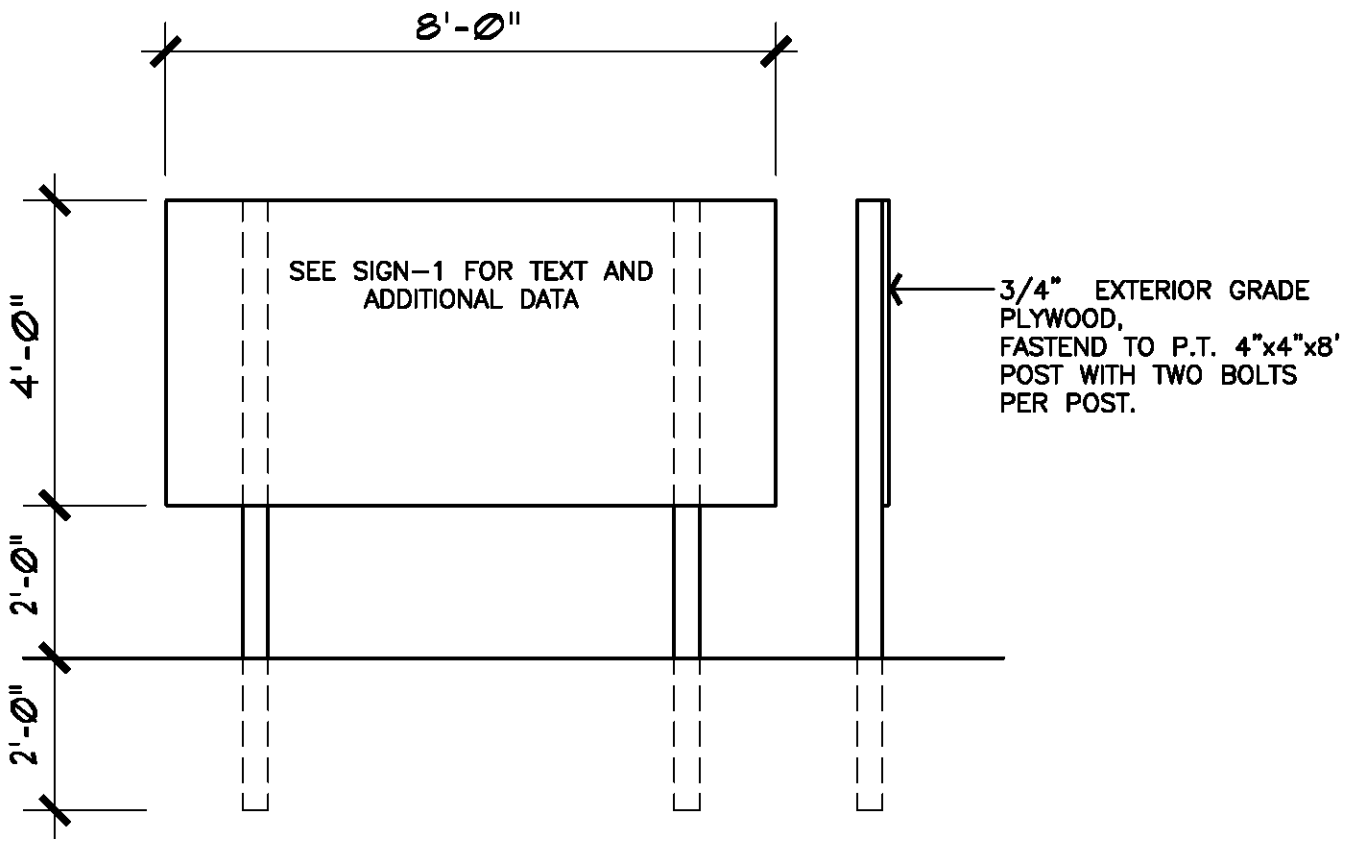
TBD

Colors

Blue: Sherwin Williams Naval SW6244
Green: Sherwin Williams Center Stage SW6920
White: Sherwin Williams Pure White SW7005

Font

Franklin Gothic



CITY OF TAMPA–PROJECT SIGN
REVISED 4/28/04

REPORT OF GEOTECHNICAL EXPLORATION

COT PALMA CEIA PHASE III
CITY OF TAMPA, FLORIDA

AREHNA PROJECT NO. B-20-055

September 3, 2020

Prepared For:
KCI Technologies, Inc.
4041 Crescent Park Drive
Riverview, Florida 33578

Prepared By:
AREHNA Engineering, Inc.
5012 West Lemon Street
Tampa, Florida 33609

AREHNA | Engineering, Inc.

5012 West Lemon Street
Tampa, Florida 33609
Ph 813.944.3464 | Fax 813.944.4959

September 3, 2020

Steve Burnett, PSM
KCI Technologies, Inc.
4041 Crescent Park Drive
Riverview, Florida 33578

Email: Steve.Burnett@kci.com

Subject: **Report of Geotechnical Exploration**
COT Palma Ceia Phase III
City of Tampa, Florida
AREHNA Project B-20-055

Dear Mr. Burnett,

AREHNA Engineering, Inc. (AREHNA) is pleased to submit this report of our geotechnical exploration for the proposed project. Services were conducted in general accordance with AREHNA Proposal B.Prop-20-071 dated July 21, 2020. The purpose of our geotechnical study was to obtain information on the general subsurface conditions for a proposed utility line in the City of Tampa.

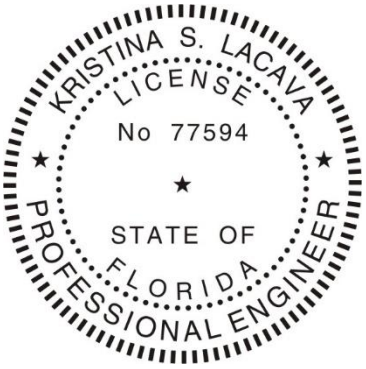
This report presents our understanding of the project, outlines our exploratory procedures, documents the field data obtained, and provides our recommendations for general site preparation.

AREHNA appreciates the opportunity to have assisted KCI Technologies, Inc. on this project. Should you have any questions with regards to this report, or if we can be of any further assistance, please contact this office.

Best Regards,

AREHNA ENGINEERING, INC.
FLORIDA BOARD OF PROFESSIONAL ENGINEERS CERTIFICATE OF AUTHORIZATION NO. 28410
This item has been digitally signed and sealed by:

Kristina S. Lacava, P.E.
Geotechnical Engineer
Florida Registration 77594
On the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



Joseph Baldauff, EI
Staff Geotechnical Professional

Andy Tao, P.E.
Geotechnical Engineer

Distribution: 1 – Electronic S&S to Addressee

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LIST OF APPENDICES

1.0 PROJECT INFORMATION AND SCOPE OF WORK

1.1 Site Description and Project Characteristics

The proposed project consists of the installation of new 6-inch high density polyethylene (HDPE) utility line at depths of 12 to 15 feet below existing grades. The installation of the utility pipe will utilize horizontal directional drilling (HDD). The project site is located along South MacDill Avenue at the intersections of West San Isidro Street, West Palmira Avenue and West San Carlos Street in Tampa in Hillsborough County, Florida, as shown in **Appendix A**.

