

The Enclosed Document Is Provided For Your Convenience.

Please Email ALL Questions:
[MailTo:ContractAdministration@TampaGov.net](mailto:ContractAdministration@TampaGov.net)

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

CITY OF
TAMPA, FLORIDA

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

FOR

Contract 19-C-00002

Wastewater Collection System Repair – FY19

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

NOVEMBER 2018

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

BID NOTICE MEMO

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

CONTRACT NO.: 19-C-00002; Wastewater Collection System Repair – FY19

BID OPENING: 1:30PM, Tuesday, December 11, 2018 **ESTIMATE:** \$1,500,000 **SCOPE:** The project comprises construction of approximately 16,000 linear feet of 4-inch through 12-inch diameter PVC Pipe (by open cut excavation) and / or HDPE Pipe (by directional bore), including asphalt pavement, concrete driveways, concrete sidewalks, sodding restoration, with all associated work required for a complete project in accordance with the Contract Documents. **PRE-BID CONFERENCE:** 2:00PM, Tuesday, November 27, 2018. Attendance is not mandatory, but recommended.

Bids will be opened in the 4th Floor Conference Room, Tampa Municipal Office Building, 306 E. Jackson Street, Tampa, Florida 33602. Pre-Bid Conference is held at the same location unless otherwise indicated. Plans and Specifications and Addenda for this work may be examined at, and downloaded from, www.demandstar.com. Backup files are available at <http://www.tampagov.net/contract-administration/programs/construction-project-bidding>. Email Questions to: contractadministration@tampagov.net .

TABLE OF CONTENTS

BIDDING REQUIREMENTS

Notice to Bidders.....N-1
 Instructions to BiddersI-1a thru I-4
 Insurance RequirementsINS-1 thru INS-2
 MBD Form 70.....MBD Form-70
 WMBE/SLBE Availability Contact List.....ACL-1
 Availability Contact List InstructionsACLI-1

BID FORMS

Proposal.....P-1 thru P-7
 Good Faith Efforts Compliance Plan.....GFCEP
 SLBE SolicitedDMI – Solicited
 SLBE Utilized.....DMI – Utilized
 Bid Bond.....BB-1

CONTRACT FORMS

AgreementA-1 thru A-15
 Public Construction BondPB-1 thru PB-3

GENERAL PROVISIONS

General ProvisionsG-1 thru G-10
 Specific Provisions.....SP-1- thru SP-16
 Subcontractors Payment Form.....DMI – Payments
 Project Sign.....Sign-1 thru Sign-2

SPECIFICATION

WORKMANSHIP AND MATERIALS

Section 1 - Excavation - Earth and Rock.....W1-1
 Section 2 - Backfilling.....W2-1
 Section 3 - Timber and LumberW3-1
 Section 4 - Concrete and Concrete MaterialsW4-1
 Section 6 - Reinforcing SteelW6-1
 Section 8 - Metal Castings.....W8-1
 Section 10 - Ductile Iron Pipe and FittingsW10-1
 Section 11 - PVC Pipe GravityW11-1
 Section 12 - Precast Concrete Manholes.....W12-1
 Section 12F- Fiberglass Reinforced Polyester Manholes.....W12F-1
 Section 13 – HDPE Pipe / Directional DrillingW13-1
 Section 15 - Laying and Jointing PipeW15-1
 Section 16 - Restoration of Street PavementsW16-1
 Section 17 - Lawn ReplacementW17-1
 Section 18 - Leakage Tests.....W18-1
 Section 20 - Maintaining Existing Sanitary Sewer in OperationW20-1
 Section 24 - PVC Pipe - Force MainW24-1
 Section 26 - Filling Existing Sanitary or Storm Sewer.....W26-1
 Section 32 - Valves.....W32-1
 Section 105 - Root Pruning.....W105-1

Section 9100 - Line Stops.....W9100-1

CONTRACT ITEMS

Item 0101 - Mobilization.....C-1
 Item 0102 - Contingency.....C-1
 Item 0103 - Project SignC-1
 Item 0110 - Additional Earth ExcavationC-2
 Item 0120-1-1 - Excavation for Thrust Restraint Installation on Existing Force MainC-2
 Item 0130 - Additional Select Sand Fill MaterialC-2
 Item 0140 - Additional Select Crushed Stone Fill MaterialC-2
 Item 0170 - Class D ConcreteC-3
 Item 0200 - Short Tunnel.....C-4
 Item 0520 - Permanent Curb and Gutter Replacement.....C-4
 Item 0700 & 0900 - Solid Wall PVC PipeC-5
 Item 1005 - Directional Drilled Pipe.....C-5
 Item 1063 - Install Tee or Wye or Hot Tap on Existing Pipe.....C-6
 Item 1700 - Solid Wall PVC Pipe House Lateral.....C-6
 Item 2400 - PVC Pipe Bends, Sleeves, Reducers, Caps or Plugs.....C-7
 Item 2700 - Solid Wall (SDR-35) PVC Pipe Wye.....C-7
 Item 2800 - C900 PVC or Ductile Iron Pipe Tee or Wye.....C-7
 Item 3300 - Thrust Restraint.....C-8
 Item 3500 - Flexible Couplings.....C-8
 Item 4000 - Precast Concrete Manhole Standard or Doghouse BaseC-8
 Item 4100 - Precast Concrete Manhole Barrel.....C-9
 Item 4200 - Precast Concrete Manhole Cone.....C-9
 Item 4300 - Precast Concrete Standard or Doghouse Shallow Type ManholeC-9
 Item 4400 - Fiberglass Reinforced Polyester Manholes.....C-10
 Item 4600 - Cast Iron Manhole Frame and CoverC-10
 Item 4660 - PVC Cleanout.....C-10
 Item 4700 - Pipe Manhole Drop Connection.....C-11
 Item 4900 - Connection to Existing ManholeC-11
 Item 5000 - Removal of Existing Manholes and Sewer Pipe Outside of Payment Limits.....C-11
 Item 5051 - Filling of Existing Sanitary or Storm Sewer SystemC-12
 Item 7000 - Plug Valves.....C-12
 Item 7500 - Air Release System.....C-12
 Item 8000 - Permanent Pavement Base ReplacementC-13
 Item 8100 - Permanent Pavement Surface Replacement.....C-13
 Item 8300 - Permanent Driveway ReplacementC-14
 Item 8604 - Permanent Sidewalk Replacement.....C-14
 Item 8900 - Lawn ReplacementC-15
 Item 9000 - Force Main Sewage Bypass PipingC-15
 Item 9100 - Line StopC-16
 Item 9200 - Root Pruning.....C-16
 Item 9300 - Saw Cut Permanent Pavement Surface.....C-16
 Item 9400 - Mill Existing Asphalt Pavement.....C-16
 Item 10000 - Connection between PVC and HDPE PipeC-16
 Item 20000 - As-Built PlansC-16

PLANS 10 Sheets of Drawings

NOTICE TO BIDDERS
CITY OF TAMPA, FLORIDA
Contract 19-C-00002; Wastewater Collection System Repair – FY19

Sealed Proposals will be received by the City of Tampa no later than 1:30 P.M., December 11, 2018, 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 all labor, materials and equipment for the construction of approximately 16,000 linear feet of 4-inch through 12-inch diameter PVC Pipe (by open cut excavation) and / or HDPE Pipe (by directional bore), including asphalt pavement, concrete driveways, concrete sidewalks, sodding restoration 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 Statutes.

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 Wastewater Collection System Repair – FY19 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

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

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, as enacted by Ordinance No. 2008-89.

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.

This is a one-year contract with annual/bid prices with provisions for two additional one-year periods, if agreeable by both parties and if funds are available

The time for completion of this project, referred in Article 4.01 of the Agreement, shall be 365 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.

INSTRUCTIONS TO BIDDERS
SECTION 1 – SPECIAL INSTRUCTIONS

I-1.10 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.



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
_____30%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 (GFCEP) (MBD Form-50) for specific requirements.

GOOD FAITH EFFORT COMPLIANCE PLAN (GFCEP) REQUIRED (MBD FORM-50). When a Goal has been established, the Bidder **must submit** with its bid a Good Faith Effort Compliance Plan (GFCEP) 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 GFCEP (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 **GFCEP MBD Form-50** requirements.



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.shtml>. 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 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 Contractor 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.

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

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

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.

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.

INSTRUCTIONS TO BIDDERS
SECTION 1 - SPECIAL INSTRUCTIONS

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."

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.

I-1.19 Contractor Qualifications and Experience

The Contractor shall possess the necessary qualifications and experience to perform , but not be limited to, the following tasks: construction of wastewater pipelines, manholes, air release valves, plug valves, hot taps, linestops, maintenance of traffic devices, bypass pumping systems, sidewalks, driveways, pavement replacement, and all appurtenant work. Work Orders will be issued for various planned projects and unplanned emergency repairs that require immediate responses. The Contractor shall be qualified and capable to successfully complete both types of Work Orders.

The Contractor must have and demonstrate five (5) consecutive years of successful experience in work similar in scope and magnitude to this Contract. The Contractor must have sufficient staff to dedicate at least two (2) full-time (five man) crews if necessary, to work on multiple Work Orders concurrently and be capable of responding to emergency projects within 24 hours. The Contractor shall confirm this experience and submit a detailed list of references after the bid. The Contractor shall also provide a minimum of 3 projects along with references on which the Contractor, and not a subcontractor, responded within 24 hours to an emergency project such as a pressured pipe rupture or a cave-in associated with a deteriorated gravity sewer pipe or manhole. The projects used to meet this experience requirement shall be of similar difficulty and magnitude to the work proposed by the City. The experience of subcontractors cannot be used to meet this requirement. The City reserves the right to reject any Bid Proposal if the experience submitted by the Bidder fails to satisfy this requirement and the City determines that the Bidder is not properly qualified to carry out the obligations of the contract and to complete the work described herein. The City shall be the sole judge as to whether the experience meets the requirements of this section.

The Contractor must provide a qualified foreman that has at least 10 years of experience in the construction of underground utilities and has been employed by the Contractor for at least three consecutive years in underground utilities construction. The foreman shall be present at all times when construction work is being performed and all communications given to the foreman shall be binding, as if given to the Contractor.

The Contractor will be required to perform with its own forces at least fifty-one percent (51%) of actual construction work on the contract (excluding administrative and supervisory functions) in accordance with Section 5 Article 5.01 Subcontracts and Assignments.

The fifty-one percent (51%) of actual work is intended to apply to the entire amount of all Contract work and not necessarily to every individual Work Order.

INSTRUCTIONS TO BIDDERS

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 item 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 Firm (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 (CPL)/ 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

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&I Insurance 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 CIOB) 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. IOB by which minimum monthly rent will be paid to City for up to 1 year if premises are destroyed, rendered inaccessible or untenable, including disruption of utilities, water, or telecommunications. **(IF APPLICABLE)**

O. 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

ACCEPTABILITY 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.

ADDITIONAL 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.

UNAVAILABILITY- 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.

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

Wastewater Collection System Repair - FY19

Project #19-C-00002

U-WMBE Availability Contact List

(The Underutilized WMBE Industry Category for Construction Subcontracts is BBE)

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
1	DRD Enterprises LLC	813-476-9933	866-850-1332	ddeenah@drdententerprise.com	4104 Yellowwood Dr.,	Valrico	FL	33594	Pipe Supply	204675317	MBE	African American
1	MANZI METALS INC	352-799-8211	352-754-9735	bmanzi@manzimetals.com	15293 FLIGHT PATH DR	BROOKSVILLE	FL	34604	Pipe Supply	993245008	MBE	African American
1	Suca Pipe Supply, Inc.	813-249-7902	813-249-7384	slmau44@yahoo.com	4910 Lowell Rd	Tampa	FL	33624	Pipe Supply	992499571	MBE	African American
1	Suca Pipe Supply, Inc. One	813-249-7902	813-249-7384	sucapipesupply1@yahoo.com	4910 Lowell Road	Tampa	FL	33624	Pipe Supply	263669556	MBE	African American
1	Terrell Industries, Inc.	727-823-4424	727-823-3977	gradyterrell@terrellindustries.com	2067 1ST AVENUE NORTH	ST PETERSBURG	FL	33713	Pipe Supply Asphalt Pavement	650530148	MBE	African American
3	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Restoration Asphalt Pavement	993362663	MBE	African American
3	McKenzie Contracting LLC	813-454-4429	813-454-4429	kathy@mckenziecontractingllc.com	7712 E. Broadway Ave.	Tampa	FL	33619	Restoration	663561860	MBE	African American
5	Denson Construction Inc.	863-709-1001	863-709-1071	pete@denson-construction.com	4270 HOLDEN ROAD	LAKELAND	FL	33811	Concrete (Sidewalks)	993571944	MBE	African American
5	Excel 4 LLC	813-433-3486	813-433-3486	excel4llc@yahoo.com	318 N. John Young Parkway Suite #6	Kissimmee	FL	34741	Concrete (Sidewalks)	654149326	MBE	African American
5	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave	Bartow	FL	33830	Concrete (Sidewalks)	992345574	MBE	African American
7	AAJ Lawn Care Services, Inc.	813-220-8533	888-277-1860	aaajlawncare@gmail.com	3716 E. Idlewild Avenue	Tampa	FL	33610	Root Pruning	260254393	MBE	African American

Wastewater Collection System Repair - FY19

Project #19-C-00002

U-WMBE Availability Contact List

(The Underutilized WMBE Industry Category for Construction Subcontracts is BBE)

#s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
7	BAY LIGHT, LLC	813-972-4057	813-971-0882	baylightc25@gmail.com	10105 N. 11TH ST.	Tampa	FL	33612	Root Pruning	455079825	MBE	African American
7	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Root Pruning	993362663	MBE	African American
7	Cutups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powhatan Ave.	Tampa	FL	33610	Root Pruning	811241291	MBE	African American
7	Dean's Environmental Services, Inc.	863-595-8255	904-791-9060	deank8859@gmail.com	2644 Whispering Trails Dr	Winter Haven	FL	33884	Root Pruning	830461047	MBE	African American
7	Promise Construction and Repair Solutions LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	10711 North 53rd Street	TAMPA	FL	33617	Root Pruning	464723775	MBE	African American
7	T. C. C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHATAN AVE	TAMPA	FL	33610	Root Pruning	4632223645	MBE	African American
7	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key Drive	Odessa	FL	33556	Root Pruning	472682190	MBE	African American
8	AAJ Lawn Care Services, Inc.	813-220-8533	888-277-1860	aaajawncare@gmail.com	3716 E. Idlewild Avenue	Tampa	FL	33610	Sodding	760254393	MBE	African American
8	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborough Avenue	Tampa	FL	33610	Sodding	993362663	MBE	African American
8	Cutups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powhatan Ave.	Tampa	FL	33610	Sodding	811241291	MBE	African American
8	Dean's Environmental Services, Inc.	863-595-8255	904-791-9060	deank8859@gmail.com	2644 Whispering Trails Dr	Winter Haven	FL	33884	Sodding	830461047	MBE	African American
8	Fresh Start Development, Inc.	813-758-5345	813-333-5949	freshstartdevelop@yahoo.com	601 S Falkenburg Rd	Tampa	FL	33619	Sodding	203857845	MBE	African American
8	Promise Construction and Repair Solutions LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	10711 North 53rd Street	TAMPA	FL	33617	Sodding	464723775	MBE	African American
8	T. C. C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHATAN AVE	TAMPA	FL	33610	Sodding	4632223645	MBE	African American
8	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key Drive	Odessa	FL	33556	Sodding	472682190	MBE	African American
10	ECO 2000 INC	352-793-5060	352-793-9074	WATERWORKS@ECO2000INC.COM	1611 W C-48	BUSHNELL	FL	33513	UNDERGROUND UTILITIES AND Construction - Site	993648996	MBE	African American
10	McKenzie Contracting LLC	813-454-4429	813-454-4429	kathy@mckenziecontractingllc.com	7712 E. Broadway Ave.	Tampa	FL	33619	Development -	463561660	MBE	African American

Wastewater Collection System Repair - FY19
Project #19-C-00002
SLBE Availability Contact List

#s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
1	2 Meyer Corp.	813-210-4864	813-645-5634	Renatonjr@aol.com	6308 Lake Sunri Apollo Beach		FL	33572	Pipe Supply	862384669	SLBE	Caucasian
1	DRD Enterprises LLC	813-476-9933	866-850-1332	ddeenah@drdententerprise.com	4104 Yellowwoq Valrico		FL	33594	Pipe Supply	204675317	SLBE	African American
1	Mar Supply Co.	941-286-3240	941-761-6500	info@marssupplyco.com	1660 63rd Aven Bradenton		FL	34203	Pipe Supply	270206845	SLBE	Hispanic American
1	MBE Supply of Florida, Inc.	813-781-6583		mbsupplyofflorida@gmail.com	4306 W. Osborn Tampa		FL	33613	Pipe Supply	863284565	SLBE	Caucasian
1	Suca Pipe Supply, Inc.	813-249-7902	813-249-7384	slmau44@yahoo.com	4910 Lowell Rd Tampa		FL	33624	Pipe Supply	992499571	SLBE	African American
1	Suca Pipe Supply, Inc. One	813-249-7902	813-249-7384	sucapipesupply1@yahoo.com	4910 Lowell Road Tampa		FL	33624	Pipe Supply	263669556	SLBE	African American
3	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborl Tampa		FL	33610	Asphalt Pavement Restoration	993362663	SLBE	African American
3	Castco Construction, Inc.	727-585-4714	727-585-5091	cconstr@tampabay.rr.com	9001 126TH AVI LARGO		FL	33773	Asphalt Pavement Restoration	992548614	SLBE	Hispanic American
3	MASONRY & CONSTRUCTION SERVICES, INC	813-981-0196		masonrylg@hotmail.com	13452 N. Florida Tampa		FL	33613	Asphalt Pavement Restoration	262240950	SLBE	Hispanic American
3	McKenzie Contracting LLC	813-454-4429	813-454-4429	kathy@mckenziecontractingllc.com	7712 E. Broadw Tampa		FL	33619	Asphalt Pavement Restoration	863561860	SLBE	African American
3	YD West Coast Home, Inc.	813-879-0077	813-879-5724	mgonzalez@ydwestcoasthome.com	20026 Date Palr Tampa		FL	33647	Asphalt Pavement Restoration	852357137	SLBE	Hispanic American
5	Exclusive Contractors, Inc.	863-559-1039	000-000-0000	roadcontractor2@YAHOO.com	277 S. 10th Ave Bartow		FL	33830	Concrete, Sidewalks	992345574	SLBE	African American
5	Quick Construction Solutions, LLC	813-377-9997	813-374-5849	quickcs@outlook.com	4501 N. Saint Vi Tampa		FL	33614	Concrete, Sidewalks	900972890	SLBE	Hispanic American
6	SAFETY ZONE SPECIALIST INC	863-984-1385	863-984-0058	DAVID@SAFETYZONESPECIALISTS.COM	8341 Epicenter LAKELAND		FL	33809	All Traffic Safety Equipment and Personal Protection	993122879	SLBE	Caucasian
7	AAJ Lawn Care Services, Inc.	813-220-8533	888-277-1860	aajlawncare@gmail.com	3716 E. Idlewild Tampa		FL	33610	Root Pruning	260254393	SLBE	African American
7	Aqua Pro Irrigation & Outdoor Services, LLC	813-814-4437	813-814-9710	ken@aquaproirrigation.com	375 Douglas Road Oldsmar		FL	34677	Root Pruning	900843885	SLBE	Caucasian
7	2 Meyer Corp.	813-210-4864	813-645-5634	Renatonjr@aol.com	6308 Lake Sunri Apollo Beach		FL	33572	Root Pruning	862384669	SLBE	Caucasian
7	Baron's Landscaping Services, Inc.	813-404-1509	813-476-6255	baronslawncare@aol.com	P.O. Box 4047 Tampa		FL	33677	Root Pruning	850837654	SLBE	Hispanic American
7	BAY LIGHT, LLC	813-972-4057	813-971-0882	baylightlc25@gmail.com	10105 N. 11TH Tampa		FL	33612	Root Pruning	855079825	SLBE	African American
7	Breit Turf Management, LLC	813-284-5979	813-284-5980	breitturf1@gmail.com	6801 S Westsho Tampa		FL	33616	Root Pruning	273737949	SLBE	Caucasian
7	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsborl Tampa		FL	33610	Root Pruning	993362663	SLBE	African American
7	Cardinal Landscaping Services of Tampa, Inc.	813-915-9696	813-915-9695	Mark@cardinallandscape.com	817 E. Okaloosa Tampa		FL	33604	Root Pruning	993394554	SLBE	Caucasian
7	Cutups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powh Tampa		FL	33610	Root Pruning	811241291	SLBE	African American
7	D & J LAWN SERVICES OF LAKELAND LLC	863-859-3525	863-853-1044	DANDJLAWNSERVICES@HOTMAIL.COM	575 OLD POLK LAKELAND		FL	33809	Root Pruning	273279070	SLBE	Hispanic American