1.2 Scope of Work

The purpose of our geotechnical study was to obtain information on the general subsurface conditions at the proposed project site. The subsurface materials encountered were evaluated with respect to the available project characteristics. In this regard, engineering assessments for the following items were formulated:

- Identification of the existing ground water levels and estimated normal seasonal high ground water fluctuations.
- General location and description of potentially deleterious materials encountered in the borings which may have impact on the proposed construction.
- General site preparation recommendations including the suitability of excavated soils for use as backfill.

The following services were performed to achieve the above-outlined objectives:

- Requested utility location services from Sunshine811.
- Performed a total of three Standard Penetration Test (SPT) borings to an approximate depth of 25 feet near the vicinity of the proposed utility pipe. Samples were collected and Standard Penetration Test resistances measured in the SPT borings continuously for the top ten feet, and at approximate intervals of five feet, thereafter. The boreholes were backfilled upon completion.
- Visually classified and stratified the soil samples in the laboratory using the Unified Soil Classification System (USCS).
- Conducted a laboratory testing program on representative soil samples.
- Reported the results of the field exploration and engineering analysis. The results of the subsurface exploration are presented in this report signed and sealed by a professional engineer specializing in geotechnical engineering.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

Our scope included three SPT borings extending to approximate depths of 25 feet below existing ground surface, along the proposed utility pipe alignment.

The SPT borings were performed with the use of a Power Drill Rig using Bentonite "Mud" drilling procedures. Samples were collected, and Standard Penetration Test resistances measured continuously for the top ten feet, and at approximate intervals of five feet, thereafter. The borings were manually augered to a depth of approximately 4 feet to avoid possible underground utilities. The soil sampling was performed in general accordance with ASTM Test Designation D-1586, entitled "Penetration Test and Split-Barrel Sampling of Soils."

Representative portions of these soil samples were sealed in glass jars, labeled and transferred to AREHNA's Tampa Office for appropriate classification by a Geotechnical Professional. The approximate locations of the soil borings are shown on the Report of Core Boring **Sheets 2** through **4** in **Appendix A**. The borings were located in the field using GPS coordinates and existing structures.

2.2 Laboratory Testing

Our laboratory testing program included natural moisture content tests, fines content, and Atterberg Limits testing. The results of these tests are shown on the Report of Core Boring **Sheets 2** through **4** in **Appendix A** and are summarized on **Table 1** in **Appendix B**.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 USGS Topographic Data

The topographic survey map published by the United States Geological Survey was reviewed for ground surface features at the proposed project location as shown in **Appendix A** on **Sheet 1**. Based on this review, natural ground surface elevations at the project site range from approximately +15 to +20 feet.

3.2 USDA Natural Resources Conservation Service Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) survey for Hillsborough County indicates that the soils at the project site consist of the following soil unit:

Soil Unit Number	Soil Name	Depth Below Natural Grade to High Water Table (feet)
32	Myakka-Urban land complex	0 - 1.0

The soil survey also indicates that the average annual precipitation is 47 inches. The soils encountered are consistent with the soil units described above. The USDA Soil Survey map for the project site is attached on **Sheet 1** of **Appendix A**.

3.3 Subsurface Conditions

A pictorial representation of the subsurface conditions encountered in the borings is shown on the Report of Core Boring **Sheets 2 through 4** in **Appendix A**. These profiles and the following soil conditions highlight the general subsurface stratification. When reviewing the boring records and the subsurface soil profiles, it should be understood that soil conditions may vary between, and away from, boring locations. In general, the following subsurface conditions were encountered:

SPT-01:

Depth (feet)		Material Description
0	10	Very loose to loose fine SAND with varying amounts of fines (SP, SP-SM, and SC)
10	15	Very soft CLAY (CH)
15	25	Very Hard LIMESTONE

SPT-02:

Depth (feet)		Material Description
0	10	Medium dense fine SAND with varying amounts of fines (SP, SP-SC, and SC)
10	25	Soft to Hard LIMESTONE with varying amounts of weathering

SPT-03:

Depth (feet)		Material Description
0	15	Very loose to medium dense fine SAND with varying amounts of fines (SP, SP-SM, and SC)
15	20	Soft CLAY (CH)
20	25	Hard LIMESTONE

3.4 Groundwater Conditions

The groundwater level was encountered in the borings at a depth of approximately 3.5 feet below the existing ground surface. Fluctuation in ground water levels should be expected due to seasonal climatic changes, construction activity, rainfall variations, surface water runoff, tidal influences and other site-specific factors. Since ground water level variations are anticipated, design drawings and specifications should accommodate such possibilities and construction planning should assume that variations will occur.

3.5 Estimated Seasonal High Groundwater Level

Based on the mapping performed by the USDA, soils information obtained from the site, and our experience in the area, we estimate that the seasonal high groundwater level will generally be encountered approximately 1.5 to 2 feet below the existing ground surface.

4.0 GENERAL SITE PREPARATION

4.1 General

Site preparation includes stripping, excavation, backfilling, and compaction.

The HDD installation operation is the responsibility of the specialty contractor (i.e. the selection of HDD equipment and operation procedures are the choices of the specialty contractor). We have provided general guidelines for HDD operation below. Our general installation recommendations have been based on the site conditions encountered during our geotechnical investigation. AREHNA should be notified is the site conditions are different then stated in this report, so we may modify or amend our recommendations.

4.2 On-Site Soil Suitability

The borings indicate that sandy soils classified as SP, SP-SM and SP-SC based on the Unified Soil Classification System are present at the site at varying depths of up to 8 feet and are suitable for use as backfill material. Clayey sand (SC) was encountered at approximate depths of 1 to 15 feet below existing ground surface are not suitable for use as backfill. Further, cohesive soils encountered at depths of approximately 10 to 15 feet and 15 to 20 feet, respectively, in borings SPT-01 and SPT-03, are not suitable for use as backfill.

Suitable structural fill materials should consist of fine to medium sand with less than 12 percent passing the No. 200 sieve and be free of rubble, organics, clay, debris, and other unsuitable material. Any off-site materials used as fill should be approved by AREHNA prior to acquisition.