Wastewater Collection System Repair - FY19
Project #19-C-00002
SLBE Availability Contact List

#s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
7	Dean's Environmental Services, Inc.	863-595-8255	904-791-9060	deank885@gmail.com	2644 Whisperin	Winter Haven	FL	33884	Root Pruning	830461047	SLBE	African American
7	Evolve Professional Landscape Management, LLC	863-537-7537	863-223-0275	jillian.evolve@gmail.com	897 E. Lemon St	Bartow	FL	33830	Root Pruning	072323571	SLBE	Caucasian
7	Gardensmith	813-352-3008		gardensmith@me.com	4113 Hendersot	tampa	FL	33629	Root Pruning	073649269	SLBE	Caucasian
7	Green Seeds Inc	813-858-7765		dbriou@ourgreenseed.com	3387 Antigua	latampa	FL	33614	Root Pruning	811867821	SLBE	Hispanic American
7	Johnson's Excavation & Services, Inc.	813-752-7097	813-719-9052	sales@jescontracting.com	1706 East Trapn	Plant City	FL	33566	Root Pruning	993031174	SLBE	Caucasian
7	JTCM Inc	813-935-7724	813-935-7724	noelsuders@gmail.com	817 S MacDill A	Tampa	FL	33609	Root Pruning	562418914	SLBE	Caucasian
7	Morelli Landscaping, Inc	727-535-6263	727-536-6855	vjmorelli@tampabay.rr.com	6370 146th Ave	Clearwater	FL	33760	Root Pruning	591877993	SLBE	Caucasian
7	Nelson's Tree Farm and Nursery, Inc.	813-842-4663	813-350-9139	kimberly.martinez33@gmail.com	5027 N Lois Ave	Tampa	FL	33614	Root Pruning	593404710	SLBE	Hispanic American
7	Pine Lake Services, Inc.	813-948-4736	813-948-4914	janet@pinelakenurseryinc.com	2122 Henley Rd	Lutz	FL	33548	Root Pruning	073360158	SLBE	Hispanic American
7	Promise Construction and Repair Solutions LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	10711 North 53	TAMPA	FL	33617	Root Pruning	064723775	SLBE	African American
7	Rooms by Rooms Design	813-479-5353		roomsbyroomsdesign@hotmail.com	3101 21st ct eas	palmetto	FL	34221	Root Pruning	831536268	SLBE	Hispanic American
7	Sunbelt Sod & Grading Company	813-641-9855	813-645-7263	sunbeltsod@verizon.net	819 - 9th St. N. E	Ruskin	FL	33570	Root Pruning	034250933	SLBE	Caucasian
7	Superior Mortgage Services	877-725-6831	877-725-6831	peter.lopez@sms-fl.com	700 South Harb	Tampa	FL	33602	Root Pruning	592933285	SLBE	Hispanic American
7	T.C.C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHA	TAMPA	FL	33610	Root Pruning	063223645	SLBE	African American
7	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key	Odessa	FL	33556	Root Pruning	072682190	SLBE	African American
7	Williams Landscape Management Co., Inc.	813-628-8048	813-628-8041	tonywilliams@wmlandscape.com	5710 N 50th St	Tampa	FL	33610	Root Pruning	993516370	SLBE	African American
8	AAI Lawn Care Services, Inc.	813-220-8533	888-277-1860	aajlawncare@gmail.com	3716 E. Idlewild	Tampa	FL	33610	Sodding	060254393	SLBE	African American
8	Baron's Landscaping Services, Inc.	813-404-1509	813-476-6255	baronslawncare@aol.com	P.O. Box 4047	Tampa	FL	33677	Sodding	850837654	SLBE	Hispanic American
8	BUN Construction Co., Inc.	813-931-8270	813-931-9185	bunconstruction@tampabay.rr.com	4135 E. Hillsbor	Tampa	FL	33610	Sodding	593362663	SLBE	African American
8	Cardinal Landscaping Services of Tampa, Inc.	813-915-9696	813-915-9695	Mark@cardinalandscape.com	817 E. Okaloosa	Tampa	FL	33604	Sodding	593394554	SLBE	Caucasian
8	Cutups Lawn Service	813-361-8871	813-238-2397	cutupslawnservice@yahoo.com	3217 East Powh	Tampa	FL	33610	Sodding	811241291	SLBE	African American
8	D & J LAWN SERVICES OF LAKELAND LLC	863-859-3525	863-853-1044	DANDJLAWNSERVICES@HOTMAIL.COM	575 OLD POLK	LAKELAND	FL	33809	Sodding	073279070	SLBE	Hispanic American
8	Dean's Environmental Services, Inc.	863-595-8255	904-791-9060	deank885@gmail.com	2644 Whisperin	Winter Haven	FL	33884	Sodding	830461047	SLBE	African American
8	Evolve Professional Landscape Management, LLC	863-537-7537	863-223-0275	jillian.evolve@gmail.com	897 E. Lemon St	Bartow	FL	33830	Sodding	072323571	SLBE	Caucasian

Wastewater Collection System Repair - FY19
Project #19-C-00002
SLBE Availability Contact List

#'s	Business Name	Phone	Fax	Email	Address 1	City	State	Zip	Business Description	FEIN	Cert. Type	Ethnicity
8	Fresh Start Development, Inc.	813-758-5345	813-333-5949	freshstartdevelop@yahoo.com	601 S Falkenbur	Tampa	FL	33619	Sodding	203857845	SLBE	African American
8	Gardensmith	813-352-3008		gardensmith@me.com	4113 Hendersoirtampa		FL	33629	Sodding	273649269	SLBE	Caucasian
8	Green Seeds Inc	813-858-7765		dbriion@ourgreenseed.com	3387 Antigua laitampa		FL	33614	Sodding	311867821	SLBE	Hispanic American
8	Johnson's Excavation & Services, Inc.	813-752-7097	813-719-9052	sales@jescontracting.com	1706 East Trapn	Plant City	FL	33566	Sodding	593031174	SLBE	Caucasian
8	JTCM Inc	813-935-7724	813-935-7724	noelsuders@gmail.com	817 S MacDill A	Tampa	FL	33609	Sodding	562418914	SLBE	Caucasian
8	Morelli Landscaping, Inc	727-535-6263	727-536-6855	vjmorelli@tampabay.rr.com	6370 146th Ave	Clearwater	FL	33760	Sodding	591877993	SLBE	Caucasian
8	Promise Construction and Repair Solutions LLC	813-988-8633	813-988-1555	promisecarellc@outlook.com	10711 North 53	TAMPA	FL	33617	Sodding	464723775	SLBE	African American
8	Rooms by Rooms Design	813-479-5353		roomsbyroomsdesign@hotmail.com	3101 21st ct east	palmetto	FL	34221	Sodding	31536268	SLBE	Hispanic American
8	Sunbelt Sod & Grading Company	813-641-9855	813-645-7263	sunbeltsod@verizon.net	819 - 9th St. N. E	Ruskin	FL	33570	Sodding	34250933	SLBE	Caucasian
8	T. C. C Enterprise Inc	813-606-9148	813-237-0396	tcc_inc@live.com	3902 E POWHAI	TAMPA	FL	33610	Sodding	63223645	SLBE	African American
8	WC Boxes, Inc.	813-478-1102	813-864-4386	wcindustries2003@gmail.com	17620 Lake Key	Odessa	FL	33556	Sodding	72682190	SLBE	African American
8	Williams Landscape Management Co., Inc.	813-628-8048	813-628-8041	tonywilliams@wlmlandscape.com	5710 N 50th St.	Tampa	FL	33610	Sodding	593516370	SLBE	African American
9	Black Dog Inc	813-249-6398	813-249-6399	service@nextdaysignstampa.com	6744 Memorial	Tampa	FL	33615	Project Sign	200037159	SLBE	Caucasian
10	Communication Support Network, Inc	727-433-2200	727-683-9220	csn2sara@gmail.com	2550 28th Ave N	St. Petersburg	FL	33713	Bypass Pumping	30379746	SLBE	Caucasian
10	Dolphin Constructors LLC	813-925-9609	813-510-4946	matt@dolphinllc.com	13966 W Hillsbc	Tampa	FL	33635	Bypass Pumping	912193468	SLBE	Caucasian
10	Castco Construction, Inc.	727-585-4714	727-585-5091	cconstr@tampabay.rr.com	9001 126TH AV	LARGO	FL	33773	Bypass Pumping	592548614	SLBE	Hispanic American
10	McKenzie Contracting LLC	813-454-4429	813-454-4429	kathy@mckenziecontractingllc.com	7712 E. Broadw	Tampa	FL	33619	Bypass Pumping	63561860	SLBE	African American
10	Sunrise Utility Construction, Inc.	813-949-3749	813-949-0408	LMNBOSS@AOL.COM	P. O. Box 27229	Tampa	FL	33688	Bypass Pumping	593034012	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.

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
0101	Mobilization	L.S	1	Forty Thousand Dollars and No Cents	\$ 40,000.00	\$ 40,000.00
0102	Contingency	LS	1	Fifty Thousand Dollars and No Cents	\$ 50,000.00	\$ 50,000.00
0103	Project Sign	Ea	2		\$	
0110	Additional Earth Excavation	C.Y.	20		\$	
0120	Excavation for Restraining Device on Existing Force Main	C.Y	4		\$	
0130	Additional Select Sand Fill	C.Y.	10		\$	
0140	Additional Select Crushed Stone Material	C.Y.	10		\$	
0170	Class D Concrete	C.Y	5		\$	
0200	Short Tunnel	L.F.	10		\$	
0520-1	Standard Concrete Curb or Gutter	L.F	200		\$	
0708.06	8-Inch Diameter, SDR-35, PVC Pipe Sewer in cuts 0 to 6 ft.	L.F.	2,000		\$	
0708.13	8-Inch Diameter, SDR-35, PVC Pipe Sewer in cuts 6 to 13 ft.	L.F.	2,000		\$	
0900-4-06	4" Dia. C900 PVC/P, CI-150, Green, 0'-6' Cut	L.F	500		\$	
0900-4-13	4" Dia. C900 PVC/P, CI-150, Green, 6'-13' Cut	L.F	250		\$	
0900-6-06	6" Dia. C900 PVC/P, CI-150, Green, 0'-6' Cut	L.F	500		\$	
0900-6-13	6" Dia. C900 PVC/P, CI-150, Green, 6'-13' Cut	L.F	500		\$	

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
0900-8-06	8" Dia. C900 PVC/P, Cl-150, Green, 0'-6' Cut	L.F.	2000	\$	\$	
0900-8-13	8" Dia. C900 PVC/P, Cl-150, Green, 6'-13' Cut	L.F.	1500	\$	\$	
0900-12-06	12" Dia. C900 PVC/P, Cl-150, Green, 0'-6' Cut	L.F.	1000	\$	\$	
0900-12-13	12" Dia. C900 PVC/P, Cl-150, Green, 6'-13' Cut	L.F.	750	\$	\$	
1005-4	4" Dia. HDPE, AWWA C-906, by directional bore, any length (DIP Size)	L.F.	500	\$	\$	
1005-6	6" Dia. HDPE, AWWA C-906, by directional bore, any length (DIP Size)	L.F.	1500	\$	\$	
1005-8	8" Dia. HDPE, AWWA C-906, by directional bore, any length (DIP Size)	L.F.	2,500	\$	\$	
1005-12	12" Dia. HDPE, AWWA C-906, by directional bore, any length (DIP Size)	L.F.	500	\$	\$	
1063.4	Install Tee or Wye on Existing 4-inch Dia. Pipe or HOT TAP	Ea	2	\$	\$	
1063.6	Install Tee or Wye on Existing 6-inch Dia. Pipe or HOT TAP	Ea	2	\$	\$	
1063.8	Install Tee or Wye on Existing 8-inch Dia. Pipe or HOT TAP	Ea	2	\$	\$	
1063.12	Install Tee or Wye on Existing 12-inch Dia. Pipe or HOT TAP	Ea	2	\$	\$	
1706	6-Inch Diameter PVC Pipe House Lateral (SDR-35)	L.F.	1,500	\$	\$	
1706.1	6-Inch Diameter PVC Pipe House Lateral (Green AWWA CL 150, C900)	L.F.	200	\$	\$	
2400.4	4" Dia. C900 PVC or DIP, Bends, Sleeves, Reducers, Caps or Plugs	Ea	10	\$	\$	
2400.6	6" Dia. C900 PVC or DIP, Bends, Sleeves, Reducers, Caps or Plugs	Ea	40	\$	\$	
2400.8	8" Dia. C900 PVC or DIP, Bends, Sleeves, Reducers, Caps or Plugs	Ea	40	\$	\$	

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
2400.12	12" Dia. C900 PVC or DIP, Bends, Sleeves, Reducers, Caps or Plugs	Ea	10		\$	
2708	8" x 6" Dia SDR-35 Wye	Ea	80		\$	
2800.4	4" Dia. C900 PVC or DIP Tees or Wyes	Ea	2		\$	
2800.6	6" Dia. C900 PVC or DIP Tees or Wyes	Ea	4		\$	
2800.8	8" Dia. C900 PVC or DIP Tees or Wyes	Ea	4		\$	
2800.12	12" Dia. C900 PVC or DIP Tees or Wyes	Ea	2		\$	
3300.4	4" Dia. Thrust Restraint	Ea	20		\$	
3300.6	6" Dia. Thrust Restraint	Ea	40		\$	
3300.8	8" Dia. Thrust Restraint	Ea	80		\$	
3300.12	12" Dia. Thrust Restraint	Ea	20		\$	
3506	6-inch Flexible Connector w/Stainless Steel Shear Ring	Ea	30		\$	
3508	8-inch Flexible Connector w/Stainless Steel Shear Ring	Ea	20		\$	
4000	Precast Concrete Standard or Doghouse Manhole Base	Ea	8		\$	
4100	Precast Concrete Manhole Barrel	L.F.	40		\$	
4200	Precast Concrete Manhole Cone	Ea	4		\$	
4300	Precast Concrete Standard or Doghouse Shallow Type Manhole	Ea	4		\$	
4400	FRP Manhole	V.F.	30		\$	
4600	Cast Iron Manhole Frame and Cover	Ea	25		\$	
4660	6-Inch Diameter PVC Cleanout and Cover	Ea	80		\$	

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
4700.8	8-inch Diameter PVC Pipe Manhole Drop Connection	L.F.	10		\$	
4900	Connect to Existing Manhole, no existing pipe	Ea	4		\$	
5000	Remove Existing Pipe 4" to 27" Diameter Outside of Pay Limits	L.F.	1,000		\$	
5051	Filling of Existing Sanitary Sewers	C.Y	50		\$	
7000.4	4" Dia. Plug Valve with Box	Ea	4		\$	
7000.6	6" Dia. Plug Valve with Box	Ea	4		\$	
7000.8	8" Dia. Plug Valve with Box	Ea	4		\$	
7000.12	12" Dia. Plug Valve with Box	Ea	4		\$	
7500	Air Release Valve Assembly	Ea	20		\$	
8000	Permanent Pavement Base (Crushed Limerock or Crushed Concrete)	C.Y	2,000		\$	
8100	Permanent Asphalt Pavement Type S	ton	300		\$	
8100.1	Permanent Asphalt Pavement Type Superpave (including testing)	ton	200		\$	
8306	Permanent 6" Thick Concrete Driveway	S.Y	250		\$	
8604	Permanent 4" Thick Concrete Sidewalk	S.Y	750		\$	
8900.2	Bahia Sod	S.Y	2,000		\$	
8900.3	St. Augustine Sod	S.Y	1,000		\$	
9000.1	Force Main Sewage Bypass Piping, 6 to 8-inch	L.F	350		\$	
9000.2	Force Main Sewage Bypass Piping, 10 to 12-inch	L.F	350		\$	
9100.4	4-inch Dia. Line Stop, 3 day max.	Ea	2		\$	

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
9100.6	6-inch Dia. Line Stop, 3 day max.	Ea	2		\$	
9100.8	8-inch Dia. Line Stop, 3 day max.	Ea	2		\$	
9100.12	12-inch Dia. Line Stop, 3 day max.	Ea	2		\$	
9200	Root Pruning	L.F.	200		\$	
9300	Sawcut Asphalt or Concrete Pavement, Driveways or Sidewalks	L.F.	400		\$	
9400	Mill Existing Asphalt Pavement, any quantity	IN/S.Y.	350		\$	
10000.4	Connections between 4" PVC/P & HDPE	Ea	4		\$	
10000.6	Connections between 6" PVC/P & HDPE	Ea	4		\$	
10000.8	Connections between 8" PVC/P & HDPE	Ea	6		\$	
10000.12	Connections between 12" PVC/P & HDPE	Ea	4		\$	
20000	As-Built Plans	Sheet	6	Three Thousand Dollars and No Cents	3,000.00 \$	3,000.00
					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 (or affirmed) before me this ____ day of _____, 20____ by _____ as _____ of _____, a/n Partnership Joint Venture LLC Corp Other: _____, on behalf of such entity. Such individual is personally known to me or produced a/n _____ state driver's license as identification.

For an individual: The forgoing instrument was sworn (or affirmed) before me this ____ day of _____, 20____ by _____, who is personally known to me or produced a/n _____ state driver's license as identification.

[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 RFO/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
(page 2 of 2)

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	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

Failure to Complete, Sign and Submit
this form with your Bid or Proposal
Shall render the Bid Non-Responsive
(Do Not Modify This Form)

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	Company Name Address	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	\$ Amount of Quote. Letter of Intent (LOI) if available	Percent of Scope or Contract %
Federal ID	Phone, Fax, Email				

Failure to Complete, Sign and Submit
this form with your Bid or Proposal
Shall render the Bid Non-Responsive.
(Do Not Modify This Form)

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**



Page 4 of 4 DMI – Solicited/**Utilized**

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 (GFECF) 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 19-C-00002; Wastewater Collection System Repair – FY19

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 19-C-00002, Wastewater Collection System Repair – FY19.

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 19-C-00002 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 19-C-00002; Wastewater Collection System Repair – FY19, shall include, but not be limited to, construction of approximately 16,000 linear feet of 4-inch through 12-inch diameter PVC Pipe (by open cut excavation) and / or HDPE Pipe (by directional bore), including asphalt pavement, concrete driveways, concrete sidewalks, sodding restoration 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 Contract.

(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 or 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 Contract 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 or 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 or 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 indemnify 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 Contract Documents made a part hereof, an indemnification provision within the purview of Chapter 725.06, Laws of Florida, the monetary limitation on the extent of the indemnification under each such provision shall be One Million Dollars or a sum equal to the total Contract price, whichever shall be the greater.

ARTICLE 11.08 UNLAWFUL PROVISIONS DEEMED STRICKEN

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

ARTICLE 11.09 LEGAL PROVISIONS DEEMED INCLUDED

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

ARTICLE 11.10 DEATH OR INCOMPETENCY OF CONTRACTOR

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

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

ARTICLE 11.11 NUMBER AND GENDER OF WORDS

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

ARTICLE 11.12 ACCESS TO RECORDS

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

**SECTION 12
LABOR STANDARDS**

ARTICLE 12.01 LABOR STANDARDS

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

ARTICLE 12.02 NOTICE TO LABOR UNIONS

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

ARTICLE 12.03 SAFETY AND HEALTH REGULATIONS

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

ARTICLE 12.04 EEO AFFIRMATIVE ACTION REQUIREMENTS

The Contractor understands and agrees to be bound by the equal opportunity requirements of Federal regulations which shall be applicable throughout the performance of work under this Contract. The Contractor also agrees to similarly

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

ARTICLE 12.05 PREVAILING RATES OF WAGES

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

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

* * * * *

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

CITY OF TAMPA, FLORIDA

Bob Buckhorn, Mayor
(SEAL)

ATTEST:

City Clerk

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

Rachel S. Peterkin, Assistant City Attorney

Contractor

By: _____
(SEAL)

Title:

ATTEST:

Witness

TAMPA AGREEMENT (ACKNOWLEDGMENT OF PRINCIPAL)

STATE OF _____)
) SS:
COUNTY OF _____)

For a Corporation:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ of _____, a _____ corporation, on behalf of the corporation. He/she is ____ personally known or has ____ produced _____ as identification.

Notary

My Commission Expires:

For an Individual:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who is ____ personally known to me or has ____ produced _____ as identification.

Notary

My Commission Expires:

For a Firm:

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ of _____, 20__ by _____ who signed on behalf of the said firm. He/she is ____ personally known or has ____ produced _____ as identification.

Notary

My Commission Expires:

PUBLIC CONSTRUCTION BOND

Bond No. (enter bond number) _____

Name of Contractor: _____

Principal Business Address of Contractor: _____

Telephone Number of Contractor: _____

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

Principal Business Address of Surety: _____

Telephone Number of Surety: _____

Owner is The City of Tampa, Florida

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

_____ Contract Administration Department (280A4N)

Telephone Number of Owner: _____ 813/274-8456

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

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

General Description of Work and Services: _____

KNOW ALL MEN BY THESE PRESENTS That we, _____

(Name of Contractor)

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

(Name of Surety)

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

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, 20____, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, in the time and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1) (Section 713.01), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.
5. Contractor and Surety acknowledge that the Work for which this bond has been issued may be one of several such contract documents for a group of projects. This bond does not secure covenants to pay for or to perform design services survey or program management services. The Owner/Obligee is expected to reasonably account for damages that are caused to Owner with respect to Principal's (Contractor's) default in performance of the scope of the Work incorporated by reference into the bond, and notwithstanding any contractual or common law remedy permitted to Owner as against Contractor, the obligation of Surety for any damages under this bond shall be determined by the cost of completion of the Work less the contract balance unpaid upon default of Contractor for the Work plus liquidated damages at the rate of \$500.00 per day for delays by the Contractor and/or Surety in reaching substantial completion.
6. The notice requirements for claimants and conditions for entitlement to payment set forth in Section 255.05, Fla. Stat. and the limitations period to actions upon Section 255.05, Fla. Stat. bonds apply to claimants seeking payment from surety under this bond. Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05, Florida Statutes.
7. The Surety, for value received, hereby stipulates and agrees that no changes, extensions of time, alterations or additions to the terms of the contract documents or other Work to be performed hereunder, or the specifications referred to therein shall in any way affect its obligations under this bond, and it does hereby waive notice of any such changes, extensions of time, alterations or additions to the terms of the Contract or to Work or to the specifications.

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

DATED ON _____, 20__

(Name of Principal)

(Name of Surety)

(Principal Business Address)

(Surety Address)

By _____

By _____
(As Attorney in Fact)*

Title _____

Telephone Number of Surety

Telephone Number of Principal

Approved as to legal sufficiency:

Countersignature:

By _____
Assistant City Attorney

(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 the 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.

TEMPORARY STRUCTURES

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 constructed in accordance with the requirements of the Contract Documents.

SECTION 6

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.

**SECTION 13
CLEANING**

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.

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.

SPECIFIC PROVISIONS

SP-1.AC Scope

The work included under these Contract Documents comprises the construction of Miscellaneous Gravity and Force Main Wastewater Facilities and/or repair of existing facilities along with all miscellaneous and appurtenant work. Locations, descriptions and plans are not known or developed at present, but will be known and developed during the course of this contract.

The work will be authorized by the issuance of several individual Work Orders during the length of this contract and will consist of furnishing, constructing, installing, testing and maintaining said sewers, force mains, structures and/or repairs complete and in place until accepted by the City.

Prior to the issuance of each Work Order, the Contractor and Engineer shall review the plans and the site to mutually agree upon a Time of Completion for the Work Order. That Work Order Time of Completion shall be used to calculate any Liquidated Damages if warranted.

The Contractor and Engineer shall also mutually determine if any necessary items are not included within the Proposal and if so negotiate a price for said item(s).

SP-2 Permits

The City will submit permit applications required from any State or County agencies having jurisdiction over the roadways and for any railroad or highway crossings shown on the Plans. The Contractor shall be required to comply with all provisions of such permits regarding workmanship, schedules, maintenance of traffic, notification of starting construction, pavement removal and replacement and other conditions under which the permit is issued.

The Contractor shall obtain all permits required to comply with SP-24.AC (inclusive) Maintenance of Traffic, contained herein.

The Contractor shall have in his possession the proper license to perform the work before submittal of his bid and shall obtain any required City/County/State permits and shall obtain and pay for all other licenses and authorizations required for the prosecution of the work, including the cost of all work performed in compliance with the terms and conditions of such permits, licenses and authorizations, whether by himself or others.

Right-of-way and maintenance of traffic permit fees shall be paid by the Contractor and to be reimbursed by the City of Tampa.

The Contractor shall require all subcontractors to be currently licensed by the City to perform the proposed work in their respective fields and to obtain permits for the execution of said work. All work shall be performed in accordance with the licenses and permits.

SP-5 Working Drawings

Prior to performing any work requiring working drawings, as specified on the Plans and in the Workmanship and Materials Sections, the Contractor shall submit the working drawings in accordance with the General Provisions section headed "Working Drawings."

SP-6 Environmental Protection

The Contractor will be held liable for the violation of any and all environmental regulations. Violation citations carry civil penalties and in the event of willful violation, 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.

SP-7 Use of Explosives

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

SP-9 Coordination and Cooperation

In performing work under this Contract, the Contractor shall coordinate his work with that of any adjacent contractors for the City, and others, and cooperate with them in every reasonable way, to the end that there shall be the minimum practicable interference with their operations.

SP-11.AC Construction Easements

For any of the several "Annual Contracts" it is expected that all the construction activities will occur with the existing Rights-of-way and/or easements. In the event the Engineer determines that a temporary construction easement is necessary, the City will obtain such temporary construction easement. Any items necessary to restore the temporary construction easement to its initial condition that is not established in the contract will be negotiated with the contractor prior to the start of construction.

In the event that, in the opinion of the Contractor (and not the Engineer), obtaining a temporary construction easement is desirable, it shall be the sole responsibility of the Contractor to obtain such easements from the Owner of the property. If such easements are obtained by the Contractor, they shall contain provisions to hold the City harmless from any operations of the Contractor within the easement limits. All costs to restore this easement to its initial condition shall be borne by the Contractor. The Contractor shall not conduct construction operations on private property outside the limits of any easement obtained by the City or of any Rights-of-Way unless a copy of the temporary construction easement agreement is filed with the Engineer.

SP-12 Releasing Facilities for Use

It is the intent of these Specifications that all newly constructed sewers and appurtenant facilities be placed in service as rapidly as an integrated portion of the facilities can be constructed, inspected and accepted by the Engineer. Acceptance or use by the City of any portion of the facilities prior to final acceptance shall not relieve the Contractor of any responsibilities, regarding such facilities, included in the Contract.

SP-13 Material and Equipment Approval

The Contractor shall not enter into any subcontracts, or place any order, for the furnishing of any material or equipment until he has received the Engineer's written approval of the manufacturers.

SP-14 Contractor Emergency Response Time

The Contractor must be available to service emergency calls seven (7) days a week, twenty-four (24) hours a day after the Notice to Proceed has been issued and the Contractor is mobilized and on site. The response time for emergency calls shall be within two (2) hours. A contact person and telephone number shall be provided to the Engineer for such purposes.

SP-15 Contractor's Field Office

Delete Article G-6.03 Contractor's Field Office on Page G-14 from GENERAL PROVISIONS. The Contractor or an authorized agent shall be present 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 the job site.

SP-16 Salvage

All existing pipe and appurtenances removed by the Contractor and which are not designated to be salvaged shall

become the property of the Contractor and shall be removed from the site of the work to the Contractor's own place of disposal.

Items which are shown on the Plans or specified to be salvaged shall be removed by the Contractor, delivered, and unloaded at a location within the Department's service area, as directed by the Engineer. The cost of removing, disposing, delivering, and unloading as salvage items of pipe and appurtenances shall be included in the various classified unit price Contract Items or in the total Lump Sum Price, as applicable, and no separate payment will be made therefore.

SP-17 Sequence of Operations

The Contractor shall develop with the Engineer a complete schedule of operations which, in the opinion of the Engineer, will permit use of the facility at the earliest possible date.

Taking over of parts of the work for operation before completion of the entire project shall not relieve the Contractor of any responsibility for proper integrated operations of all parts of the work, nor shall it act to relieve him of any responsibilities under Article A-6.04 of the Agreement, for guaranty of all parts of the work, for one year after the date of acceptance of all the work on the project.

SP-18 Dewatering

Dewatering is the responsibility of the Contractor. All costs associated with dewatering shall be included in the appropriate contract price for items to which dewatering is incidental, or in the total Lump Sum Price, as applicable, and no separate payment shall be made therefore.

Before commencing any excavation at the site of the work, the Contractor shall submit to the Engineer and obtain his approval of the methods and equipment and arrangement of facilities proposed for the removal and disposal of water at the site and of all water entering any excavation or other part of the work from any source whatsoever. Adequate standby facilities shall be provided to ensure that the excavation will be kept dry in the event of power failure or mechanical breakdown. Facilities for removal and disposal of water shall be of sufficient capacity to keep the excavation dry under all circumstances with one-half of the facilities out of service. If well points are used, provision shall be made for removing and resetting individual well points without taking the system of which they are a part out of service.

SP-19 Prevention, Control and Abatement of Erosion and Water Pollution

The Contractor shall be responsible for prevention, control and abatement of erosion, siltation and water pollution resulting from construction of the project until final acceptance of the project.

He shall provide, install, construct, and maintain any covering, mulching, sodding, sand bagging, berms, slope drains, sedimentation structures, or other devices necessary to meet City, County, State and Federal regulatory agency codes, rules and laws.

The Contractor shall take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs and other water impoundments with fuels, oils, bitumen, calcium chloride or other harmful materials. Also, he shall conduct and schedule his operations so as to avoid or otherwise minimize pollution or siltation of such streams, and the like, and to avoid interference with movement of migratory fish. No residue from dust collectors or washers shall be dumped into any live stream.

Storm drainage facilities, both open and closed conduit, serving the construction area shall be protected by the Contractor from pollutant and contaminants. If the Engineer determines that siltation of drainage facilities has resulted due to the project, the Engineer will advise the Contractor to remove and properly dispose of the deposited material. Should the Contractor fail to or elect not to remove the deposits, the City will provide maintenance cleaning as needed and will charge all costs of such service against the amount of money due or to become due the Contractor.

Construction operations in rivers, channels, streams, tidal waters, canals and other impoundments shall be restricted to those areas where it is necessary to perform filling or excavation to accomplish the work shown in the Plans and to those areas which must be entered to construct temporary or permanent structures. As soon as conditions permit, rivers, channels, streams

and impoundments shall be promptly cleared of all obstructions placed therein or caused by construction operations.

Except as necessary for construction, excavated materials shall not be deposited in rivers, streams, canals or impoundments, or in a position close enough thereto to be washed away by high water or runoff.

The Contractor shall not disturb lands or waters outside the limits of construction except as may be found necessary and authorized by the Engineer.

The location of and methods of operation in all detention areas, borrow pits, material supply pits and disposal areas furnished by the Contractor shall meet the approval of the Engineer as being such that erosion during and after completion of the work will not likely result in detrimental siltation or water pollution.

The Contractor shall comply with the applicable provisions of the Hillsborough County Land Development Code concerning grading, filling, excavation, soil removal, and the like, as amended.

The Contractor shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations; and the duration of exposed, uncompleted construction to the elements shall be as short as practicable.

Clearing and grubbing shall be so scheduled and performed that grading operations can follow immediately thereafter and grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.

The Engineer may limit the surface areas of unprotected erodible earth exposed by clearing and grubbing, excavation or filling operations and may direct the Contractor to provide immediate erosion or pollution control measures to prevent siltation or contamination of any river, stream, channel, tidal waters, reservoir, canal or other impoundment or to prevent damage to the project or property outside the project right of way.

SP-20 AC Project Sign

For any of the several "Annual Contracts", when noted on the Work Order, the Contractor shall furnish a project sign as shown on the detail included herein, and install it in the construction area as directed by the Engineer within five (5) days of receiving the Work Order.

The cost of fabrication, erection, maintenance, removal, and proper disposal of the project sign at the completion of the project, including all labor and materials shall be as per the contract price

Because the work orders issued under any of the several Annual Contracts are expected to be of relative short duration, should any of the names on the sign change, the Contractor will not be required to change the sign.

SP-22 Construction Operations

In City streets, excavated materials shall, where practicable, be deposited upon streets, sidewalks, driveways, or other paved surfaces within the street right-of-way, except that interruptions to the use of driveways shall be kept to a minimum. The Contractor shall clean up areas from which soil has been removed at the end of each day by sweeping, washing, or other approved methods. When the work is halted by rain, the Contractor shall clean up the working areas before leaving the site.

Trenches shall be protected at the close of each day's operations by lighted barricades, fences, and other methods to the satisfaction of the Engineer. Fences shall meet OSHA standards and be structurally stable as approved by the Engineer. No excavations shall be left open over a weekend.

In general, pipes shall be laid in open cut, except when another method, such as jacking, augering or tunneling is shown on the Plans, specified or ordered.

In City, State and County highways, excavated materials shall not be stored or cast upon the pavement, unless an advance approval of the governing agency is first obtained by the Contractor.

SP-23 Project Cleanup

Cleanup is extremely important and the Contractor will be responsible for keeping the construction site neat and clean with debris to be removed regularly as the work progresses.

SP-24.AC AC Maintenance of Traffic

The Contractor shall arrange his work so that there will be as little disruption of traffic as possible.

At least seventy-two hours before starting any work in City, County or FDOT rights-of-way, the Contractor shall obtain the appropriate permit for any traffic lane or street closure. The permit will establish the requirements for closures related to the number of lanes and time of day lanes or streets may be closed. If the Contractor proposes a complete street closure, a detailed traffic detour plan may be required by the appropriate agency together with the application for the Street Closure Permit. The traffic detour plan shall include proposed detour routes and locations and descriptions of direction signs for the construction area and detour routes. Two approved copies of all Street Closure Permits shall be submitted to the Engineer before starting any work. No changes to approved Street Closure Permits will be permitted without prior approval by the City.

The Contractor shall furnish and maintain all necessary signs, barricades, lights and flagmen necessary to control traffic and provide for safety to the public, all in compliance with the Florida Department of Transportation "Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations," with subsequent revisions and additions, and to the satisfaction of the Engineer.

The cost of closing a street without a traffic detour plan shall be included under the various classified unit price Contract Items and no additional payment will be made therefore. The cost of traffic maintenance for a lane closure or street closure with a traffic detour plan shall be negotiated with the Contractor prior to the start of construction.

SP-25 Work in Streets and Highways

All work within streets and highways shall be subject to the regulations and requirements of the appropriate agencies. Within the City of Tampa, streets and highways are under the jurisdiction of the City of Tampa, Department of Public Works or State of Florida, Department of Transportation. Outside the City of Tampa, streets and highways are under the jurisdiction of the County of Hillsborough or the State Department of Transportation.

Methods and materials of construction used in restoration within such streets and highways, including pavement, sidewalk, curb, curb and gutter removal and replacement, replacement of storm sewerage facilities, excavation and backfilling, and the storage of plant, materials and equipment shall conform to the requirements of the City of Tampa and, where applicable, the County of Hillsborough or State Department of Transportation, and will be subject to the inspection and approval of the duly authorized representatives of the City, County and the State.

SP-27 Existing Public Facilities

Existing public facilities that are removed by construction operations under this contract shall be replaced by the Contractor to City of Tampa specifications. These items shall include all public benches, playground light poles, shelters, roadway signs, and replacement of these items shall be considered incidental to the cost of construction, and no separate payment will be made therefore.

SP-28 Work Adjacent to Utilities

Existing utilities including house services adjacent to or crossing the line of the work shall be protected as shown on the Plans, specified hereinbefore, and in accordance with the requirements of the General Provisions.

SP-31 House Services

The various utilities, along the line of the work, which are shown on the Plans or located in the field during the course of the work may have house services connected to them. The Contractor is required to give all utility agencies 48 hours notice prior to start of work. The Contractor shall notify the various utility companies by calling the Sunshine State One Call of Florida, Inc. (1-800-432-4770) or, if necessary, by contacting the utilities individually. When such notice is properly given, the utility having jurisdiction will locate house services along the line of work. The Contractor shall protect all existing house services which are shown on the Plans or located in the field during the course of the work. The Contractor shall arrange his operations to avoid any damage or disruption of water, gas, sewer, electric, telephone, and other house services.

Methods and techniques used by the Contractor to protect and maintain house services shall be subject to the prior approval of the Engineer.

Water and sewer services damaged or removed due to the work methods of the Contractor shall be replaced by the Contractor to such limits as directed by the Engineer. Materials used for such replacements shall be similar to those in the existing service or shall conform to the current standards of the utility as directed by the Engineer. All damaged water and sewer services shall be promptly repaired and shall be returned to service within 24 hours after the damage has occurred.

Other public utility house services which are damaged or removed due to the work methods of the Contractor will be repaired by the utility having jurisdiction and the cost of such repairs shall be borne by the Contractor.

Where the relocation or special maintenance of house services, as shown on the Plans, is required during construction of new pipelines the disruption of such services shall be kept to a minimum period of time as approved by the Engineer.

Unless otherwise specified in other Contract Items, or in the total Lump Sum Price, as applicable, the cost of protecting, replacing, repairing, relocating and maintaining house services shall be included in the various classified unit price Contract Items for pipelines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefore.

The maintenance and guaranty provisions of the Agreement shall also apply to all repairs and replacements of damaged or relocated services accomplished by the Contractor.

SP-33.AC Protection of Trees and Shrubs

For any of the several "Annual Contracts" it is expected that all the construction activities will occur within the existing Rights-of-way and/or Easements.

Protective barricades shall be placed around all protected trees and grand trees as determined by the Parks Department and shall remain in place until all potentially damaging construction activities are completed (see attached barricade detail). The Parks Department must inspect the site after tree protection devices have been installed and prior to construction. A 48-hour notice must be given to Parks Department to schedule the inspection. No excavated or backfill material shall be placed in a manner which, in the opinion of the Engineer, may result in damage to trees or shrubs.

In areas where the construction might be in close proximity to existing trees and/or shrubs, the Contractor shall limit his trench width by using a trench/drag box. The allowable width of the construction area around existing trees and/or shrubs shall be as per the detail for sheeted (trench/drag box) trench plus 4 feet for a working area, to either side of the sheeted trench.

When the tree is outside the limits of the excavation but, where the distance from the centerline of the new pipeline to the trunk of any tree is such that, in the opinion of the Engineer, the excavation would result in serious damage to the tree, the pipeline shall be constructed under and/or through the root(s) in a short tunnel dug by hand, as shown on the plans or ordered in writing by the Engineer.

The Contractor shall provide the services of an approved licensed tree professional when it is necessary to trim or cut

a significant branch from a tree. The Contractor shall also provide the services of an approved licensed tree professional when it is necessary to root prune close to any existing tree when shown on the plans or ordered in writing by the Engineer.

The cost to replace any trees and/or shrubs that are removed from within the described construction area and/or the cost of any protective barricade prescribed by the Parks Department and/or the cost to trim branches shall be paid by the City after being negotiated prior to the start of construction. The cost for short tunnels and/or root pruning shall be as per the contracted unit price.

The Contractor shall replace any trees or shrubs which are destroyed or damaged to such extent, in the opinion of the Engineer, to be considered destroyed that are located outside the limit of the described construction area at his own expense. Replacement of destroyed trees or shrubs shall be made with new stock conforming to the requirements of the City's Tree Ordinance.

SP-35 Work in Private Property

Where portions of the work are constructed in easements through private properties, the limits of such City-owned easements are as shown on the Plans.

Upon completion of work in City-owned easements, the Contractor shall restore the property, including all fences or other structures disturbed by his operations, as nearly as possible to the condition in which he found it. No material shall be used or removed from private property without the approval of the Engineer.