4.3 Horizontal Directional Drilling

Based on the SPT borings performed, the subsurface materials generally consist of very loose to medium dense fine sands (SP, SP-SM, SP-SC, SC). Sandy clay (CH) was also encountered at depths of approximately 10 to 15 feet and 15 to 20 feet, respectively, in borings SPT-01 and SPT-03. The encountered sandy soils have a potential for caving. The limestone formation was generally encountered in the borings at a depth of 15 feet below the existing ground surface. HDD that is planned to extend to 15 feet below the existing ground surface will likely encounter this limestone formation and may require the use of pneumatic or hydraulic equipment designed for the removal of hard rock.

Soil parameters for use in the HDD design software are presented on **Table 2** in **Appendix B**.

Drilling Fluid - Drilling fluid should be used during drilling and back-reaming operations. Due to the sandy soils encountered during our investigation it is recommended that the drilling fluid be composed of clean water and bentonite. Other appropriate additives should be added at the discretion of the specialty contractor. The drilling fluid should be mixed thoroughly and be absent of any clumps or clods. Further, the drilling fluid should not be recycled and should be hauled off the site.

Heaving Potential - The soils encountered in our investigation have a low heaving potential. However, heaving may occur when attempting to back-ream too large of a hole. To minimize heaving, reaming process should be completed leaving the bored hole at full design diameter during pullback. The pullback barrel reamer should be no larger than the design bored diameter. The pullback rate should minimize overcutting of the borehole so that excessive voids are reduced and post installation settlement may be minimized.

Monitoring – The drilling and installation operations should be monitored continuously by experienced personnel trained in all aspects of directional drilling process. These procedures include accurate monitoring and control system to track the progress and exact location of the drilling head at all times. The drilling operator should maintain record on drilling fluid pumping rates, pressures, viscosity and density, etc. throughout the entire course of drilling activities.

Horizontal and vertical adjustments should be made throughout the procedure so that the drilling profile matches the planned profile. The specific weight of the drilling fluid should be adjusted throughout the process to maintain hydrological stability. Jetting pressures should be limited to avoid drilling fluid release during drilling. However, should release of drilling fluid in the project area occur, operations should stop immediately and measures should be taken to contain release. Generic measures may include the following:

- If release is detected, the drilling crew should take immediate corrective action to contain the release and to prevent migration offsite.
- Pits and/or berms should be constructed around the borehole entry point to contain drilling fluid and return.
- Containment equipment, including earth moving equipment, portable pumps, hand tools, sandbags, hay bales, silt fencing, lumber, and vacuum trucks, should be stored and readily available at the drilling site.
- Any drilling seepage should be removed using a vacuum truck and then transported to an approved disposal site.

4.4 Excavation and Backfill

Excavations, whether they be utility trenches, basement excavations, or footing excavations, should be constructed in accordance with the new OSHA guidelines. The contractor is solely 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. The contractor's responsible person, as defined in 29 CFR, Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in all local, state, and federal safety-regulations.

The soils encountered are consistent with AASHTO Class C soils and will not stand vertically in an open excavation below the groundwater level. Soil should not be stockpiled adjacent to excavations unless the stockpile has been included in the analyses of the excavation stability.

Excavations below the groundwater level will likely require a combination of sanded wellpoints and pumping from filtered sumps.

Any and all excavations should be backfilled with compacted fill. Fill should generally consist of dry fine sand with less than 12 percent passing the No. 200 sieve and be free of rubble, organics, clay, debris and other unsuitable material. Fill should be tested and approved prior to acquisition. Approved sand fill should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted to a minimum of 95 percent of the Modified Proctor maximum dry density (ASTM D-1557). Prior to beginning compaction, soil moisture contents should be adjusted in order to facilitate proper compaction. A moisture content within 2 percentage points of the optimum indicated by the Modified Proctor Test (ASTM D-1557) is recommended prior to compaction of the fill.

4.5 Dewatering

Construction activities should be accomplished in the "dry" with ground water levels maintained at least 1 foot below the deepest portion of any excavation. The groundwater level was encountered at a depth of approximately 3.5 feet in the SPT borings performed. Therefore, depending on the time of year construction is performed, dewatering may be required for excavations deeper than 3.5 feet. Dewatering can be accomplished using a sanded wellpoint system supplemented by a gravel bottom layer and pumping from a sump. Actual dewatering means and methods should be the responsibility of the contractor.

Groundwater fluctuations will likely occur due to seasonal variations, runoff, and other factors and should be considered when planning earthwork activities. The impact of runoff from adjacent properties, nearby water bodies, and other site-specific conditions which may affect groundwater recharge are beyond the scope of this exploration and should be considered when planning and designing a dewatering system.

4.6 Pipeline Bedding

We recommend the pipeline be supported on a bedding layer consisting of at least 6 inches of granular soils meeting the previous requirements for structural fill. Any utilities 3 feet or greater in diameter should be supported on at least 12 inches of structural fill/granular soils. The bedding layer should be compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557).

4.7 General Construction Monitoring and Testing Guidelines

Prior to initiating compaction operations, we recommend that representative samples of the structural fill material to be used and acceptable exposed in-place soils be collected and tested to determine their compaction and classification characteristics. The maximum dry density, optimum moisture content, gradation and plasticity characteristics should be determined. These tests are needed for compaction quality control of the structural fill and existing soils and to determine if the fill material is acceptable.

A representative number of in-place field density testes should be performed in the compacted existing soils and in each lift of structural fill or backfill to confirm that the required degree of compaction has been obtained. We recommend that at least one density test be performed for every lift of backfill and for every 100 lineal feet of trench.