The Contractor shall confine his operation in such private properties within the limits of the easements as shown or directed by the Engineer.

The Contractor shall further comply with all provisions of the grants of the City-owned easement and shall assume full responsibility as the agent of the City for all obligations of the City under such grants of easement in connection with the construction of pipelines.

The Contractor shall not enter upon or occupy any private land outside of the limits of the City-owned easement unless a copy of the written consent of the Owner is filed with the Engineer. The Contractor shall conduct his operations along easements through private property so as not to damage the property and to interfere with its ordinary use as little as possible.

SP-37 Data to be Submitted on Pipe

Within ten days after the date the Contractor is issued the Notice of Award and prior to his entering into any subcontract for the manufacture or purchase of any pipe, the Contractor shall submit to the Engineer, in an amount equal to four (4) sets to be retained by the City plus the number of sets desired by the Contractor, the following information:

1. The name and address of the pipe manufacturer and the location of the plant at which the pipe will be manufactured.
2. A general description of and specifications for the pipe and pipe joints proposed.
3. Notarized certificates of manufacture for VCP, PVC, HDPE, and DIP stating conformance to applicable standards and specifications.
4. Any additional information that the Engineer may deem necessary in order to evaluate the qualifications of the manufacturer and to determine the suitability of the proposed pipe to meet the requirements of the Contract Documents.

The Contractor shall not enter into any subcontract for the furnishing of pipe until he has received the Engineer's approval, in writing, of the proposed manufacturer and pipe.

All pipe of specified classes and materials shall be of one kind and shall be produced by a single manufacturer.

SP-45 Measurement for Payment

The quantity, in linear feet, to be measured for payment under the various classified unit price Contract Items for pipelines in open cut, or in the total Lump Sum Price, as applicable, shall be the actual length of new pipelines placed in the work, as shown, specified and directed. Depth of cut for sanitary sewers shall be measured from the original ground surface to the pipe invert. Pipelines will be measured along the centerline of the pipe as follows:

1. The measured length of gravity sanitary sewers, regardless of pipe material, will include all fittings, short tunnels and manholes with no deductions for wyes, tees and the width of manholes. Deductions in the measured length of gravity sanitary sewers will be made for the width of structures, such as junction boxes, measured from the outside face to the outside face of the structure walls, plus one foot.
2. The measured length for sanitary or stormwater force mains will include all fittings and short tunnels with deductions for the laid length of valves.
3. Deductions in the measured length of storm sewers will be made for the width of all structures, including manholes and inlets, measured from the inside wall to the inside wall of the structure.

SP-46 Filling Abandoned Sewers

The Contractor shall pump a lean mixture of grout into sewers as shown on the Plans and as directed by the Engineer.

The grout shall be a mixture of flyash and cement, the ratio of which shall be submitted to the Engineer for approval. The grouting shall be carried out by pumps.

This work shall be carried out after the proposed sanitary sewer or storm sewer is functioning.

The Contractor shall take measures to ensure the pipe is completely filled with the grout. Such measures may consist of constructing temporary stand pipes, grout injection tubes, or other measures approved by the Engineer and as directed in the Workmanship and Materials section. The Contractor shall also construct approved plugs into the ends of the abandoned sewers. All costs to construct the plu

SP-47 Sanitary Sewer House Lateral Reconstruction

All sanitary sewer house laterals, in conflict, shall be reconstructed as indicated on the plans and as directed by the Engineer.

The laterals shall be constructed as indicated on the sanitary sewer standard sheet.

SP-48 Temporary Pavement Restoration

No portion of the work shall be left more than fourteen (14) days without temporary pavement surface; however, the Engineer may require that temporary pavement surface be installed sooner to ensure that no more than one-thousand (1,000) linear feet of road be open at one time. Payments on installed pipe of up to fifty percent (50%) of the unit price can be retained by the Engineer until a crushed concrete or limerock base material along with a sand seal temporary pavement surface is provided. The Engineer can restrict further pipe laying if satisfactory and on-going street restoration is not performed by the Contractor. 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.

SP-49 Alignment Survey Gravity Pipe Sewer or Force Main

The Contractor shall employ the services of a Land Surveyor, registered in the State of Florida, to survey the centerline alignment of the new gravity storm sewer pipe, gravity sanitary sewer pipe, or force main. All manhole locations or horizontal points of intersection, deflection angles, proposed manhole rim elevations, and proposed finished roadway elevations at the manholes shall be noted in the survey with their respective field stations. In the event of discrepancies between the centerline

stationing shown on the Plans and that obtained by the actual field survey, the Contractor shall notify the Engineer. The Engineer will advise the Contractor of any appropriate adjustments in alignment of the sewer or force main, or locations of manholes or horizontal points of intersection. The alignment survey must be submitted to the Engineer and approved by him prior to submitting shop drawings on manhole, structures, inlets, etc.

The Land Surveyor shall also establish construction centerline offset hubs at 100-foot intervals as directed by the Engineer. The Contractor shall protect these hubs from displacement or damage during construction. Any offset hubs damaged or displaced shall be reset by the Land Surveyor to the satisfaction of the Engineer.

In the instance of a "point repair" the requirement to provide an alignment survey will not be required. A point repair in a gravity line is defined as replacing any distance of sewer pipe, but not the entire length of pipe, between manholes. If the entire length of pipe between manholes is replaced the alignment survey will be required. A point repair in a force main is defined as replacing a length of up to two contiguous nominal sections of pipe.

The cost of the survey and establishing and resetting offset hubs shall be included in the respective unit price Contract Item, or total Lump Sum Price, as applicable, and no additional payment will be made therefore.

SP-50 Cut Sheets

The Contractor shall furnish the Engineer with cut sheets for all pipelines installed under this Contract. The cut sheets shall be arranged in a format approved by the Engineer and shall indicate the pipe invert elevation shown on the Plans; the actual, existing ground surface elevation; and the computed cut from ground surface to pipe invert at manholes and at changes in pipe class and bedding class. The cut sheets will be reviewed by the Engineer and shall be revised as necessary by the Contractor to meet the approval of the Engineer.

SP-51 City Testing

The cost of retesting materials and/or workmanship, which has been initially tested by the City and found to be unacceptable, is to be borne by the Contractor.

SP-56 Removal and Abandonment of Existing Sewer Systems within Pipeline Construction Payment Limits

The cost of removal or abandonment of existing sewer systems within pay limits including, but not limited to, pipe, inlets, manholes, manhole frames and covers, catch basins, and any other appurtenances as well as the cost to grout or sand-fill any pipe or manholes, where specified on the Plans, shall be included under the various classified unit price Contract Items for pipelines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefore.

Removal or abandonment of existing storm or sanitary sewer systems outside the sewer system pay limits, as shown on the Plans and directed by the Engineer, shall be paid for at the appropriate Contract Unit Price, or in the total Lump Sum Price, as applicable.

SP-59 Monthly Schedules

In addition to the Progress Schedule required in Article 4.02 of the Agreement, the Contractor shall submit a monthly schedule with each pay estimate. Pay estimates will not be processed unless accompanied by an updated monthly schedule. The schedule shall be broken down into the following components:

1. Well pointing
2. Main line pipe installation
3. Lateral pipe
4. Cutting subgrade
5. Base work
6. Paving
7. Restoration

SP-60 Contingent Items

The Contractor shall include a Fifty Thousand Dollar (\$50,000) contingency sum, to be included as part of the total bid amount for this contract. The contingency is for the purpose of compensating the Contractor for any incidental work that may arise as construction operations proceed and was not addressed as part of the original work portrayed in the Plans and Specifications.

The Fifty Thousand Dollar (\$50,000) contingency sum is an upset limit. Any amount of the contingency shall be paid only after negotiation.

SP-62 Filling Low Areas Within City Limits

The Contractor, under Sec. 21-27 (Permit Requirements) of the City of Tampa Code, is prohibited from filling any area public or private (except where shown on the construction plans) within the project limits or anywhere within the City limits without a permit.

For filling and/or grading any area, the owner of such area shall obtain a permit from the Construction Services Center, City of Tampa. The owner shall submit existing and proposed contour plans of the area to be filled and the adjacent land for determination if a permit can be issued. Drainage patterns cannot be altered to the detriment of neighboring property owners or public rights-of-way.

The Contractor shall not deposit any fill material within the City limits without an approved permit. A copy of the permit shall be submitted to the Engineer by the Contractor prior to any filling or grading operation.

SP-64 Bypass Pumping

Maintaining sanitary sewer flows during all phases of construction is the responsibility of the Contractor. The Contractor shall review the plans, phasing, and the construction schedule to determine the need for bypassing to suit the sequence of operations. The bypass operation must provide continuous service. If so directed by the Engineer, the Contractor will provide around-the-clock monitoring to ensure continuous operation and service. To further ensure that no interruptions occur, the Contractor must have adequate back-up pumps on site at all times. The number of back-up pumps shall conform to the following chart:

<u>OPERATING BYPASS PUMPS</u>	<u>REQUIRED BACK-UP PUMPS</u>
1-3	1
4-6	2
7-9	3

The hydraulic design of the bypass system shall be the sole responsibility of the Contractor. All pumps shall be of a type suitable for pumping raw sewage over an indefinite period without clogging or requiring shutdown for routine maintenance. The Contractor shall submit a complete plan for his bypass system including, but not limited to, pump size and type, pump flow characteristics, and piping size, type, and diameter. All pumps shall be properly secured to avoid damage/vandalism/unauthorized shutdown and baffled to comply with all noise abatement standards. The costs of bypass pumping shall be included in the various Contract Unit Price Items, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefore.

SP-73 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 an Authorization to Proceed with Extra Work letter will be incorporated

in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the contract price or the time for completion.

Without invalidating the Agreement, additions, deletions or revisions in the work may, at any time or from time to time, be authorized by a Change Order or a Work Directive Change. Upon receipt of any such document, the Contractor shall promptly proceed with the work involved.

SP-78 Protection of Water Service Lines

The Contractor shall protect all water service lines, including those which are to be replaced, in order to minimize interruption of service to the customer. If the Contractor damages a service line which is shown on the plans, is in line with a meter box, or that has been marked in the field, then he shall immediately replace the service line per Tampa Water Department (T.W.D.). Specifications from main to meter including curb stop, making all connections, and all appurtenant work required to restore service.

The Engineer shall determine which lines, if any, are to be replaced due to damage caused by the Contractor, and no separate payment shall be made therefore.

SP-85 Storage of Materials

The Contractor may not use that portion of the right-of-way located between the existing/proposed curb lines or existing/proposed edges of pavement to store pipe, structures, materials, surplus excavated fill, or equipment other than that used for excavating or dewatering. The Contractor may use that portion of the right-of-way behind the existing or proposed curb line or off the edge of pavement for storage provided that this use does not obstruct pedestrian or vehicular traffic and conforms to the City's Tree Ordinance. If the area behind the curb line/off the edge of pavement is insufficient in size to accommodate the Contractor's storage needs, the Contractor is required to secure the use of a vacant parcel of land for use as a storage site for the duration of this project. Upon completion of the project, all storage areas will be restored to a condition which meets or exceeds the pre-construction condition of the storage area. Payment for use and restoration of storage areas will be included in the appropriate lump sum pay items and unless the area is within the pipeline pay limits, no separate payment will be made therefore.

SP-86 Temporary Stockpiling

For temporary stockpiling of the excavated material within project limits (and anywhere within City limits), the Contractor shall follow the following procedure:

Public Right-of-Way

- a. The Contractor will not be allowed to stockpile suitable, excavated material within right-of-way for a period in excess of 30 calendar days. Unsuitable excavated material shall not be stockpiled within public right-of-way for a period in excess of 7 calendar days.

Location other than Public Right-of-way

- b. The Contractor shall:
 - 1) Obtain the permission (in writing) from the owner of the property where stockpiling is desired.
 - 2) At his own expense present the above letter and a contour plan of the site to the Engineer for approval of the stockpiling site.

The time periods of stockpiling shall be specified by the Contractor in writing.

Upon removal of stockpiled material, the Contractor shall clean up and grade the site to its original contours and

conditions.

The City of Tampa shall not be a party to the agreement between the Contractor and the property owner.

Regardless of the location of stockpiling, it shall be the Contractor's responsibility to make sure that stockpiling in no way constitutes a public hazard or nuisance and does not interfere with the natural surface runoff in the area

SP-89 Temporary Work Stoppages

The Contractor shall temporarily discontinue all construction activities from, and including, Thanksgiving Day through the following Sunday, and December 24 through January 2.

Prior to temporary work stoppages, all streets shall be restored to permit access to all businesses and residences and to allow ingress and egress by local traffic only. The Contractor shall maintain all streets at this condition level for the duration of the shutdown period.

All equipment, except that used for excavation and well pointing, and all materials including, but not limited to, manhole structures, pipe, and stockpiled material shall be removed to either the Contractor's storage lot or to a location outside the project area as approved by the Engineer.

If the project is located close to Bayshore Boulevard, as determined by the Engineer, the Contractor will also be required to accommodate the annual Gasparilla Parade and Gasparilla Run by ceasing construction activities and providing ingress and egress to allow local traffic only. The time limits for these requirements shall be from one day before to one day after the Gasparilla Parade and the Gasparilla Run. Accommodation of these events will entail restoration of all streets to at least a sand seal coat of crushed concrete or limerock base. All equipment, except that used for excavation and well pointing, and all materials including, but not limited to, manhole structures, pipe, and stockpiled material shall be removed to either the Contractor's storage lot or to a location outside the project area as approved by the Engineer.

All costs associated with furnishing labor, equipment, temporary pavement restoration, demobilization, mobilization, signage, barricades, clean-up, security, and any other incidentals required to accommodate the Thanksgiving, Christmas and New Years' Holidays and Gasparilla Parade and Race shall be included in the various contract unit prices, and no additional payment shall be made therefore.

SP-91 Project Photographs

The Contractor will not be required to furnish photographs of the project; however, the Engineer may or may not take photographs of the area immediately prior to and after completion of the construction for record and information. To assure that there will not be any conflict with this photography, the Contractor shall not perform clearing operations or action which will disturb any street or area within the project until the Engineer has been advised thereof and has had adequate opportunity to perform the desired photography.

SP-98 Valves

Valves shall be handled with care to avoid damage. All valves shall be loaded and unloaded by lifting, and under no circumstances shall valves be dropped, skidded, or rolled. Valves shall not be placed, under any circumstances, against pipe or other fittings in such a manner that damage could result. Slings, hooks or tongs used for lifting shall be padded in such a manner as to prevent damage. If any part of the valves' coating and lining is damaged by the Contractor, the repair and replacement shall be made by the Contractor at his expense in manner satisfactory to the Engineer 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.

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. The pad shall be 24 inches square and shall be centered on the valve box. All Department valve covers shall be painted green 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 system.

SP-104 Castings Identification

All casting covers, such as for cleanouts and manholes, shall bear the appropriate City of Tampa identification for sanitary sewers, as shown on the Plans and directed by the Engineer.

SP-109.AC Existing Sprinkler System

For any of the several "Annual Contracts", it is required that the Contractor walk the project as the work order is being finalized, to determine the scope and extent of sprinkler systems that will be impacted by his work method.

Existing sprinkler systems for lawns and/or shrubbery within the City right-of-way shall be protected or, if disturbed, replaced by the Contractor. All sprinkler systems shall be replaced with those of equal or better quality as approved by the Engineer. The replacement of sprinkler systems shall include all necessary parts, labor, equipment, etc., to complete the existing sprinkler system in operating condition.

In areas where the construction might be in close proximity to existing sprinkler systems, the Contractor shall limit his trench width by using a trench/drag box, no additional expense to the City. The allowable width of the construction area around existing sprinkler systems shall be as per the detail for sheeted (trench/drag box) trench plus 4 feet for a working area, to either side of the sheeted trench.

The costs to replace any sprinkler system repaired or replaced within the described construction area shall be paid by the City after being negotiated prior to the start of construction.

SP-129.AC As-Built Plans

For any of the several "Annual Contracts", construction, installation and testing records shall be kept of any changes or adjustments made in the work. All such changes shall be incorporated in the "As-Built" plans, shown in red.

The Contractor shall provide the City of Tampa with one (1) hardcopy and (1) electronic high resolution color PDF copy of "As-Built" plans along with the supporting survey data. The survey shall be in accordance with the City of Tampa Department of Public Works specifications and note keeping standards for surveys and signed by a Land Surveyor registered in the State of Florida. Plan sheets shall have all deviations from original design annotated in red pencil to clearly show as-built conditions. Relocation of existing facilities and utilities must be clearly noted and their location identified by station, offset and elevation, when performed by the Contractor.

All relocation of structures and pipelines must be clearly shown on Plans with as-built stations and offsets verified. All as-built inverts for the entire project must be clearly noted on plan sheets.

In the instance of a "point repair" the requirements to provide an As-Built plan will not be required. A point repair in a gravity line is defined as replacing any distance of sewer pipe, but not the entire length of pipe, between manholes. If the entire length of pipe between manholes is replaced the As-Built plan will be required. A point repair in a force main is defined as replacing a length of up to two contiguous nominal sections of pipe.

All as-built plans shall be submitted within seven (7) calendar days of the final inspection. The final payment will not be issued until the as-built plans have been submitted to, and accepted by the City. Upon request the City will provide AutoCAD drawings.

SP - 130 Safety

- A. Responsibility: Employees shall immediately report any unsafe work practice or unsafe condition to their supervisor(s). The Contractor is solely responsible for the safety of their workers, and shall comply with all applicable requirements [i.e.: 29 CFR 1910 -Occupational Safety and Health Standards, 29 CFR 1926 - Safety and Health Regulations for Construction , etc] and industry safety standards while at the work site. The fact that City personnel may bring un-safe conditions to the attention of any member of the Contractors work force does not relieve the Contractor of this responsibility.

Suggest, all Contractors employees and sub-contractors be given a copy of SP-130.

The Contractor shall have a designated Safety Officer within his organization. At the Pre-Construction meeting, the Contractor shall provide the name and contact information of the Safety Officer to the Engineer.

At the Pre-Construction meeting, the Contractor will be given pertinent safety related information, necessary forms and instructions (i.e.: AWTP Lockout/Tagout Procedures, AWTP Hot Work Permits, etc) that pertain to any work that might be utilized during the contract. The Contractor shall be responsible to disseminate that information to their employees and sub-contractors. Special care shall be taken by the Contractor to ensure that any new employee or sub-contractor to the work site shall be briefed on these safety instructions.

If warranted by the project and directed by the Engineer, the Contractor shall develop and implement a comprehensive health and safety plan for their employees that will cover all aspects of onsite construction operations and activities associated with the contract. This plan must comply with all applicable health and safety regulations and any project specific requirements that the contract has specified.

- B. Incident Reporting: All accidents that result in personal injury, illness or property damage shall be immediately reported and investigated, regardless of the extent of injury, illness or property damage. Employees must report accidents within one hour (or as soon as practical) from the time of occurrence to their immediate supervisor who in turn will report it to the City's inspector. The City inspector will record the incident in their daily report and report it to the Risk Management Division (274-5708).
- C. Air-Borne Debris: All personnel in close proximity to drilling, sawing, sanding, scraping, spraying, power-washing or other work being done, either in enclosed spaces or in the open, that creates dust or air-borne debris shall wear eye protection [29 CFR 1910.133] and a respirator [29 CFR 1910.134].
- D. Hot Work: All welding, soldering, brazing, acetylene cutting or any other work at the AWTP or any pump station; that produces high temperatures shall require a AWTP "Hot Work Permit" and may require one or more fire watches. The number and location of fire watches (if any) shall be a condition of the Hot Work Permit. A current, portable, fully charged fire extinguisher shall be located with each person performing hot work and each fire watch. The Hot Work Permit shall be signed off by the appropriate personnel and maintained in the project file.
- E. Confined Spaces: OSHA defines a confined space as having limited or restricted means for entry or exit, and is not designed for continuous employee occupancy. Confined spaces include, but are not limited to: vaults, tanks, manholes, wet-wells, pipelines, utility tunnels, etc.

The Contractor shall take measures [29 CFR 1910.146 (c)(5)] to ensure that atmospheric conditions in

confined spaces are not hazardous to occupants. This can be accomplished by forcing a sufficient amount of clean air through the confined space and testing the atmosphere by using a portable certified, calibrated, atmosphere monitor that meets OSHA requirements [29 CFR 1910.146(c)(5)(ii)(C)]. The atmosphere monitor should record oxygen content, flammable gases and vapors and toxic air contaminants, such as the Industrial Scientific TMX-412.