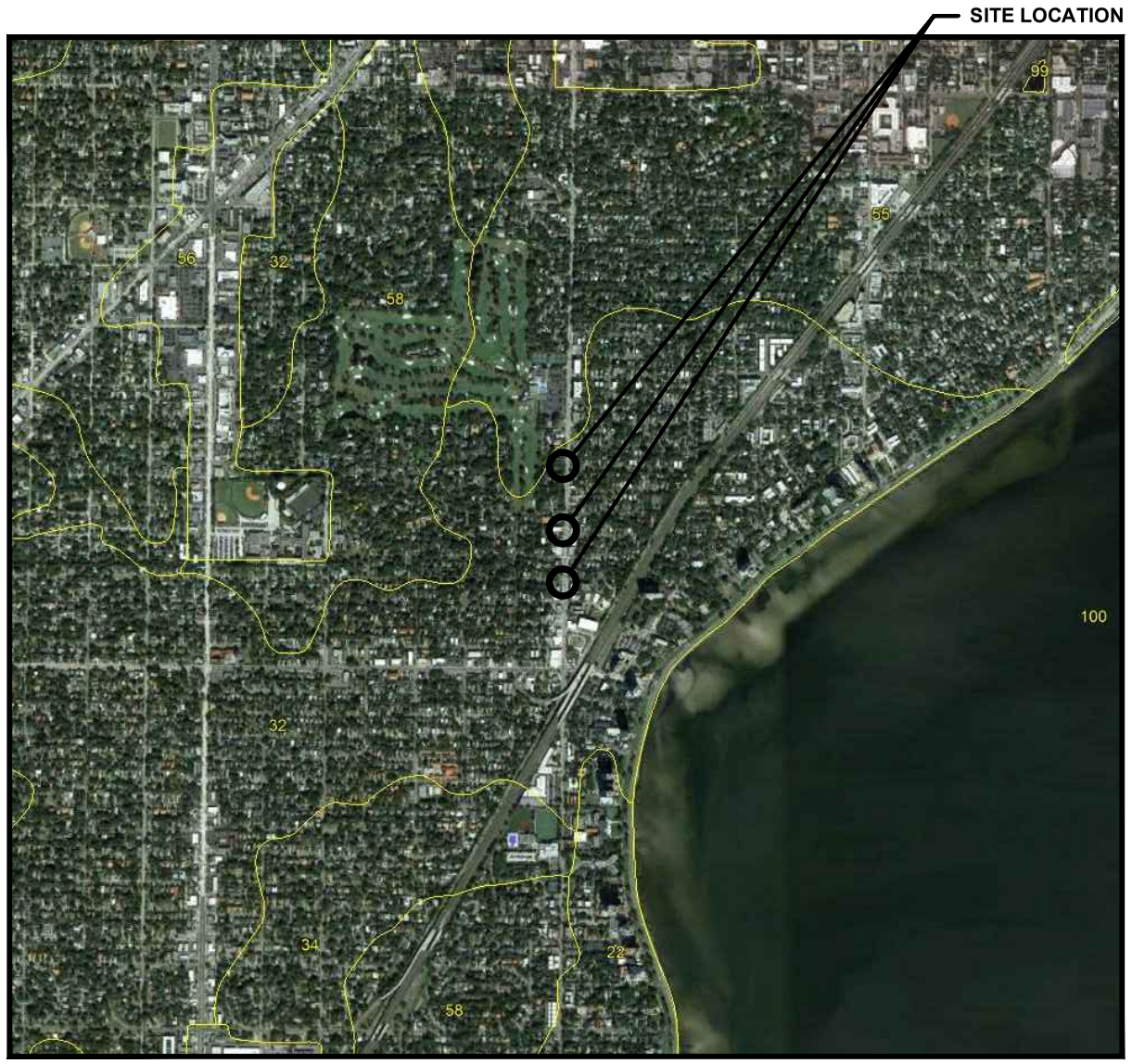
5.0 BASIS FOR RECOMMENDATIONS

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the location indicated. Regardless of the thoroughness of a geotechnical exploration, there is always a possibility that conditions across site will be different from those encountered where the boring was drilled, and that conditions will not be as anticipated by the designers or contractors. In addition, the construction process itself may alter soil conditions. AREHNA is not responsible for the conclusions, opinions or recommendations made by others based on the data presented in this report.

APPENDIX A

USDA and USGS Vicinity Maps – Sheet 1
Report of Core Borings – Sheets 2 to 4

USDA SOIL SURVEY MAP

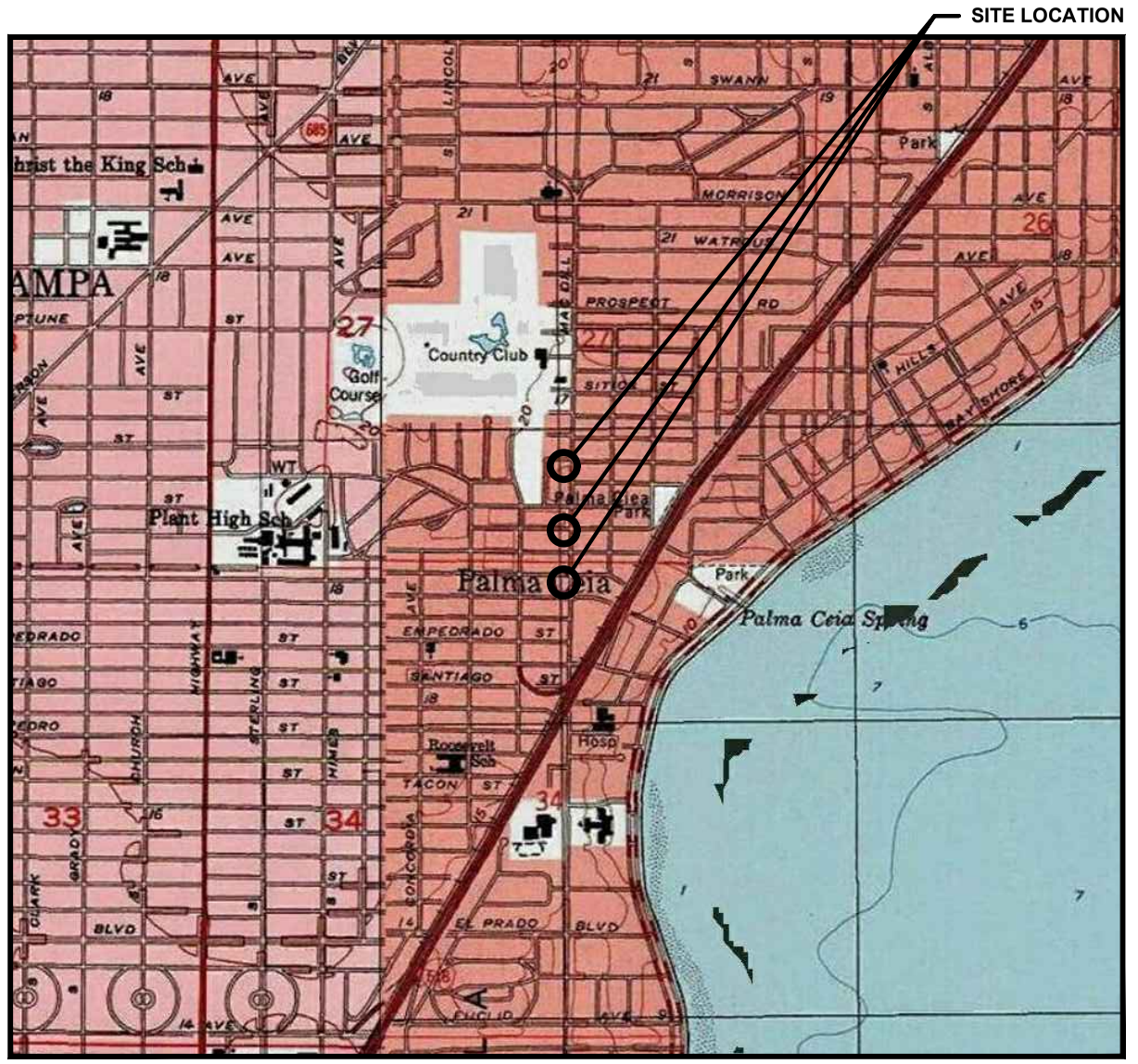


REFERENCE: USDA SOIL SURVEY OF HILLSBOROUGH COUNTY, FLORIDA

0 500 2000
Feet

TOWNSHIP: 29 S
RANGE: 18 E
SECTION: 27 & 34

USGS TOPOGRAPHIC MAP



REFERENCE: "TAMPA, FLORIDA" USGS QUADRANGLE MAP

0 500 2000
Feet

TOWNSHIP: 29 S
RANGE: 18 E
SECTION: 27 & 34

REVISIONS			
NO.	DATE	DESCRIPTIONS	APPROVED

PREPARED BY:
AREHNA Engineering, Inc.
5012 West Lemon Street, Tampa, FL 33609
Phone 813.944.3464 | Fax 813.944.4959
Certificate of Authorization No. 28410

USDA & USGS VICINITY MAPS

	NAME	DATE
DESIGNED BY:	KL	8/2020
DRAWN BY:	DG	8/2020
CHECKED BY:	KL	8/2020
SUPERVISED BY:	Kristina S. Lacava, P.E.	

PROJECT NAME	PROJECT NO.	SHEET NO.
COT PALMA CEIA PHASE III HILLSBOROUGH COUNTY, FLORIDA	B-20-055	1

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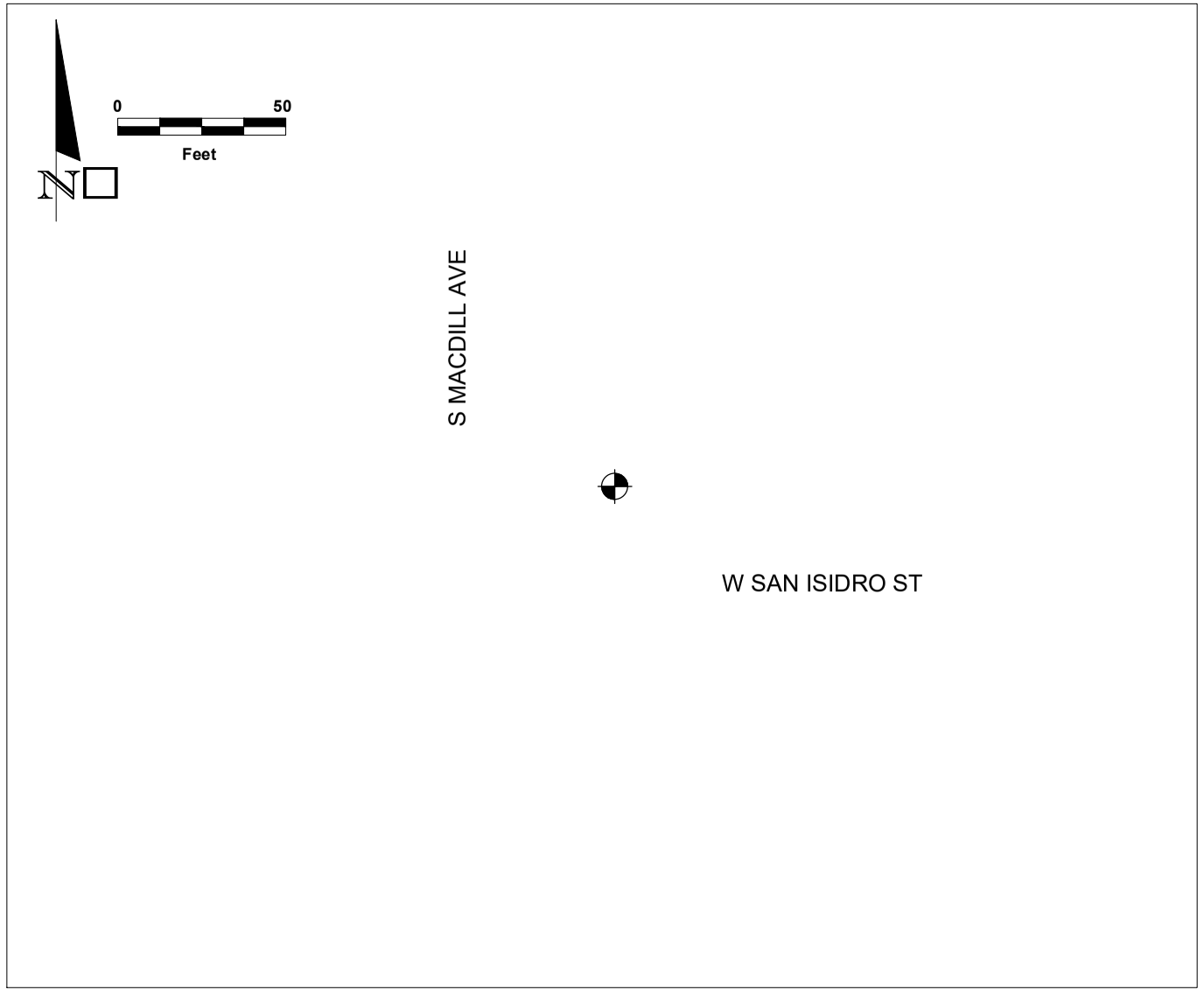