- F. Air-Borne Gases: The AWTP is located in an industrial area and as such there are several different substances, either on or off site, that can escape and become dangerous fumes such as: chlorine, methanol, anhydrous ammonia, etc. The AWTP currently has nine (9) Shelter In Place (SIP) locations that are designated as safe havens in the event of release of hazardous gases. These SIP's are stocked with necessary instructions and supplies to protect City and any Contractor's personnel.

The first day on site, City personnel will show all the Contractor's personnel present where the several closest SIP's are located, explain the alarm signals and provide the current alarm testing schedule. It shall be the Contractor's responsibility to show any future employee and/or sub-contractor that comes on site the location of the SIP's and explain the alarm signals.

In the event of an alarm, the Contractor's personnel shall immediately and hastily proceed to the nearest SIP along with the City personnel and remain there until further notice, taking guidance from and following the instruction of the senior City employee present.

- G. Lockout / Tagout Policy: The AWTP Lockout / Tagout program is designed to set standards to help safeguard all employees from hazardous electrical or mechanical energy while they are performing service or maintenance on machines and equipment at the AWTP or any pump station. This program will also identify the practices and procedures to shut down and Lockout or Tagout machines and equipment. The Contractor shall be given a copy of the AWTP "LOCKOUT / TAGOUT POLICY AND PROCEDURES" instruction and shall make all of his employees and sub-contractors aware of this program.

No padlock (lockout) shall be removed except by the individual that installed it or if not available, by a City of Tampa AWTP team leader.

No tag (tagout) shall be removed except by the individual that installed it or if not available, by a City of Tampa AWTP team leader, except in an Emergency and the tag states "Do Not Use Unless in an Emergency". In that event, the Contractor shall notify the City of Tampa AWTP team leader, who will prepare the necessary follow up report.

- H. Trench Safety: Any excavation deeper than four (4) feet shall adhere to the requirements contained in 29 CFR 1926.650 thru 652 and the Florida Trench Safety Act [Florida Statutes, ss 553.60 - 553.64].
- I. Open Flames: No fires shall be allowed. No open flames necessary for any construction activity shall ever be left un-attended. A current, portable, fully charged fire extinguisher shall be located with each activity requiring an open flame.
- J. Sparks: Any activity lasting more than 10 continuous minutes, that creates sparks, such as grinding or chipping shall have a dedicated fire watch in attendance. A current, portable, fully charged fire extinguisher shall be located with each activity creating sparks, regardless if a fire watch is required or not.
- K. First Aid: The Contractor shall furnish appropriate First Aid Kits [29 CFR 1910.151] and shall be responsible to ensure his employees are properly trained to render first aid. If injurious corrosive materials are to be utilized, eye wash and body wash facilities must be provided in the immediate area.
- L. Related Costs: All costs associated with these or any safety measures shall be included in the total lump sum contract price or the various contract item unit prices, as applicable, and no separate payment shall be made thereof.

SP-137.AC Post-installation Testing of PVC Gravity Pipe

For any of the several "Annual Contracts", in accordance with the provisions of Workmanship and Materials Section 11 – PVC Pipe Gravity, subsection W-11.07, all PVC gravity pipelines shall be leakage tested, deflection tested, and TV inspected prior to final acceptance of the project. The Contractor shall be responsible for performing all tests and inspections on the pipeline. The City will no longer perform the TV inspection.

In the instance of a "point repair" the requirements to leakage test, deflection test and/or perform a TV inspection will not be required. A point repair in a gravity line is defined as replacing any distance of sewer pipe, but not the entire length of pipe, between manholes. If the entire length of pipe between manholes is replaced the leakage test, deflection test and TV inspection will be required. A point repair in a force main is defined as replacing a length of up to two contiguous nominal sections of pipe.

All costs associated with pipeline testing and TV inspection shall be included in the various contract unit prices, and no separate payment will be made therefore.

SP - 143 Clarification of "Agreement, Section 4, Time Provisions"

Wherever the word "Contract" is used in Section 4, add the words "and/or Work Order" after the word contract.

* * *



Page 1 of 2 –DMI Payment
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	Company Name Address Phone & Fax	Total Sub Contract Or PO Amount	Amount Paid To Date	Amount To Be Paid For This Period
Trade/Work Activity			Amount Pending Previously Reported	Sub Pay Period Ending Date
[]Sub []Supplier				
Federal ID				
			\$	\$
			\$	\$
			\$	\$
			\$	\$
			\$	\$
			\$	\$

(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: _____



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 if 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.

0 1 2 3 4 5 6 7 8

Sign Information

Building a Better Tampa

Downtown Riverwalk

Creates a waterfront pedestrian walkway connecting the south edge of the CapTrust building with MacDill Park.

**\$1.5 Million investment
Scheduled for completion in October, 2012**

**Orion Marine
Construction, Inc.**

Improvement Project



Mayor Bob Buckhorn

Project Contact:
Don Cermeno
Contract Administration
City of Tampa
Don.Cermeno@tampagov.net



For information call:
(813) 635-3400

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.

**\$7BD 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

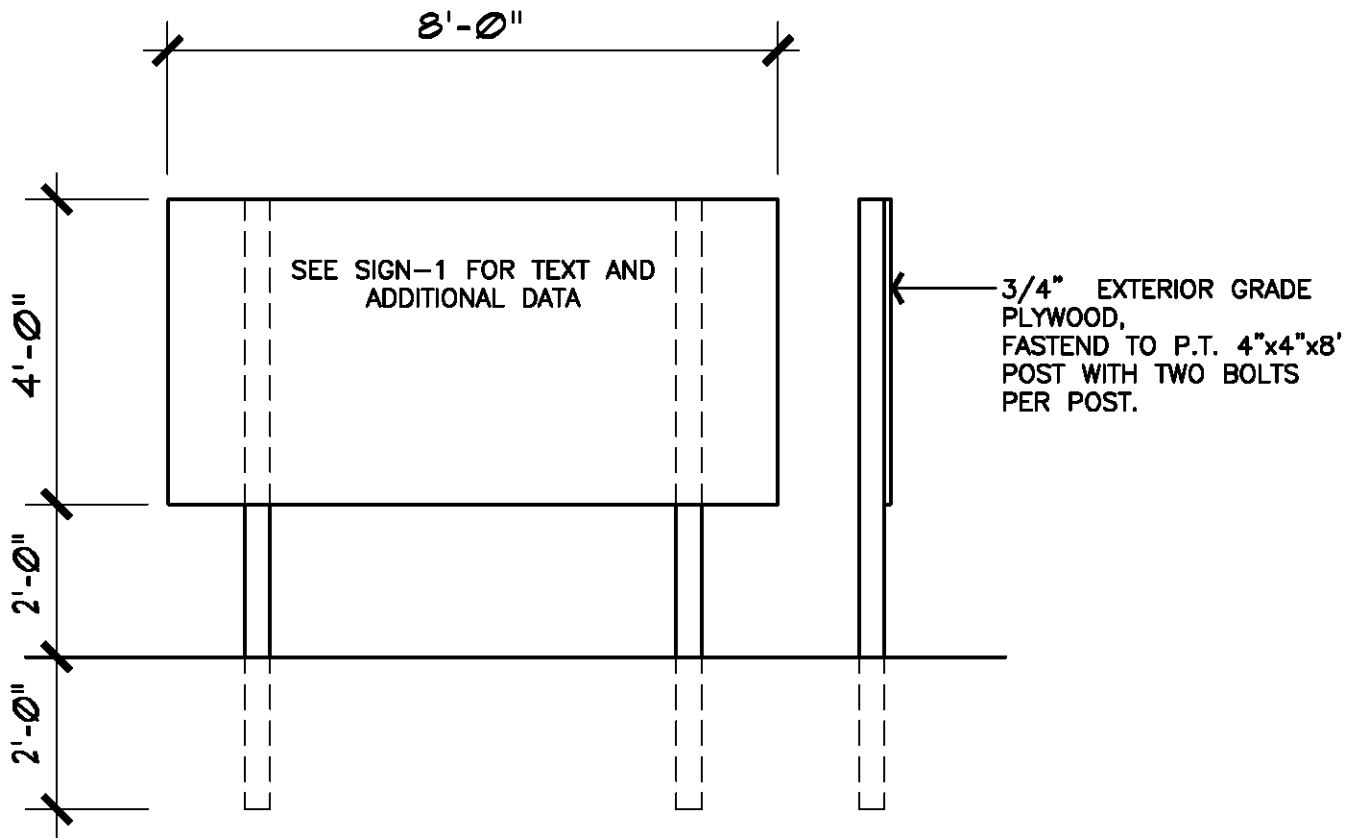
SIGN EXAMPLE ONLY GRAPHIC TO BE DEVELOPED BY CONTRACTOR

3"

scale: 3"

Font

Franklin Gothic



SPECIFICATIONS

WORKMANSHIP AND MATERIALS

SECTION 1 - EXCAVATION - EARTH AND ROCK

W-1.01 General

Open-cut excavations shall be made to the widths and depths necessary for constructing all structures, pipelines and other conduits included in the Contract, according to the Plans, and includes the excavation of any material which, in the opinion of the Engineer, is desirable to be excavated for any purpose pertinent to the construction of the work. Banks more than 5 feet high, where a danger of slides or cave-ins exist, shall be shored or sloped to the angle of repose.

Where excavations are to be made below groundwater, the Contractor shall submit to the Engineer for approval, in detail, his proposed method for control of groundwater, including a description of the equipment he plans to use and the arrangement of such equipment. No such excavation shall be started until approval of the Engineer has been obtained. Dewatering work shall be included in the Contract Items for pipelines, box culverts, inlets, manholes and other structures, and pumping stations, and no separate payment will be made therefor.

W-1.02 Clearing

The site of all open-cut excavations shall first be cleared of obstructions preparatory to excavation. This includes the removal and disposal of vegetation, trees, stumps, roots and bushes, except as specified under the subsection headed "Trench Excavation."

W-1.03 Authorized Additional Excavation

In case the materials encountered at the elevations shown are not suitable, or in case it is found desirable or necessary to go to an additional depth, or to an additional depth and width, the excavation shall be carried to such additional depth and width as the Engineer may direct in writing. The Contractor shall refill such excavated space with either Class D concrete, or select sand or crushed stone fill material, as ordered. Where necessary, fill materials shall be compacted to avoid future settlement. Additional earth excavations so ordered and concrete, or selected sand or crushed stone fill material ordered for filling such additional excavation and compaction of select sand or crushed stone fill material will be paid for under the appropriate Contract Items or where no such items exist, as extra work as specified in Article 7 of the Agreement.

W-1.04 Unauthorized Excavation

Wherever the excavation is carried beyond or below the lines and grades shown or given by the Engineer, except as specified in the subsection headed "Authorized Additional Excavation," all such excavated space shall be refilled with such material and in such manner as may be directed in order to ensure the stability of the various structures. Spaces beneath all manholes, structures or pipelines excavated without authority shall be refilled by the Contractor at his own expense, with Class D concrete, or select sand or crushed stone fill material, and properly compacted, as ordered by the Engineer, and no separate payment will be made therefor.

W-1.05 Segregation and Disposal of Material

Topsoil suitable for final grading and landscaping and excavated material suitable for backfilling or embankments shall be stockpiled separately on the site in locations approved by the Engineer. Excavated and other material shall not be stored nearer than 4 feet from the edge of any excavation and shall be so stored and retained as to prevent its falling or sliding back into the excavation. Surplus excavated material and excavated material unsuitable for backfilling or embankments shall become the property of the Contractor and shall be transported, as approved by the Engineer, away from the site of the work to the Contractor's own place of disposal.

W-1.06 Shoring and Sheeting

All excavations shall be properly shored, sheeted, and braced or cut back at the proper slope to furnish safe working conditions, to prevent shifting of material, to prevent damage to structures or other work, and to avoid delay to the work, all in compliance 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). The minimum shoring, sheeting and bracing for trench excavations shall meet the general trenching requirements of the safety and health regulations. Before starting excavation for jacking pits and structures, the Contractor shall submit complete design calculations and working drawings of proposed sheeting and bracing arrangements which have been prepared, signed and sealed by a Professional Engineer registered in the State of Florida. Bracing shall be so arranged as not to place any strain on portions of completed work until the general construction has proceeded far enough, in the opinion of the Engineer, to provide ample strength. If the Engineer is of the opinion that at any point the sheeting or supports furnished are inadequate or unsuited for the purpose, he may order additional sheeting or supports to be installed. Whether or not such orders are issued, the sole responsibility for the design, methods of installation, and adequacy of the sheeting and supports shall be and shall remain that of the Contractor.

Tight sheeting shall be used in that portion of the excavation in City collector and arterial streets and in State and County highways below the intersection of a 1 on 1 slope line from the edge of the existing pavement to the nearest face of the excavation.

In general, sheeting for pipelines shall not be driven below the elevation of the top of the pipe. If it is necessary to drive the sheeting below that elevation in order to obtain a dry trench or satisfactory working conditions, the sheeting shall be cut off at the top of the pipe and left in place below the top of the pipe at no additional cost.

The sheeting and bracing shall be removed as the excavation is refilled in such a manner as to avoid the caving in of the bank or disturbance to adjacent areas or structures except as otherwise shown or directed. Voids left by the withdrawal of the sheeting shall be carefully filled by ramming or otherwise as directed.

Permission of the Engineer shall be obtained before the removal of any shoring, sheeting, or bracing. Such permission by the Engineer shall not relieve the Contractor from the responsibility for injury or to other property or persons from failure to leave such sheeting and bracing in place.

W-1.07 Sheeting Left in Place

The Engineer may order, in writing, any or all sheeting or bracing to be left in place for the purpose of preventing injury to the structures or to other property or to persons, whether such sheeting or bracing was shown on the Plans or placed at his direction or otherwise. If left in place, such sheeting shall be cut off at the elevation ordered, but, in general, such cutoffs shall be at least 18 inches below the final ground surface. Bracing remaining in place shall be driven up tight.

The right of the Engineer to order sheeting and bracing left in place shall not be construed as creating any obligation on his part to issue such orders.

Sheeting and bracing left in place, by written order of the Engineer, will be paid for under the appropriate Contract Item if included in the Proposal or otherwise by provisions of extra work as specified in Section 7 of the Agreement.

W-1.08 Removal of Water

At all times during the excavation period and until completion and acceptance of the work at final inspection, ample means and equipment shall be provided with which to remove promptly and dispose of properly all water entering any excavation or other parts of the work. The excavation shall be kept dry. No water shall be allowed to rise over or

come in contact with masonry and concrete until the concrete and mortar have attained a set satisfactory to the Engineer and, in any event, not sooner than 12 hours after placing the masonry or concrete. Water pumped or drained from the work hereunder shall be disposed of in a safe and suitable manner without damage to adjacent property or streets or to other work under construction. Water shall not be discharged onto streets without adequate protection of the surface at the point of discharge. No water shall be discharged into sanitary sewers. No water containing settleable solids shall be discharged into storm sewers. Any and all damage caused by dewatering the work shall be promptly repaired by the Contractor.

W-1.09 Structure Excavation

Excavations shall be of sufficient size and only of sufficient size to permit the work to be economically and properly constructed in the manner and of the size specified. The bottom of the excavation in earth and rock shall have the shape and dimensions of the underside of the structure wherever the nature of the ground will permit.

W-1.10 Trench Excavation

Before starting trench excavation, all obstructions which are to be removed or relocated shall be cleared away. Trees, shrubs, poles, and other structures which are to be preserved shall be properly braced and protected. All trees and large shrubs shall be preserved with damage to the root structure held to a minimum, unless otherwise shown or specified. Small shrubs may be preserved or replaced with equivalent specimens.

The width of trenches shall be such as to provide adequate space for workmen to place, joint, and backfill the pipe properly, but shall be kept to a minimum. Unless otherwise approved by the Engineer, the clear width of the trench at the level of the top of the pipe shall not exceed the sum of the outside diameter of the pipe barrel plus 24 inches.

In sheeted trenches, the clear width of the trench at the level of the top of the pipe shall be measured to the inside of the sheeting.

Should the Contractor exceed the maximum trench widths specified above, without written approval of the Engineer, he may be required to provide, at his own expense, concrete cradle or encasement for the pipe as directed by the Engineer, and no separate payment will be made therefor.

The Contractor shall excavate trenches to the respective depths, below the bottom of the pipe, for the various classes of pipe bedding shown on the Plans so that pipe bedding material can be placed in the bottom of the trench and shaped to provide a continuous, firm bearing for the pipe barrel and bells.

If unstable material is exposed at the level of the bottom of the trench excavation, it shall be excavated in accordance with the subsection headed "Authorized Additional Excavation." When in the judgement of the Engineer the unstable material extends to an excessive depth, he may advise the Contractor in writing to stabilize the trench bottom with a crushed stone, sand mat or gravel mat to ensure firm support for the pipe by other suitable methods. Payment for such trench stabilization will be made under the appropriate Contract Items or where no such items exist, as extra work as specified in Section 7 of the Agreement.

The open excavated trench preceding the pipe laying operation and the unfilled trench with pipe in place shall be kept to a minimum length causing the least disturbance to traffic and use of adjacent property. Ladders shall be provided and so located as to provide means of exit from the trench without more than 25 feet of lateral travel.

W-1.11 Rock Excavation

The term "rock" as used herein shall include all materials which have compressive strengths in excess of 300 psi in their natural undisturbed state and which, in the opinion of the Engineer, require drilling and blasting, wedging, sledging, barring or breaking with power tools not otherwise required for normal excavating.

Rock shall be excavated, within the boundary lines and grades as shown on the Plans, specified, or given by the Engineer. Rock removed from the excavation shall become the property of the Contractor and shall be removed by him away from the site of the work to his own place of disposal, and no separate payment will be made therefor.

All shattered rock and loose pieces shall be removed.

For trench excavation in which pipelines or other conduits are to be placed, the rock shall be excavated to a minimum depth of 6 inches below the bottom of the pipe and the excavated space refilled with pipe bedding material. Placing, compacting, and shaping pipe bedding material shall be included in the various classified unit price Contract Items for pipelines, and no separate payment will be made therefor.

For manhole excavation, the rock shall be excavated to a minimum depth of 8 inches below the bottom of the manhole base for pipelines 24 inches in diameter and larger, and 6 inches below the bottom manhole base for pipelines less than 24 inches in diameter and the excavated space refilled with crushed stone. Placing, compacting, and shaping crushed stone for manhole bases shall be included in the appropriate Contract Items for manhole bases, and no separate payment will be made therefor.

For cast-in-place structures, the rock shall be excavated only to the bottom of the structure or foundation slab.

Excavated space in rock below structures, pipelines, and manholes which exceeds the depths specified above shall be refilled with Class D concrete, crushed stone, or other material as directed by the Engineer. Refilling of over-excavated rock in rock shall be included as part of the rock excavation, and no separate payment will be made therefor.

Where applicable, the requirements of the subsections on "Trench Excavation" and "Structure Excavation" shall be followed.

Blasting may be performed only when approved by the Engineer and authorized by the Agency having jurisdiction over the subject location and in accordance with all laws, ordinances, and regulations of the Agency.

W-1.12 Excavation for Jacking and Augering

Excavation for jacking or augering shall meet the requirements of the Workmanship and Materials section headed "Jacking and Augering."

* * *

SECTION 2 - BACKFILLING

W-2.01 General

All excavation shall be backfilled to the original surface of the ground or to such other grades as may be shown or directed. For areas to be covered by topsoil, backfill shall be left 4 inches below the finished grade or as shown on the Plans. The time elapsing before backfilling is begun shall be subject to the approval of the Engineer. In all backfilling, all compressible and destructible rubbish and refuse which might cause later settlement and all lumber and braces shall be removed from the excavated space before backfilling is started, except that sheeting and bracing shall be left in place or removed as the work progresses.

Construction equipment used to backfill against and over cast-in-place concrete structures shall not be permitted to travel over these structures until the designated concrete strength has been obtained as verified by concrete test cylinders. In special cases where conditions warrant, as determined by the Engineer, the above restriction may be modified if the concrete has gained sufficient strength, as determined from test cylinders, to satisfy design requirements for the removal of forms and the application of load.