LEGEND

FINE SAND (SP/SP-SM/SP-SC) | CLAYEY SAND (SC) | CLAY (CH) | WEATHERED LIMESTONE | LIMESTONE

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING

GROUNDWATER TABLE AT THE TIME OF DRILLING

N SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION

HA HAND AUGERED TO AVOID UTILITY CONFLICTS AND SAFETY REASONS

WH FELL UNDER WEIGHT OF ROD AND HAMMER

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

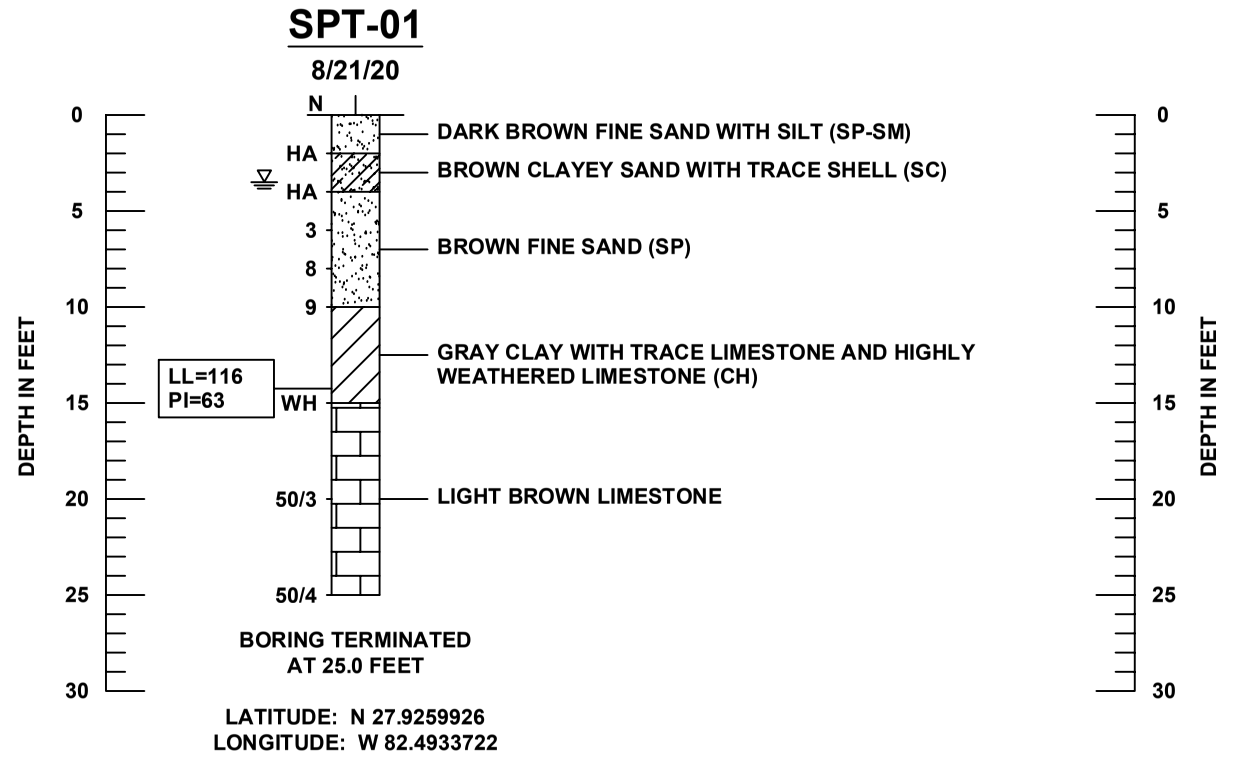
-200 FINES PASSING THE #200 STANDARD SIEVE (%)

NMC NATURAL MOISTURE CONTENT (%)

LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

APPROXIMATE LOCATION OF SPT BORING



	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	LESS THAN 4 4 to 10 10 to 30 30 to 50 GREATER THAN 50	LESS THAN 3 3 to 8 8 to 24 24 to 40 GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT SOFT FIRM STIFF VERY STIFF HARD	LESS THAN 2 2 to 4 4 to 8 8 to 15 16 to 30 GREATER THAN 30	LESS THAN 1 1 to 3 3 to 6 6 to 12 12 to 24 GREATER THAN 24
LIMESTONE CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
SOFT MEDIUM HARD VERY HARD	LESS THAN 20 20 to 50 51 to 50/3" GREATER THAN 50/3"	LESS THAN 17 17 to 41 42 to 50/6" GREATER THAN 50/6"

Soil Profile Notes:

1. The profiles depicted are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The soil profiles include soil description, stratifications and penetration resistances. The stratifications shown on the boring profiles represent the conditions only at the actual boring location. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual.
2. Groundwater levels generally fluctuate during periods of prolonged drought and extended rainfall and may be affected by man-made influences. In addition, a seasonal effect will also occur in which higher groundwater levels or temporary perched conditions are normally recorded in rainy seasons.
3. The Boring Locations Presented are Approximate and Based on Hand Held GPS with an Accuracy of +/- 10 Feet.
4. The limestone formation was generally encountered in the borings at a depth of 15 feet below the existing ground surface. HDD that is planned to extend 15 feet below the existing ground surface will likely encounter this limestone formation and may require the use of pneumatic or hydraulic equipment designed for the removal of hard rock.

REVISIONS NO.	DATE	DESCRIPTIONS	APPROVED

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Certificate of Authorization No. 28410

REPORT OF CORE BORINGS

	NAME	DATE
DESIGNED BY:	KL	8/2020
DRAWN BY:	DG	8/2020
CHECKED BY:	KL	8/2020
SUPERVISED BY:	Kristina S. Lacava, P.E.	

PROJECT NAME	PROJECT NO.	SHEET NO.
COT PALMA CEIA PHASE III HILLSBOROUGH COUNTY, FLORIDA	B-20-055	2

LEGEND

FINE SAND (SP/SP-SM/SP-SC) | CLAYEY SAND (SC) | CLAY (CH) | WEATHERED LIMESTONE | LIMESTONE

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING

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HA HAND AUGERED TO AVOID UTILITY CONFLICTS AND SAFETY REASONS

WH FELL UNDER WEIGHT OF ROD AND HAMMER

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

-200 FINES PASSING THE #200 STANDARD SIEVE (%)

NMC NATURAL MOISTURE CONTENT (%)

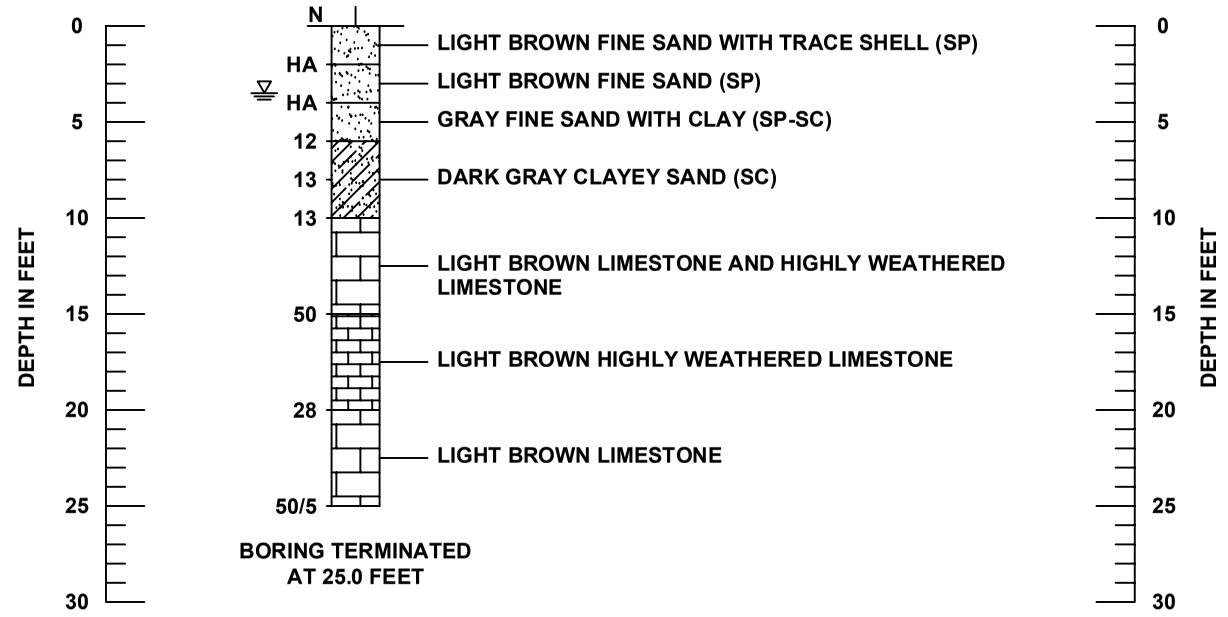
LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