W-2.02 Unsuitable Backfill Material

Before backfilling around structures, all rubbish shall be removed from behind the walls.

When the excavated material contains garbage, cinders, glass, tin cans, wood, or other trash or objectionable organic material, as determined by the Engineer, it shall not be used for backfill but shall be disposed of by the Contractor away from the site of the work to his own place of disposal. The unsuitable materials shall be replaced with backfill material which shall be sand, clay, gravel, sandy loam, or other excavated material free of objectionable organic matter, as approved by the Engineer.

W-2.03 Select Fill Material - General

Select fill material shall be used for pipe bedding, manhole bedding, trench and structure backfill, and other purposes as shown on the Plans, specified, and ordered in writing by the Engineer.

Select fill material shall be sand, conforming to the requirements of the subsections headed "Select Fill Material - Sand" or crushed stone or limestone screenings, conforming to the requirements of the subsection headed "Select Fill Material - Crushed Stone."

W-2.04 Select Fill Material - Sand

Sand used for pipe bedding or as select fill material for trench or structure backfill shall consist of job excavated sand or imported sand which can be readily and thoroughly compacted. Sand

shall be reasonably well graded and shall fall within the following gradation limits:

- Passing No. 4 sieve - 95 percent (minimum)
- Passing No. 200 sieve - 10 percent (maximum)

Sand containing more than 10 percent of material passing the No. 200 sieve or sand which, in the opinion of the Engineer, would have a tendency to flow under pressure when wet will not be acceptable for use as pipe bedding or select fill material for trench or structure backfill

Sand shall not be used for bedding for manholes or other structures.

W-2.05 Select Fill Material - Crushed Stone

Crushed stone used for pipe bedding, manhole base bedding, or as select fill material for trench or structure backfill shall consist of clean, durable rock, angular in shape, which can be readily and thoroughly compacted. Crushed stone shall be

reasonably well graded and shall be no greater than a No. 57 stone.

W-2.06 Pipe and Structure Bedding

All pipelines shall be bedded in well graded, compacted select fill material. Select fill material shall be sand, conforming to the subsection headed "Select Fill Material - Sand" and/or crushed stone, conforming to the subsection headed "Select Fill Material - Crushed Stone," as shown on the Plans, specified or ordered in writing by the Engineer. Pipe bedding shall be constructed in accordance with the details shown on the Plans.

When shown on the Plans or ordered in writing by the Engineer, pipelines (except PVC) shall be laid in Class D concrete cradle or encasement.

Precast concrete manhole bases shall be bedded on No. 57 stone, conforming to the subsection headed "Select Fill Material - Crushed Stone," as shown on the Plans.

Cast-in-place manhole bases and other foundations for structures shall be cast against undisturbed earth in clean and dry excavations.

Existing underground structures, tunnels, conduits and pipes crossing the excavation shall be bedded with compacted select fill material. Bedding material shall be placed under and around each existing underground structure, tunnel, conduit or pipe and shall extend underneath and on each side to a distance equal to the depth of the trench below the structure, tunnel, conduit or pipe.

W-2.07 Bedding Placement for Pipelines

Select fill material, used as pipe bedding, shall be placed by hand, in uniform layers not greater than 6 inches in loose thickness and thoroughly compacted in place. Select fill material pipe bedding shall extend to one foot over the top of the pipe.

Each layer of select fill shall be thoroughly tamped and compacted in place by hand or with suitable mechanical or pneumatic tools to a dry density not less than 95 percent of the maximum dry density as determined by AASHTO Des: T-180. No large stone fragments shall be placed in the pipe bedding nor closer than two feet to any point on any pipe.

W-2.08 Bedding Placement for Precast Concrete Manholes

No. 57 stone used for bedding beneath precast manhole bases shall be placed in uniform layers not greater than 6 inches in loose thickness and thoroughly compacted in place with suitable mechanical or pneumatic tools.

W-2.09 Structure Backfill

Backfill around manholes, risers, and structures shall be suitable job excavated material, selected fill material, or other material approved by the Engineer. Such backfill shall extend from the bottom of the excavation or top of structure bedding to the bottom of pavement base course, subgrade for lawn replacement, the top of the existing ground surface, or to such other grades as may be shown or given by the Engineer.

The backfill shall be placed in uniform layers not greater than 18 inches in loose thickness and thoroughly compacted in place with suitable mechanical or pneumatic tools to a dry density of not less than 98 percent of the maximum dry density as determined by AASHTO Des: T-180

W-2.10 Trench Backfill

Trenches shall be backfilled from 1 foot over the top of the pipe to the bottom of pavement base course, subgrade for lawn replacement, to the top of the existing ground surface or to such other grades as may be shown or given by the Engineer. Trench backfill shall be select fill material, suitable job excavated material or other material, as approved by the Engineer.

Except under pavements and railroad tracks, trench backfill shall be placed in uniform layers not greater than 18 inches in loose thickness and thoroughly compacted in place using heavy-duty tampers such as pneumatic jackhammers with tamping foot attachment or vibrating rollers if required. Each layer shall be compacted to a dry density of not less than 95 percent of the maximum dry density as determined by AASHTO Des: T-180.

Where railroad tracks or pavements and appurtenances for streets or highways are to be placed over trenches, the trench backfill shall be placed in uniform layers not greater than 12 inches in loose thickness and thoroughly compacted in place with equipment as specified above. Each layer shall be compacted to a dry density of not less than 98 percent of the maximum dry density as determined by AASHTO Des: T-180. On City of Tampa streets, each layer shall be compacted as specified above to the bottom of the subbase which is defined as 10 inches below the bottom of the base course. The subbase shall be compacted to 98 percent of modified proctor.

Trench backfilling work shall be done in a manner to prevent dropping of material directly on top of any conduit or pipe through any great vertical distance. In no case shall backfilling material from a bucket be allowed to fall directly on a structure or pipe and in all cases, the bucket shall be lowered so that the shock of falling earth will not cause damage.

Lumps shall be broken up and if there are any stones, pieces of crushed rock or lumps which cannot be readily broken up, they shall be distributed throughout the mass so that all interstices are solidly filled with fine material.

W-2.11 Backfill for Short Tunnel

Where pipelines are placed in short tunnels, the annular space between the outside of the pipe wall and the tunnel wall shall be completely filled with select fill material or suitable excavated material. Pipelines in short tunnels shall be suitably supported, to permit placing backfill which shall be suitably tamped in place.

W-2.12 Finish Grading

Finish grading shall be performed to meet the existing contour elevations and grades shown on the Plans or given by the Engineer and shall be made to blend into adjacent natural ground surfaces. All finished surfaces shall be left smooth and free to drain.

Grading outside of pipelines or structure lines shall be performed in such a manner as to prevent accumulation of water within the area. Where necessary or where shown on the Drawings, finish grading shall be extended to ensure that water will be carried to drainage ditches, and the construction area left smooth and free from depressions holding water.

W-2.13 Responsibility for After Settlement

Any depression which may develop in backfilled areas from settlement within one year after the work is fully completed and accepted shall be the responsibility of the Contractor. The Contractor shall, at his own expense, provide as needed additional backfill material, pavement base replacement, permanent pavement sidewalk curb and driveway repair or replacement, and lawn replacement and shall perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved by the Engineer.

W-2.14 Inspection and Testing of Backfilling

All backfill shall be subject to test by the Engineer with the assistance of the Contractor.

* * *

SECTION 3 - TIMBER AND LUMBER

W-3.01 General

Timber and lumber used for structural purposes shall be graded in accordance with ASTM Des: D 245 and shall be fabricated, erected, and installed in accordance with the recommendations of the National Design Specifications for Wood Construction of the National Lumber Manufacturers' Association. Lumber for other uses shall be of the kind and grade shown on the Plans or specified under other section of these Specifications.

W-3.02 Structural Lumber

Structural lumber shall be of the following species and minimum grades unless otherwise shown on the Plans or specified.

<u>Species</u>	<u>Grade</u>	<u>Standard</u>
Southern Pine 2" and up	Number 1 Dense KD	Southern Pine Inspection Bureau

Lumber shall meet the requirements of the above grades throughout the entire length of each piece. Defects prohibited in the middle third of length will not be permitted in the balance of the piece.

W-3.03 Untreated

Timber and lumber for shoring and bracing shall be new merchantable pine, Douglas fir, or spruce, unless otherwise shown or specified. Timber and lumber for decking and supports shall be suitable hard yellow pine. No secondhand timber or lumber shall be used where strength or appearance are important considerations.

W-3.04 Treated Timber and Lumber

Treated timber and lumber shall be treated with Grade 1 coal-tar wood preserving oil by the empty cell process in conformance with the requirements of the American Wood Preservers Association Standard C2.

W-3.05 Plywood

All structural plywood used for roofing shall be exterior type and shall conform to standards as outlined in the Southern Building Code latest revision.

W-3.06 Workmanship

All timber and lumber shall be carefully handled to avoid splitting or damage to the surfaces and edges and shall be stored in piles at least one foot above dry ground and piled in such a manner as to shed water and prevent distortion and warping. Untreated lumber shall be open-stacked; treated lumber shall be close-stacked. Lumber piles shall be protected from the weather.

All timber and lumber shall be cut and framed true and exact to a close fit in such a manner that the joints will have an even bearing over the entire contact surfaces. Unless otherwise specified, nails and spikes shall be driven just sufficiently to set the heads flush with the surface of the wood. Deep or frequent hammer marks in surfaces and edges of timbers will not be allowed.

As far as practicable, all cutting and boring of treated timber shall be done before treatment and no temporary bolting, spiking, or nailing of treated lumber will be permitted.

SECTION 4 – CONCRETE AND CONCRETE MATERIALS

W-4.01 General

This section covers concrete materials and performance requirements for wastewater structures.

W-4.02 Cement

Cement shall be from a source approved by the Engineer before the cement is ordered. Domestic manufacturers of cement shall furnish to the Engineer notarized Certificates of Manufacture as evidence that the cement conforms to the requirements of the Specifications. These certificates shall include mill test reports on the cement. Suppliers of foreign cements shall furnish to the Engineer test data from a testing laboratory approved by the Engineer to show conformance with all applicable requirements of ASTM Des: C 150. Samples for testing shall be taken in accordance with ASTM Des: C 183. The cost of tests on foreign cement shall be considered as part of the cost of the work and shall be included under the appropriate Contract items. No separate payment for such testing will be made. Cement shall be either air-entraining portland cement or standard portland cement, except as otherwise specified. If standard portland cement is used, an air-entraining agent meeting the requirements of ASTM Des: C 260 shall be added to the concrete at the time of mixing in an amount sufficient to produce from 4 to 6 percent entrained air in the concrete for plastic mixes having a slump of 2 to 4 inches. Standard portland cement shall meet the requirements of ASTM Des: C 150, Type I or Type II, and air-entraining cement shall meet the requirements of ASTM Des: C 150, Type IA or Type IIA.

W-4.03 High-Early Strength Cement

In case high-early strength cement is used in any special part of the work, it shall be true portland cement with no chemicals or other substances added to expedite hardening and shall be of a brand approved by the Engineer. The cement shall meet the requirements of ASTM Des: C 150 Type III or Type IIIa. High-early strength cement shall be used only with the approval of the Engineer.

W-4.04 Fine Aggregate

Fine aggregate shall be natural sand, washed clean, having hard, strong, sharp, durable, uncoated grains; and shall be free from injurious amounts of dust, lumps, soft or flaky particles, mica, shale, alkali, organic matter, loam, or other deleterious substances. Fine aggregate shall conform to the requirements of Section 902 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

W-4.05 Coarse Aggregate

Coarse aggregate shall consist of gravel or broken stone composed of strong, hard, durable, uncoated pebbles or rock fragments, washed clean and free from injurious amounts of shale, coal, clay, lumps, soft fragments, dirt, glass, and organic and other deleterious substances. It shall conform to ASTM Des: C 33. The size shall be No. 57, as specified in Table II of ASTM Des: C 33.

W-4.06 Admixtures

The use of admixtures will be permitted but must be approved by the Engineer. Set retarders shall be Pozzolith 100-XR as manufactured by BASF, Cleveland, Ohio, or Plastiment as made by Sika Chemical Corporation, Lakewood, OH, or equal. Retarding admixtures shall be used in strict accordance with the manufacturer's directions and the manufacturer shall make available, at no cost upon 72 hours notification, the services of a qualified full time field representative to assure proper use of the admixture.

Set retarding admixtures shall be used only with the approval of the Engineer. The amount of set retarder added shall be sufficient to keep the concrete workable during the period of placement and finishing.

W-4.07 Water

Water used in mixing concrete shall be clean and shall not contain deleterious amounts of acids, alkalis, or organic materials. All water shall be furnished from sources approved by the Engineer.

W-4.08 Fly Ash

Fly ash shall be a local product with cementitious properties, conforming to the requirements of ASTM C 618, Class C or F, with the following exceptions:

- Loss on ignition - 5% maximum
- Sulfur trioxide - 4% maximum

Fly ash shall have a uniform light color, and shall be from a source approved by the Engineer.

Fly ash shall be stored at the concrete mixing plant separate from the cement, in accordance with the requirements specified for storage of cement. Cement and fly ash shall not be intermixed prior to being added to the concrete mix.

W-4.09 Concrete Strength Classes

Concrete shall be divided into two grades, classified according to compressive strength, to be used in the respective places shown on the Plans, called for in the Specifications, or ordered by the Engineer. The classes of concrete mixtures are referred to as Class B, and Class D.

Class B concrete is intended principally for reinforced concrete structures, and shall be used for columns, walls, beams, slabs, equipment pads, precast structures and the like.

Class D concrete is intended principally for low strength concrete, plain or reinforced, used for soil stabilization, filling, and other similar purposes. For large volume, boulders or fragments of rock excavated during construction may be embedded in the concrete to provide added bulk. Care shall be taken in placing the boulders or rock fragments, so that there are no voids in the concrete.

W-4.10 Strength and Proportion

Concrete mixes shall be designed and proportioned to provide the following minimum compressive strengths and the proper workability without exceeding the stipulated maximum quantities of mixing water:

Class	Compressive Strength - psi		Maximum Water
	7-day Test	28-day Test	Gallons Per Sack
B	2,700	4,000	5-1/2
D	1,300	2,000	7-1/4

Concrete, except Class D, shall contain not less than 564 pounds (six standard 94-pound bags) of cement per cubic yard.

W-4.11 Moisture Content of Aggregates

The quantity of free water contained in the aggregate shall be determined from time to time as required by the Engineer, and this quantity shall be deducted from the water added at the mixer, but no change shall be made in the water-cement ratio.

The quantity of water used in each batch shall be the total quantity, including the free moisture contained in the aggregate.

W-4.12 Consistency

Proportions of ingredients shall be varied to secure the desired concrete consistencies when tested in accordance with ASTM Des: C 143, conforming to the following slump requirements:

Minimum and Maximum Slump		
Concrete Placement	in Inches	
	Class B	Class D
Normal	3 to 4	3 to 5
Pumped	4 to 6	4 to 6

In all cases, the proportions of aggregates for concrete shall be such as to produce mixtures which will work readily into the corners and angles of the forms and around reinforcement, without permitting the segregation of materials or the collection of free water on the surface. The combined aggregates shall be of such composition of sizes that when separated on the No. 4 standard sieve, the weight passing the sieve shall not be less than 30 percent, nor greater than 45 percent of the total, unless otherwise required by the Engineer.

W-4.13 Field Tests

During the progress of the work, a reasonable number of test cylinders shall be made, cured, and stored in accordance with ASTM Des: C 31 and shall be tested in accordance with ASTM Des: C 39. Each test shall consist of three cylinders, one laboratory control cylinder to be tested at 7 days, and one field control cylinder to be tested at 28 days. If the 7-day cylinder is not satisfactory, the third cylinder, a laboratory control cylinder, will be tested at 7 days. Otherwise, the third cylinder will be tested at 28 days.

The Contractor shall furnish all labor, equipment and materials necessary for making concrete test cylinders. Concrete test cylinders must be tested by a materials testing laboratory approved by the Engineer. The Contractor is responsible for all costs associated with testing.

The average strength of all the cylinders shall be equal to or greater than the strengths specified, and at least 90 percent of all the tests shall indicate a strength equal to or greater than the strength specified. In cases where the strength of the test cylinders for any portion of the structure falls below the requirements specified herein, the Engineer may order a change in the mix or water content for the remaining portion of the work, and may require the Contractor to secure test specimens of the hardened concrete represented by these cylinders. The number of test specimens required to be taken shall be the same as the number of test cylinders made for each concrete placement. Specimens shall be secured and tested in accordance with ASTM Des: C 42. If the specimen tests further substantiate that the concrete represented by the cylinders and specimens is below the strength requirements specified herein, the Engineer may order such concrete removed and rebuilt at the expense of the Contractor.

W-4.14 Ready-Mixed Concrete

Ready-mixed concrete shall be mixed and delivered in accordance with the requirements set forth in ASTM Des: C 94, and subject to all provisions herein relative to materials, strength, proportioning, consistency, measurement, and mixing.

The rate of delivery of the mixed concrete shall be such that the interval between placing of successive batches shall not exceed 45 minutes. The elapsed time between the introduction of mixing water to the cement and aggregates and depositing concrete in the work shall not exceed 45 minutes including mixing and agitating time.

W-4.15 Forms - General

Forms shall conform to shape, lines, and dimensions of the member as shown on the Plans. They shall be substantial, properly braced, and tied together so as to maintain position and shape and to resist all pressures to which they may be subjected. Forms shall be sufficiently tight to prevent leakage of mortar. The size and spacing of studs and walers shall be determined by the nature of the work and the height to which concrete is placed. In all cases, walers shall be doubled, and the size of studs and walers used shall not be less than 2 by 6 inches. Joints shall be snug and shall occur at the designated locations only. Horizontal joints shall be level and vertical joints plumb.

The entire inside surfaces of forms shall be oiled with an approved form oil or shall be thoroughly wetted just prior to placing concrete.

The Contractor shall be responsible for the adequacy of all forms and for remedying any defects resulting from their use, notwithstanding inspection and prior approval by the Engineer.

W-4.16 Placing Concrete

Concrete shall be placed only in forms which have been approved by the Engineer and in his presence. Where the procedure is not specifically described herein, the placing of concrete shall be in accordance with the recommendations of ACI Standard 614.

After mixing, concrete shall be transported rapidly to the place of deposit. Concreting operations shall be continuous until the section, panel, or scheduled placement is completed.

Concrete may be conveyed in buckets, buggies, chutes, or other approved means. Apparatus used for conveying concrete shall be flushed thoroughly with water before and after each run. The point of delivery of concrete shall be as close to the work as possible and in no case more than 5 feet from the point of final deposit in the horizontal direction. Rehandling of concrete will not be permitted.

Concrete shall be deposited level in layers not to exceed 18 inches in a manner to prevent segregation of the ingredients.

Wall concrete shall be deposited through heavy duck canvas or galvanized iron chutes equipped with suitable hopper heads. Chutes shall be of variable lengths, so that the free fall of concrete shall not exceed 3 feet.

Freshly laid exposed concrete shall be protected in an approved manner against damage from the elements and unavoidable construction operations.

Special care shall be taken to place the concrete against the forms, particularly in angles and corners, in order to prevent voids, pockets, and rough areas. The concrete shall be rodded and spaded in a manner to work the coarse aggregate away from the forms, whether vibrators are used or not. Every precaution shall be taken to make all concrete masonry solid, compact, watertight, and smooth.

W-4.17 Cold Weather Requirements

When the atmospheric temperature at the work is 40 degrees F or below, or when the U.S. Weather Bureau forecasts such temperatures within 24 hours, the freshly placed concrete shall be protected against freezing.

W-4.18 Hot Weather Requirements

For placement of concrete in hot weather, the recommendations of ACI Standard 305R shall be followed.

W-4.19 Curing

Standard portland cement concrete surfaces normally exposed to the atmosphere shall be protected against excessively rapid drying by curing a minimum period of seven days. When average daily temperatures are above 70 degrees F, similarly exposed high-early strength concrete surfaces shall be cured for a minimum period of three days. When daily average temperatures are below 70 degrees F, the curing period for all concrete shall be extended as directed by the Engineer. The curing period shall commence immediately following the placing of the concrete. Curing shall be accomplished by a method approved by the Engineer. Should there be any delay in the application of the method of curing used, the concrete shall be covered with moistened burlap or kept wet by sprinkling.