APPROXIMATE LOCATION OF SPT BORING

SPT-02

8/21/20



BORING TERMINATED AT 25.0 FEET

LATITUDE: N 27.92388
LONGITUDE: W 82.4937945

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	16 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24
LIMESTONE CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
SOFT	LESS THAN 20	LESS THAN 17
MEDIUM	20 to 50	17 to 41
HARD	51 to 50/3"	42 to 50/6"
VERY HARD	GREATER THAN 50/3"	GREATER THAN 50/6"

Soil Profile Notes:

1. The profiles depicted are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The soil profiles include soil description, stratifications and penetration resistances. The stratifications shown on the boring profiles represent the conditions only at the actual boring location. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual.
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REPORT OF CORE BORINGS

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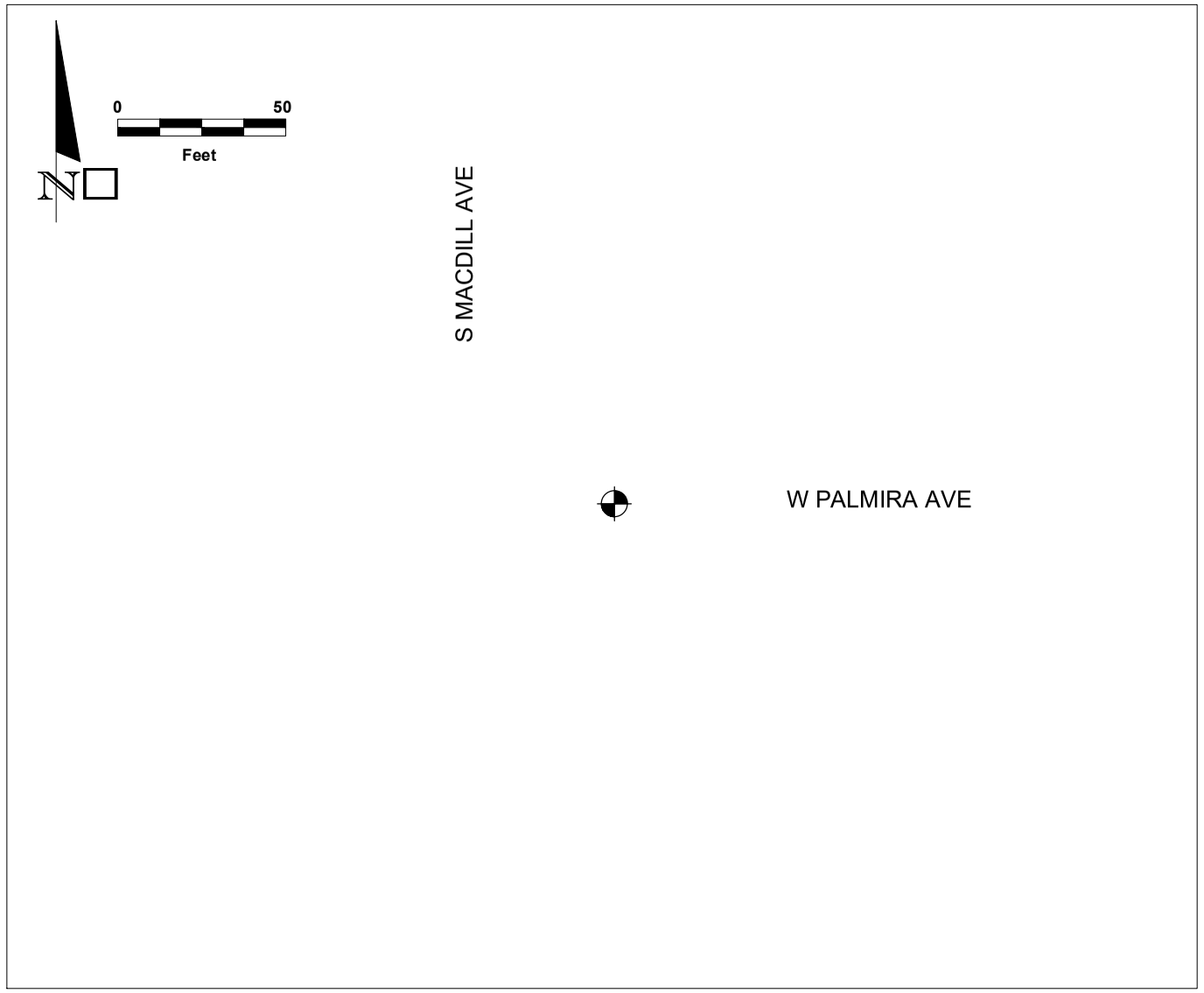
PROJECT NAME	PROJECT NO.	SHEET NO.
COT PALMA CEIA PHASE III HILLSBOROUGH COUNTY, FLORIDA	B-20-055	3



LEGEND

FINE SAND (SP/SP-SM/SP-SC) | CLAYEY SAND (SC) | CLAY (CH) | WEATHERED LIMESTONE | LIMESTONE

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50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

-200 FINES PASSING THE #200 STANDARD SIEVE (%)

NMC NATURAL MOISTURE CONTENT (%)