W-4.20 Grout and Mortar

Grout for grouting around tunnel linings and for other locations as specified or directed shall be mixed in the proportions of one (1) part portland cement to one (1) part of sand by volume.

Non-shrink grout shall be a pre-blended mixture of a non-shrinking agent and shall be Embeco 636 as manufactured by the Master Builders Company, Cleveland, Ohio, or Propak as manufactured by Protex Industries, Denver, Colorado, or equal.

Lean grout for backfilling the space surrounding the sewer sections in tunnels or other areas as specified or directed shall be mixed in the proportion of one (1) part portland cement to twelve (12) parts of sand, by volume.

Mortar for brick or concrete block masonry shall be composed of one (1) part Type IIA portland cement to one (1) part of sand, by volume. Sufficient water shall be added to give the proper consistency. The mixture shall be thoroughly worked to produce a uniform mortar with all particles of aggregate well coated.

W-4.21 Water Stops

Water stops shall be installed in construction joints as shown on the Plans or specified. Water stops shall be made of extruded polyvinyl chloride. Reclaimed plastic material shall not be used in the manufacture of the water stops.

The water stop shall be 4 inches wide and not less than 1/8 inch thick at the narrowest point and 3/8-inch thick immediately adjacent to the center of the water stop. The water stop shall have longitudinal ribs with a hollow bulb center pleat. Water stops shall have a Shore durometer hardness between 65 and 75, a finished tensile strength of not less than 2,000 psi, and a specific gravity of not more than 1.38.

In matters not covered herein, plastic water stops shall meet the requirements of the latest specifications of the Society of the Plastics Industry, Inc. for Polyvinyl Chloride Water Stops.

Field splices for water stops shall be made by heat fusion using a field splicing unit. Each water stop type shall have its own splice mold built to the size and shape of the water stop to be spliced. Splicing mold and materials, including splicing cement, solvent, splicing stock, and other items, shall be as furnished by the manufacturer of the water stop. Field splicing shall be performed in strict accordance with the manufacturer's directions and to cause as little damage as possible to the continuity of the ribbed strips, all to the satisfaction of the Engineer.

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SECTION 6 - REINFORCING STEEL

W-6.01 Standards

Reinforcing steel bars for concrete reinforcement shall be deformed bars meeting the requirements of ASTM Des: A 615, Grade 60, unless shown or specified otherwise. They shall be free from defects, kinks, and from bends that cannot be readily and fully straightened in the field. Test certificates of the chemical and physical properties covering each shipment shall be submitted for approval.

Reinforcing mesh shall be of the electrically welded type, with wires arranged in rectangular patterns, of the sizes shown or specified and shall meet the requirements of ASTM Des: A 185.

W-6.02 General

Reinforcing steel bars shall be supplied in lengths which will allow them to be conveniently placed in the work and provide sufficient lap at joints. Dowels of proper lengths, size, and shape shall be provided for tying walls, beams, floors, and the like together when shown, specified, or ordered.

Stirrups and ties shall have a minimum inside radius of bend of 2-1/2 bar diameters. All other bars No. 7 and smaller shall have a minimum inside radius of bend of 3 bar diameters, and No. 8 bars and larger shall have a minimum inside radius of bend of 4 bar diameters.

Splices in all reinforcements shall be lapped as specified hereinafter in "Table 1 - Grade 60 Reinforcing Bar Splice Lapping Lengths" unless shown or specified otherwise. All splices shall be staggered, unless otherwise approved by the Engineer.

TABLE 1 - GRADE 60
REINFORCING BAR SPLICE LAPPING LENGTHS

Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11
Top Bars - ACI Class B	13	17	22	28	38	50	64	81	100
Top Bars - ACI Class C	17	23	29	37	50	66	83	106	130
Other Bars - ACI Class B	12	12	16	20	27	36	46	58	71
Other Bars - ACI Class C	12	16	20	26	36	47	60	75	93

Notes:

1. Splice length given in inches.
2. Top bars are all horizontal reinforcement so placed that more than 12 inches of concrete is cast in the member below the bar. This includes horizontal wall reinforcement.
3. Where lapping bars of different sizes, use lap required for larger bar.
4. For all bars spaced closer than 6 inches, increase lap length 25 percent.
5. Unless otherwise specified, the length of lap for splices shall be as shown for ACI Class B where no more than 50 percent of the bars are lap spliced, and as shown for ACI Class C where more than 50 percent of the bars are lap spliced.

W-6.03 Detailing

The Contractor shall submit detailed placing drawings and bar listed to the Engineer for approval in accordance with the requirements for "Working Drawings" of the General Provisions, except as otherwise specified herein.

All provisions of the latest ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" shall be followed in the preparation of placing drawings and bar lists.

Wall and slab reinforcing shall not be billed in sections. Complete elevations of all walls and complete plans of all slabs must be shown, except that when more than one wall or slab are identical only one such elevation or plan will be required. These plans or elevations need not be true views of the walls or slabs shown. Every reinforcing bar in a slab or a wall shall be billed on either a plan or an elevation. Where necessary, sections shall be taken to clarify the arrangement of the steel reinforcement. All bars shall be identified on such sections, but in no case shall bars be billed on such sections.

For all reinforcing bars, unless the location of a bar is perfectly obvious, the location of such bar or bars shall be given by a dimension to some structural feature which must be readily distinguishable at the time bars are placed.

The set of placing drawings shall be complete in and by themselves to the extent that the bar setters will have no occasion to refer to the design drawings.

Before submittal to the Engineer, every placing drawing and bar list shall be completely checked including the quantity, size, type, length, bend dimensions, and type of support for all bars or mesh, and all other information on the drawing and list. The checking shall be done by a qualified person and all necessary corrections made.

If after placing drawings and bar lists have been submitted to the Engineer for approval, a partial or spot check by the Engineer reveals that the placing drawings obviously have not been checked by a qualified person, they will be returned to the Contractor for such a check and corrections, after which they shall be resubmitted for approval by the Engineer.

W-6.04 Delivery

Reinforcing steel shall be delivered to the work in bundles strongly tied, and each group of both bent and straight bars shall be identified with a metal tag giving the identifying number corresponding to the shop drawings and bar schedules. All bars shall be properly stored in an orderly manner, at least 12 inches off the ground and kept clean and protected from the weather, as directed by the Engineer, after delivery at the site of the work.

W-6.05 Protection

Reinforcing steel shall be delivered without rust other than that which may have accumulated during transportation to the work. It shall at all times be fully protected from moisture, grease, dirt, mortar, and concrete. Before being placed in position, it shall be thoroughly cleaned of all loose mill scale and rust and of any dirt, coatings, or other material that might reduce the bond. If there is a delay in depositing concrete, the steel shall be inspected and satisfactorily cleaned immediately before the concrete is placed.

W-6.06 Fabrication and Installation - Bars

Bars shall be cut to required length and accurately bent before placing. Bars shall be bent in the shop unless written approval of field bending is obtained from the Engineer. If field bending is permitted, it shall be done only when the air temperature where the bending operation is performed is above 30 degrees F.

The bars shall be placed in the exact positions shown with the required spacing and shall be securely fastened in position at intersections to prevent displacement during the placing of the concrete. The bars shall be fastened with

annealed wire of not less than 18 gauge or other approved devices. Spacing chairs of a type approved by the Engineer shall be furnished and properly placed to support and hold reinforcing bars in position in all beams and slabs, including slabs placed directly on the subgrade. Chairs which rest on the forms for slabs, the underside of which will be exposed to view in the finished work, shall have those portions galvanized or plastic coated which come in contact with the forms.

Splices in all reinforcement shall be lapped as specified in "Table 1 - Grade 60 Reinforcing Bar Splice Lapping Lengths" in the subsection headed "General." Splices at points of maximum tensile stress shall be avoided wherever possible. Temperature bars shall have a minimum clear spacing of 2-1/2 diameters. All bar splices shall be staggered where possible.

All welded splices shall be full penetration, butt welds, made by certified welders in accordance with AWS D12.1. Thermite welding or Cadweld type couplers may be used where approved by the Engineer.

On any section of the work where horizontal bars run further than the length of the forms, the form or head against which the work ends shall be perforated at the proper places to allow the bars to project through a distance at least equal to the lap specified. The projecting ends, however, unless otherwise directed by the Engineer, shall be of different lengths so that in no place will laps in adjoining bars in the same place occur opposite each other.

W-6.07 Installation - Mesh

Reinforcing mesh shall be placed in the positions shown, specified, or required to fit the work. Suitable spacing chairs or supports as specified for bars shall be furnished and placed to maintain the mesh in correct location. Where a flat surface of mesh is required, the mesh shall be rolled or otherwise straightened to make a perfectly flat surface before placing. The length of laps not indicated shall be approved by the Engineer.

W-6.08 Concrete Protection for Reinforcing Steel

Reinforcing steel shall be placed and held in position so that the concrete cover, as measured from the surface of the bar to the surface of the concrete, shall be not less than the following, except as otherwise shown, specified, or directed:

1. General
 - a. Concrete deposited directly against soil - 3 inches.
 - b. Concrete in contact with soil or exposed to weather or sewage:

(1)	#6 bars or larger	- 2 inches
(2)	#5 bars or smaller	- 1-1/2 inches

2. Slabs (See Item 6)

a.	Troweled surfaces	- 1-1/2 inches
b.	Elsewhere	- 1 inch

3. Beams - Girders - Columns (See Item 6)

a.	To main reinforcement	- 2 inches
b.	To ties	- 1-1/2 inches

4. Walls (See Item 6)

a.	12 inches or more thick	- 2 inches
b.	Less than 12 inches thick:	
	(1) #6 bars or larger	- 2 inches
	(2) #5 bars or smaller	- 1-1/2 inches

5. Footings and Base Slabs

- a. Top face - 2-1/2 inches
- b. Sides and ends - 3 inches
- c. Bottom, Concrete deposited directly against ground - 3 inches

Concrete deposited directly against lean concrete work mat - 2 inches

6. Add 1/2 inch for surfaces contacting or exposed to water or sewage.

7. Laps - as specified in "Table 1 - Grade 60 Reinforcing Bar Splice Lapping Lengths" in the subsection headed "General."

8. Spacing - clear distance between parallel bars - 2 inches minimum.

* * *

SECTION 8 - METAL CASTINGS

W-8.01 General

Metal castings include all miscellaneous ferrous and nonferrous castings.

Wheel guards, valve boxes, manhole frames and covers, stop log grooves, brackets and supports for piping, gutter inlets, floor, roof and gallery drains, stormwater inlets, beehive grates and frames, cleanout covers, and special malleable iron castings and inserts are included in this classification.

W-8.02 Materials

Metal castings shall meet the requirements of the following standards, except as otherwise specified herein.

Gray Iron	ASTM Des: A 48
Malleable Iron	ASTM Des: A 47
Carbon Steel	ASTM Des: A 27
Alloy Steel	ASTM Des: A 148
Aluminum	ASTM Des: B 26
Aluminum Bronze	ASTM Des: B 148
Silicon Bronze	Navy Spec. 46B28
Manganese Bronze	ASTM Des: B 132 or B 147
Ductile Iron	ASTM Des: A 536

W-8.03 Workmanship

Castings shall be made accurately to approved dimensions and shall be planed or ground where marked or where otherwise necessary to secure perfectly flat and true surfaces. Allowance shall be made in the patterns so that the specified thickness shall not be reduced. Manhole and cleanout frames and covers shall conform to the details shown on the Plans and shall be true and shall seat at all points. No plugging of defective castings will be permitted. All castings shall be erected to accurate grades and alignment, and when placed in concrete, they shall be carefully supported to prevent movement during concreting.

W-8.04 Weights

No castings weighing less than 95 percent of the theoretical weight, based on required dimensions, will be accepted. The Contractor shall provide facilities for weighing castings in the presence of the Engineer, or shall furnish invoices showing true weights, certified by the supplier.

* * *

SECTION 10 - DUCTILE IRON PIPE AND FITTINGS

W-10.01 General

All ductile iron pipe shall meet the requirements of AWWA C151. The type and configuration of pipe bedding for buried pipe shall be as shown on the Plans. Coatings and linings for ductile iron pipe and fittings shall conform to the subsection headed "Coatings and Linings," contained herein. Pipe joints shall be bell and spigot, flanged, or mechanical joint as shown on the Plans.

Ductile iron pipe and ductile iron fittings buried in the ground for force mains or installed in pumping stations shall have a minimum thickness of Class 52 unless specified otherwise as shown on the Plans. Ductile push-on iron pipe and fittings for gravity systems, including house laterals, shall be Class 54 and shall have an interior lining as specified in the subsection "Lining for Ductile Iron Gravity Pipe."

W-10.02 Flanged Pipe

Flanged pipe shall conform to the requirements of AWWA C115. Flanges shall be ductile iron and shall have long hubs. There shall be no leakage through the pipe threads, and the flanges shall be designed to prevent corrosion of the threads from outside.

W-10.03 Fittings

All ductile iron fittings shall meet the requirements of AWWA C110 or AWWA C153 and have a pressure rating of 250 psi, or as specified, whichever is larger.

W-10.04 Flanged Joints

Flanged joints shall meet the requirements of ANSI Specification B16.1. Flanges, flange facing drilling, and protecting shall be as specified for flanged pipe. Bolts and nuts for flanged joints shall be Type 316 stainless steel unless otherwise stated on the Plans or directed by the Engineer.

Except where otherwise directed by the Engineer, gaskets for flanged joints shall be of the full-face type, meeting the requirements of ANSI B16.21. Gaskets shall be Nitrile rubber, also known as Buna-N and NBR, as made by the American Seal & Packing Company, Garlock of EnPro Industries, U.S. Rubber Supply Company, or equal.

W-10.05 Mechanical Joints

Mechanical joints shall meet the applicable requirements of AWWA C111/A21.11.

W-10.06 Push-on Joints

Push-on joints shall be of the bell and spigot type which employs a single, elongated grooved gasket to effect the joint seal. Push-on joints shall meet the applicable requirements of AWWA C111.

W-10.07 Wall Castings, Connecting Pieces, and Special Fittings

Wall castings and connecting pieces, such as bell and bell, bell and spigot, bell and flange, flange and flange, flange and spigot, and flange and flare, shall meet the requirements of ANSI Specification A21.10. Unless otherwise shown or specified, fittings 14 inches and larger shall have a pressure rating of 250 psi.

Where special fittings are required, they shall be of an approved design and shall have the same diameters and thickness' as standard fittings, unless otherwise required, but their laying lengths and other functional dimensions shall be determined by their positions in the pipelines and by the particular piping materials to which they connect.

Where water tightness is essential and at other locations where indicated, wall castings shall be provided with an integrally cast intermediate collar located at the center of the wall.

W-10.08 Sleeve-Type Couplings

Except where standard solid sleeves or split sleeves are shown or specified, sleeve-type couplings for ductile iron pipe shall be Style 38 couplings as made by Dresser Industries, Inc., or Type 411 as made by Smith-Blair, or equal. Gaskets shall be of molded rubber, Dresser Plain Grade 27, Smith-Blair 003, or equal. Middle rings shall be without a pipe stop and shall be at least 1/4 inch thick and 5 inches wide for 8-inch and smaller pipe, 3/8 inch thick and 7 inches wide for 10-inch through 30-inch pipe, and 1/2 inch thick and 10 inches wide for 36-inch and larger pipe with follower rings of appropriate thickness, unless otherwise shown or specified.

Sleeve-type couplings shall be shop coated with Dresser Red "D" Shop-Coat, Smith-Blair Standard Blue Shop Coat, or equal nontoxic material compatible with the finished coatings specified.

W-10.09 Coatings and Linings

Pipe which is to be buried shall have the standard outside coating specified in AWWA C151-8.1.

Unless otherwise shown on the Plans or specified, all ductile iron pipe and fittings shall have a Protecto 401 epoxy lining, meeting the requirements of AWWA C151-8.2.

The weight and class designation shall be painted conspicuously in white on the outside of each pipe, fitting, and special casting after the shop coat has hardened.

W-10.10 Thrust Restraints

Unless otherwise shown on the Plans, specified or directed by the Engineer, concrete thrust blocks are not allowed.

Ductile iron pipe and fittings with mechanical joints shall be restrained by a device meeting the requirements of Workmanship and Materials section "Restraining Devices".

Ductile iron pipe and fittings with push-on joints that require restraining shall be Clow F-128 "Super Lock Joint," American Cast Iron Pipe "Lok-Fast Joint," U.S. Pipe and Foundry Company "TR Flex," or equal.

Where the glands are to be buried or not exposed to view, the assembly shall be given 2 heavy coats of asphalt varnish after installation.

W-10.11 Lining for Ductile Iron Gravity Pipe

Unless otherwise shown on the Plans or specified, all ductile iron pipe and fittings shall be coated with 40 mils of Protecto 401 interior ceramic epoxy, or approved equal.

W-10.12 Polyethylene Encasement

Unless otherwise shown on the Plans, specified or directed by the Engineer, polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA/ANSI C105/A21.5.

Although not intended to be a completely air-and-water-tight enclosure, the polyethylene shall prevent contact between the pipe and the surrounding backfill.

Polyethylene encasement shall be installed in accordance with the pipe manufacturer's instructions, or in a manner acceptable to the Engineer. Polyethylene encasement shall extend 1 foot beyond the joint in both directions (a

total of 2-foot overlap) and shall be adhered to said joint with 2-inch wide green marking tape. The slack width shall be taken up at the top of the pipe to make a snug, but not tight, fit along the barrel of the pipe, securing the fold at quarter points. Upon installation of the encasement, any cuts or damaged portions of the polyethylene encasement shall be securely mended with tape or with a short length of polyethylene sheet, or a tube cut open, wrapped around the pipe to cover the damaged area, and secured in place.

Backfill material shall be the same as specified for pipe without polyethylene wrapping; however, extra care should be taken that the backfill be free from cinders, refuse, boulders, rocks, stones, or other materials that could damage the encasement. Special care shall be taken to prevent damage to the polyethylene wrapping when placing backfill.

Because prolonged exposure to sunlight will deteriorate polyethylene film, such exposure prior to backfilling the wrapped pipe shall be kept to a minimum.

W-10.13 Ductile Iron Pipe Exterior Coating

All pipe and fittings shall have an exterior asphaltic coating conforming to the following requirements:

Viscosity, KU at 25 degrees C	56-60
Flashpoint, degrees F (TCC)	40 degrees F Min
Dry set to touch, minutes	6
Dry hard, minutes	22

W-10.14 Force Main Identification

Ductile iron pipe sanitary force main shall be continuously spiral wrapped with 2-inch wide green stick-on vinyl tape prior to installation for permanent identification purposes. The tape shall have a minimum thickness of 6 mils with a minimum tensile strength of 22 pounds per inch and a minimum adhesive factor of 40 ounces per inch. The pipe shall be clean and dry when wrapped.

* * *

SECTION 11 - PVC PIPE GRAVITY

W-11.01 General

All pipe and fittings, 6"-27" nominal diameter, shall be solid wall Polyvinyl Chloride (PVC) Pipe **MANUFACTURED** to standards as outlined in the following sections.

All references to ASTM Designations shall include Manufacturing (PVC Cell Classification) and Performance (Inspection, Sampling and Testing) Specifications, and the most recent shall govern. Pipe and fittings meeting **ONLY** the Performance Test Specification will not be acceptable. The minimum nominal diameter for mainline pipe is 8 inches and for laterals is 6 inches. The maximum laying length shall be 13.0 feet.

W-11.02 Standards (6"-15" Diameter)

Solid wall PVC pipe shall comply with ASTM D 3034 and all applicable ASTM documents as covered in Section No. 2 of ASTM D 3034. All pipe and fittings shall be made of PVC plastic having cell classifications as outlined in Section No. 5 "Materials" of ASTM D 3034 and as defined in ASTM D 1784. For depths of cut through 18 feet, a minimum wall thickness of SDR-35 is required. For depths of cut greater than 18 feet, a minimum wall thickness of SDR-26 is required. Fittings shall be either integrally cast (factory molded) or factory solvent welded and a separate section from the mainline pipe. SDR-26 fittings shall be used with SDR-26 pipe.