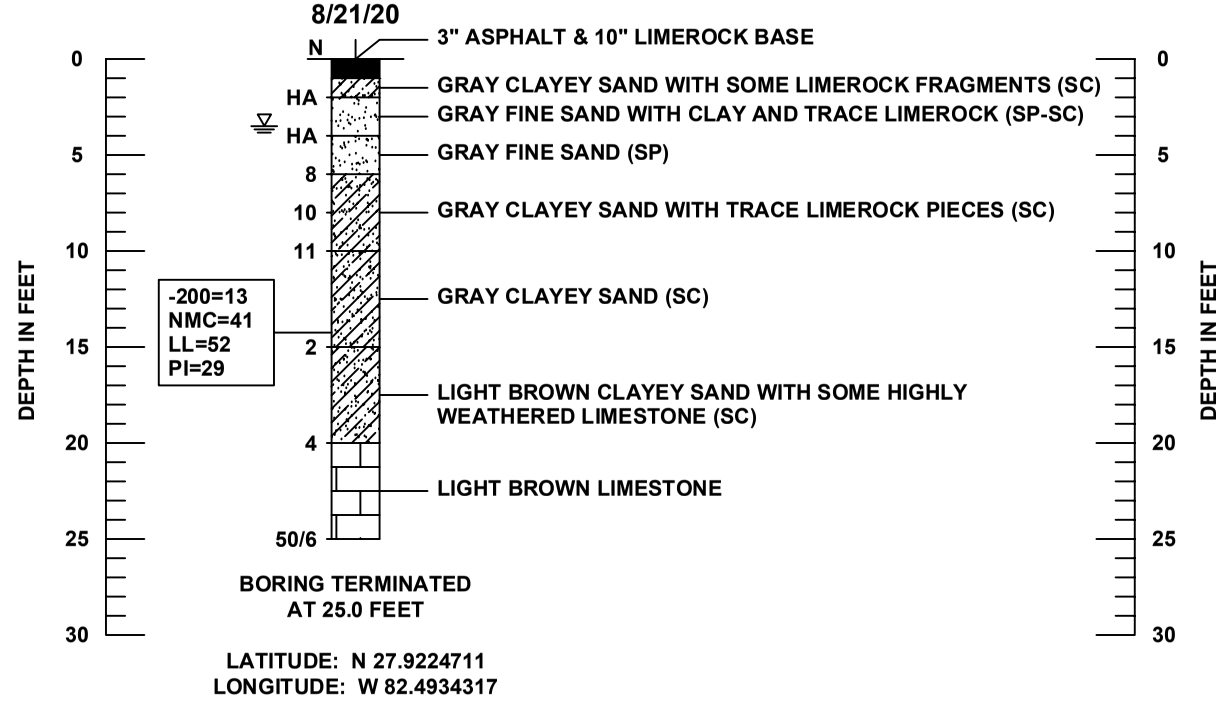
LL LIQUID LIMIT (%)

PI PLASTICITY INDEX (%)

APPROXIMATE LOCATION OF SPT BORING

SPT-03

8/21/20



LATITUDE: N 27.9224711
LONGITUDE: W 82.4934317

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	LESS THAN 4 4 to 10 10 to 30 30 to 50 GREATER THAN 50	LESS THAN 3 3 to 8 8 to 24 24 to 40 GREATER THAN 40
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REPORT OF CORE BORINGS

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CHECKED BY:	KL	8/2020
SUPERVISED BY:	Kristina S. Lacava, P.E.	

PROJECT NAME	PROJECT NO.	SHEET NO.
COT PALMA CEIA PHASE III HILLSBOROUGH COUNTY, FLORIDA	B-20-055	4

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APPENDIX B

Laboratory Test Results – Table 1
Recommended Soil Parameters – Table 2
Field and Laboratory Procedures

TABLE 1
SUMMARY OF LABORATORY TEST RESULTS
COT PALMA CEIA PHASE III
HILLSBOROUGH COUNTY, FLORIDA
AREHNA Project Number: B-20-055

Boring No.	Sample Depth (feet)	ASTM Classification	#200	Atterberg Limits			Natural Moisture Content (%)
				LL	PL	PI	
SPT-01	15	CH	-	116	53	63	-
SPT-03	15	SC	13	52	23	29	41

TABLE 2
SUMMARY OF SOIL PARAMETERS
PALMA CEIA PHASE III
CITY OF TAMPA, FLORIDA
AREHNA PROJECT B-20-055

Boring Number	Depth (Feet)	SPT "N" Average	Soil Classification	Approximate Soil Unit Weight (pcf)		Cohesion (psf)	Soil Angle of Friction (Degrees)	Earth Pressure Coefficient		Shear Modulus G (ksi)
								Active	Passive	
				γ_{Sat}	$\gamma_{Submerged}$			(K_a)	(K_p)	
SPT-01	0 – 10	5	SP, SP-SM, SC	105	42.6	-	29	0.347	2.882	0.380
	10 - 15	1	CH	100	37.6	125	-	1.000	1.000	0.162
	15 - 25	100	LS	135	72.6	-	-	1.000	1.000	3.576
SPT-02	0 - 4	4	SP	100	37.6	-	29	0.350	2.859	0.311
	4 - 10	10	SP, SP-SC, SC	105	42.6	-	30	0.333	3.000	0.642
	10 - 15	50	LS	135	72.6	-	-	1.000	1.000	2.088
	15 - 20	28	HWLS	125	62.6	-	-	1.000	1.000	1.026
	20 - 25	100	LS	135	72.6	-	-	1.000	1.000	3.403
SPT-03	0 – 10	7	SP, SP-SC, SC	105	42.6	-	29	0.341	2.929	0.533
	10 – 15	2	SC	100	37.6	-	28	0.355	2.814	0.087
	15 – 20	4	SC	105	42.6	-	29	0.350	2.859	0.150
	20 - 25	100	LS	135	72.6	-	-	1.000	1.000	3.500

FIELD PROCEDURES

Standard Penetration Test (SPT) Borings

The SPT borings are performed in general accordance with ASTM D-1586, "Penetration Test and Split-Barrel Sampling of Soils." A rotary drilling process is used and bentonite drilling fluid is circulated in the boreholes to stabilize the sides and flush the cuttings. At regular intervals, the drilling tools are removed and soil samples are obtained with a standard 2-feet long, 2-inch diameter split-tube sampler. The sampler is first seated 6 inches and then driven an additional foot with blows of a 140-pound hammer falling under its own weight a distance of 30 inches. The number of hammer blows required to drive the sampler the final foot is designated the "Penetration Resistance." The penetration resistance, when properly interpreted, is an index to the soil strength and density.

Water Content

The water content is the ratio, expressed as a percentage, of the weight of water in a given mass of soil to the weight of the solid particles. This test is conducted in general accordance with FM 1-T265.

Atterberg Limits (Plasticity)

A soil's Plasticity Index (PI) is the numerical difference between the Liquid Limit (LL) and the Plastic limit (PL). The LL is the moisture content at which the soil will flow as a heavy viscous fluid and is determined in general accordance with ASTM D-4318. The PL is the moisture content at which the soil begins to crumble when rolled into a small thread and is also determined in general accordance with FM 1-T 90.

Fines Content

In this test, the sample is dried and then washed over a No. 200 mesh sieve. The percentage of soil by weight passing the sieve is the percentage of fines or portion of the sample in the silt and clay size range. This test is conducted in general accordance with ASTM D-1140.