W-11.03 Standards (18"-27" Diameter)

Solid wall PVC pipe and fittings shall comply with ASTM F 679 and all applicable ASTM documents as covered in Section No. 2 of ASTM F 679. All pipe and fittings shall be made of PVC plastic having cell classifications as outlined in Section No. 4 "Materials" of ASTM F 679 and as defined in ASTM D1784. All pipe and fittings shall meet the wall thickness and cell classification requirements of either T-1 or T-2 of Table 1 "Pipe Dimensions and Minimum Pipe Stiffness" of ASTM F 679. Fittings shall be either integrally cast (factory molded) or factory solvent welded and a separate section from the mainline pipe.

W-11.04 Joints (6"-27" Diameter)

Joints for solid wall PVC pipe and fittings shall be gasket, bell and spigot, push-on type. Joints shall be a molded integral part of the pipe section. Joints or couplings furnished loose shall not be permitted. Solvent cemented joints shall not be permitted. Lubricant shall be as recommended by the pipe manufacturer. (Assembly of gasketed joints is outlined in the Section "Joining of PVC Pipe").

Joints for pipe and for fittings shall comply with ASTM D 3212 "Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals." Elastomeric gaskets shall meet the requirements of ASTM F 477. Joints for pipe and fittings shall comply with ASTM D 3034 for 6"-15" diameter, ASTM F 679 for 18"-27" diameter, and ASTM F 1336 for 6"-27" diameter.

W-11.05 Pre-installation Tests, Reports, Markings and Submittals

All 6"-15" pipe and fittings shall be marked per Section No. 12 "Marking" of ASTM D 3034. All 18"-27" pipe and fittings shall be marked per Section 11 "Marking" of ASTM F 679. All required information shall be marked on the pipe. If in code, the markings shall be decoded in writing by letter to the City in advance.

PRIOR TO SHIPMENT of the pipe and fittings to the project site, the Contractor shall submit to the Engineer certifications as described below duly certified by the manufacturer's testing facility or an independent certified testing laboratory demonstrating full compliance with the applicable ASTM specifications described above. Certification from the supplier is **not** acceptable.

An original plus four (4) copies of the following shall be submitted to the Engineer.

1. The name, address, and phone number of the pipe and fittings manufacturer and the location of the plant at which they will be manufactured.
2. A letter of certification stating that each lot of pipe used on this project has been manufactured, sampled, tested, and conforms to Section 8 "Test Methods" of ASTM D 3034 for 6"-15" diameter and Section 7 "Test Methods" of ASTM F 679 for 18"-27" diameter pipe. A letter of certification from the fittings manufacturer shall be provided stating that all fittings conform with ASTM D 3034 for 6"-15" diameter, ASTM F 679 for 18"-27" diameter, and ASTM F 1336 for 6"-27" diameter.

W-11.06 Bedding Requirements

Unless otherwise indicated on the Plans, solid wall PVC pipe shall be installed with Class "C" bedding as described in Section W-2 - Backfilling." If soil conforming to subsection W-2.04 "Select Fill Material-Sand" is not excavated at the project site, it shall be imported. Compaction requirements are described in subsection W-2.07 "Bedding Placement for Pipelines." In no case shall a concrete cradle be used. In the event the Plans call for or the Contractor opts to install crushed stone, it shall be NO GREATER THAN a #57 stone.

W-11.07 Post-installation Tests

SCOPE: Prior to final acceptance of the project all PVC pipelines shall be leakage tested, deflection tested, and T.V inspected, all at the expense of the Contractor. The leakage test shall be performed by the Contractor or a Wastewater Department approved test lab after the subbase has been compacted. The Contractor or a Wastewater Department approved test lab shall perform the deflection testing. The deflection test shall be performed a minimum of 7 days after the base has been compacted and sealed. The Contractor shall perform the T.V. inspection only **AFTER** the pipelines have passed both the leakage and deflection tests.

DEFLECTION TESTING: The PVC pipe/soil system has been designed so that the maximum installed deflection does not exceed 5% or 7-1/2% of the base inside diameter of the pipe as listed in the following table:

INCHES			
<u>SDR-35</u>			
Nominal <u>Size</u>	Base Inside <u>Diameter</u>	5% Deflection after 7 days <u>Mandrel</u>	7-1/2% Deflection after 30 days <u>Mandrel</u>
8	7.665	7.28	7.09
10	9.563	9.08	8.85
12	11.361	10.79	10.51
15	13.898	13.20	12.86
<u>TYPE T-1</u>			
18	16.976	16.13	15.70
21	20.004	19.01	18.50
24	22.480	21.36	20.79
27	25.327	24.06	23.43

SDR-26

<u>Nominal Size</u>	<u>Base Inside Diameter</u>	<u>5% Deflection after 7 days Mandrel</u>	<u>7-1/2% Deflection after 30 days Mandrel</u>
8	7.488	7.11	6.93
10	9.342	8.87	8.64
12	11.102	10.55	10.27
15	13.575	12.90	12.56

TYPE T-2

18	17.054	16.20	15.77
21	20.098	19.09	18.59
24	22.586	21.46	20.89
27	25.446	24.17	23.54

The Contractor shall have the option of testing for 5% deflection after the base has been compacted and sealed for 7 days; or for 7-1/2% deflection after the base has been compacted and sealed for 30 days.

If the pipe fails the 7 day, 5% deflection test, the Contractor shall immediately conduct a 7-1/2% deflection test. If the pipe passes the 7-1/2% deflection test, the Contractor has the option of repairing that section at that time or waiting until a minimum of 30 days after the base has been compacted and sealed and then re-testing for a maximum of 7-1/2% deflection.

If the pipe fails the 7-1/2% deflection test after 7 days or at 30 days, the Contractor shall repair that section immediately.

If the Contractor performs the deflection testing rather than employing an approved test lab, the following shall apply:

The Contractor shall furnish the mandrel, labor, materials, and equipment necessary to perform the tests as approved by the Engineer. The mandrel shall be pulled through by HAND or a HAND operated reel in the presence of the Engineer. Prior to performing the deflection tests, the Contractor shall submit to the Engineer certification that the 9-arm mandrels are preset as stated above. Each mandrel shall be engraved with the following:

Serial Number
 Nominal pipe diameter
 Either "ASTM D 3034," year and either "SDR-35" or "SDR26"
 or "ASTM F 679," year and either "Type T-1" or "Type T-2"
 % deflection as stated above.

If the mandrel fails to pass any section of pipe, the Contractor shall excavate and make all repairs necessary to correct the excessive deflection. The Contractor shall then backfill, recompact, and reseal the permanent pavement base, and retest the line. If the mandrel fails to pass a second time, the section shall be replaced. Re-rounding is **NOT** permitted.

W-11.08 Leakage Testing

The Contractor or a reputable test lab shall perform either an infiltration, exfiltration or an air leakage test as authorized by the Engineer. If the groundwater level is two (2) feet or more above the crown of the pipe, an infiltration test must be performed. The Contractor shall notify the Engineer of the date and time of the test a minimum of 5 days prior to the test.

The infiltration/exfiltration tests shall be performed as described in Section W-18.

AIR TESTING - The minimum time duration permitted for pressure drops of 1.0 psi and 0.5 psi are shown in Tables I and II on the following page and are based on a maximum allowable exfiltration rate of 0.0015 cu. ft./min./sq. ft. of internal pipe surface. Derivations may be found in the Uni-Bell PVC Pipe Association publication: "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe," UNI-B-6-85. (Available from Uni-Bell, 2655 Villa Creek Drive, Suite 155, Dallas, Texas 75234.

The test shall commence after the plugged line has reached a stabilized gauge pressure of 4.0 \pm 1/2 psi. Air testing equipment shall be arranged so that it is located at the ground surface and shall have an approved air relief arrangement to prevent the sewer from being pressurized to greater than 9.0 psig.

If the pressure drops 1.0 psig (or 0.5 psig) before the appropriate time shown in Table I (Page W11-8) or Table II (Page W11-9) has elapsed, the line has failed. In such case, the Contractor shall structurally repair or replace all defective materials and/or workmanship to the satisfaction of the Engineer.

Sealants are **NOT** permitted. The completed pipe installation shall then be retested.

The lengths of lateral sewers may be ignored for computing required test times. In the event a test section (mainline and laterals), having a combined total internal surface area less than 625 square feet, fails to pass the air test when laterals have been ignored; the test time may be reduced per Section 9.4 of UNI-B-6-85. If the reduced test time is short enough to allow the section to pass, the computations shall be included with the test results.

W-11.09 Joining of PVC Pipe

The assembly of gasketed joints shall be performed as recommended by the pipe manufacturer. In all cases, clean the gasket and bell, especially the groove area and the spigot area with a rag, brush, or paper towel to remove any dirt or foreign material before the assembly. Lubricant shall be applied as specified by the pipe manufacturer.

Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Apply firm steady pressure either by hand or by bar and block assembly until the spigot easily slips through the gasket.

If undue resistance to insertion of the pipe end is encountered or the reference mark does not position properly, disassemble the joint and check the position of the gasket. If it is twisted or pushed out of its seat ("fish-mounted"), inspect components, repair or replace damaged items, clean the components, and repeat the assembly steps. Be sure both pipe lengths are in concentric alignment. If the gasket was not out of position, verify proper location of the reference mark.

To join field-cut pipe, first square cut the pipe end. Use a factory-finished beveled end as a guide for proper bevel angle and depth of bevel plus the distance to the insertion reference mark. Bevel the end using a pipe beveling tool or a wood rasp which will cut the correct taper. Round off any sharp edges on the leading edge of the bevel.

W-11.10 Joining PVC Pipe to Clay Pipe

The joining of PVC to clay pipe shall be accomplished with flexible compression couplings. Such couplings shall meet the requirements of ASTM Des: C 425 and shall be Series No. 1002 flexible polyvinyl chloride couplings with stainless steel compression bands as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Band-Seal couplings as manufactured by Mission Clay Products Corp., Whittier, California; or equal. Installation of flexible couplings shall be done in accordance with the manufacturer's instructions.

After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-11.11 Joining PVC Pipe to Ductile Iron Pipe

The joining of PVC pipe to ductile iron pipe shall be accomplished with rigid PVC C900 x SDR-35 adapter couplings. Such couplings shall be molded of PVC material meeting ASTM D-1784 specifications. Joints shall meet ASTM D-3213 requirements with gaskets conforming to ASTM F-477. The adapter couplings shall be manufactured by Harco, Lynchburg, Virginia, or equal. Installation of rigid couplings shall be done in accordance with the manufacturer's instructions.

After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-11.12 Connection to Manholes

The Contractor will be required to submit a shop drawing, detailing the method of connecting the proposed pipe to the manhole and making it watertight. For connecting PVC pipe, the Contractor shall use a flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock.

Should the flexible rubber boot need to be relocated when connecting to an existing manhole, the Contractor shall perform the connection by one of two methods. The preferred method is to core the manhole and install a rubber boot. The rubber boot shall be manufactured by Kor-n-Seal, or equal. The boot shall be installed and the PVC pipe connection shall be in accordance with the manufacturer's instructions. If the manhole cannot be cored or if the manhole is constructed of brick, the connection shall be made with a PVC manhole adapter which has an exterior impregnated silica surface layer. The adapter shall be manufactured by GPK Products, Inc., Fargo, North Dakota, or equal. The adapter shall be installed and grouted into the manhole wall in accordance with the manufacturer's instructions with non-shrink grout. The PVC pipe shall be inserted through the adapter.

W-11.13 Storage of PVC Pipe

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage, or deformation to bell ends of the pipe. When unit packages of PVC pipe are stacked, ensure that the weight of upper units does not cause deformation to pipe in lower units.

PVC pipe unit packages shall be supported by racks or dunnage to prevent damage to the bottom during storage. Supports shall be spaced to prevent pipe bending.

PVC pipe shall not be stored close to heat sources or hot objects such as heaters, boilers, steam line, engine exhaust, etc.

When unit packages of PVC pipe are stacked, ensure that the height of the stack does not result in instability which could cause stack collapse, pipe damage, bodily injury, and property damage.

The interior as well as all sealing surfaces or pipe, fittings, and other accessories shall be kept free from dirt and foreign matter.

Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease.

W-11.14 Handling of PVC Pipe - Standard Procedures

When using fork lifts or other handling equipment, prevent damage to PVC pipe.

When handling PVC pipe, avoid severe impact blows, abrasion damage and gouging or cutting by metal surfaces or rocks. Avoid stressing bell joints and damage of bevel ends.

Pipe shall be lowered, not dropped, from trucks and into trenches.

In preparation for pipe installation, placement (stringing) of pipe shall be as close to the trench as practical and on the opposite side from excavated earth. Bell ends shall point in the direction of work progress.

The Engineer may reject any pipe that shows visible signs of damage resulting from poor storage and handling practices.

TABLE I

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)										
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft			
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24	
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	19:56	22:47	
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	28:29	31:20	
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	44:52	49:41	
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	64:06	70:31	
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	87:15	96:03	
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33	113:57	125:21	
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	144:23	158:53	
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	178:03	195:53	
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53	215:25	237:03	
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46	256:25	282:03	

TABLE II

SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)										
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft			
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12	
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	9:58	11:24	
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	13:21	15:35	17:48	
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	22:26	25:38	
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	30:32	34:54	
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	43:38	47:59	
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	57:00	62:42	
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54	72:07	79:19	
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07	89:01	97:55	
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	107:43	118:29	
36	17:00	66	15.483 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	128:12	141:01	

SECTION W-12F - FIBERGLASS REINFORCED POLYESTER MANHOLES

W-12F.01 General

Fiberglass reinforced polyester (FRP) manholes shall be one piece monolithic designed units. Manholes shall be manufactured from commercial grade polyester resins reinforced with glass fibers. FRP manholes shall be manufactured in strict accordance with ASTM D-3753 latest edition. Manholes shall be as manufactured by Fluid Containment, Inc., Conroe, Texas or as manufactured by L.F. Manufacturing, Inc., Giddings, Texas, or approved equal.

FRP manholes for sewers less than 24-inches in diameter shall have a minimum diameter of 4'-0". Manhole installation, pipe connections, and other requirements shall comply with the applicable sections of the specifications and the details shown on the plans.

W-12F.02 Materials

The resins shall be commercial grade unsaturated polyester resin. Resins for each manhole shall be from a single manufacturer; mixing of resins from different manufacturers shall not be permitted. Quality assurance records must be maintained.

The reinforcing materials shall be commercial grade "E" type glass. The glass shall be in the form of a mat, continuous roving, chopped roving, or roving fabric. The reinforcing shall have a coupling agent that provides a suitable bond between the glass reinforcing and the resin.

If reinforcing material is used on the interior surface of the manholes, it shall be a commercial grade chemical resistant glass or an organic surfacing mat having a coupling agent that will provide a suitable bond with the resin.

Fillers and additives shall be inert to the environment and the manhole construction. Additives may be added as required by the manufacturing process to meet the requirements of the specifications. The reinforced-plastic material resulting from the use of additives and fillers must meet the requirements of this specification.

The laminate shall consist of multiple layers of glass and resin. The interior surface of the manhole shall be resin rich and shall have no exposed fibers.

W-12F.03 Manufacture

Manhole cylinders, manways, and connectors shall be produced from glass fiber-reinforced polyester resin with the construction determined by the particular process of the manufacturer and configuration. The process may include molding, compression molding, pultrusion, or other means.

The manhole shall be a one piece unit consisting of a bottom, barrel section, and a cone section with a fiberglass neck that extends into the frame and cover. The manhole shall provide an area so that the City standard cast iron frame and cover can be supported without damage to the manhole. The cone section, if produced separately, shall be joined to the barrel section at the factory with a resin-glass reinforced joint which results in a one piece unit. If the cone section is joined with a butt joint, the seam shall be fibreglassed on the inside and outside of the manhole. If the cone section is joined using a bell and spigot design, the seam shall be fibreglassed on the outside of the manhole. Seams shall be made using the same glass-resin jointing procedure. Field joints shall only be permitted if they are performed by the manufacturer. The manhole bottom shall be integrally joined to the barrel section and shall be a minimum of 1/2-inch thick. For securing the manhole to a concrete bottom slab, the manhole bottom shall have an anchoring collar around the outside circumference of the manhole that extends a minimum of 3-inches beyond the face of the barrel.

W-12F.04 Standards and Requirements

The interior surface of the manhole shall be a resin rich layer 0.010" to 0.020" thick. The inner surface layer that will be exposed to the corrosive environment shall be followed with a minimum of 2-passes of chopped roving with a

minimum length of 0.5" to a maximum length of 2.0". The chopped roving shall be applied uniformly to provide an equivalent weight of 3 oz./ft². Each pass of chopped roving shall be well-rolled prior to the application of additional passes. The combined thickness of the inner surface and the interior layer shall not be less than 0.10".

The interior surface shall be free of crazing, delamination, blisters larger than 0.5" in diameter or wrinkles 0.125" or greater in depth. Surface pits shall be permitted if they are less than 0.75" in diameter and less than 0.0625" deep. Voids that cannot be broken with finger pressure and that are entirely below the resin surface shall be permitted if they are less than 0.5" in diameter and less than 0.0625" thick.

The exterior surface shall be relatively smooth with no sharp projections. Hand worked finishes are acceptable if sufficient resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than 0.5" in diameter, delamination, or exposed fibers. The laminate shall have a factory installed UV protection.

Manhole repairs when required shall meet all requirements of this specification and the details shown on the plans.

The complete manhole shall have a minimum dynamic load rating of 16,000 lbf when tested in accordance with ASTM 3753, section 8.4 (note 1). When tested for this rating the complete manhole shall not leak, crack, or suffer other damage when load tested to 40,000 lbf. In addition, when loaded to 24,000 lb the manhole shall not deflect vertically downward more than 0.25" at the point where the load is applied.

The tolerance for the inside diameter of the manhole shall be +/- 1% of the required diameter.

Each manhole shall be subjected to an air or water pressure test to determine soundness. The manhole shall be subjected to 3-5 psi pressure test and the entire manhole inspected for leaks. Any leakage through the laminate is cause for failure of the test. Refer to ASTM 3753, section 8.6 for further details of the test.

Chemical resistance testing shall be in accordance with ASTM 3753, section 8.7. In accordance with the test, the flexural strength, flexural modulus, barcol hardness shall be plotted versus time on log-log coordinates. The line defined by these points shall be extrapolated to 100,000 hours. The results of the test must show that the test sample has retained 50% of the sample's initial properties. The test sample used shall be actual pieces of the manhole or samples manufactured consistent with the manhole construction.

When tested in accordance with ASTM 3753, Section 8.5 (note 1), the manhole cylinder shall have the minimum pipe stiffness values shown in the table below:

<u>Manhole Length (ft)</u>	<u>PSI</u>
3-6.5	0.75
7-12.5	1.26
13-20.5	2.01
21-25.5	3.02
26-35	5.24

The manholes shall have the following physical properties:

Flexural Strength (Cone):	Hoop: 15,400 psi Axial: 17,200 psi
Flexural Strength (Cylinder):	Hoop: 22,500 psi Axial: 14,300 psi
Compressive Strength:	18,900 psi

W-12F.05 Inspection and Testing

All tests shall be performed as specified in the latest edition of ASTM 3753, section 8, test method D-790 (note 5) and test method D-695. The manhole manufacturer shall complete all required ASTM 3753 testing and maintain records of the testing.

The manhole manufacturer shall maintain controls on glass and resin content for all manufacturing processes and for each portion of manhole fabrication. Records of these control checks shall be maintained. Proper glass content may be verified by glass usage checks or by glass and resin application rate checks. These checks shall be done in accordance with the material composition test specified in ASTM 8.8.1.

The quality of all materials, the manufacturing process, and the finished units shall be subject to the inspection and approval of the Engineer. Inspections may be made at the place of manufacturer or at the site of delivery. Manhole sections that fail to meet the requirements of this specification or that have been damaged after delivery shall be rejected.

When requested in writing by the Engineer, each manhole delivered to the site shall be provided with a certification verifying that the manhole has been sampled, tested, and inspected in accordance with the provisions of this specification and meets all requirements. Each certification shall be signed by authorized agent of the supplier or manufacturer and must be submitted to the Engineer prior to shipment of the manhole. When requested in writing by the Engineer, a copy of the manufacturer's test report and a copy of the test results must also be submitted with the manhole certification.

W-12F.06 Shipping and Handling

The FRP manhole must be handled to ensure that the manhole is not damaged or impacted. Manholes may be lifted either by two slings attached to a spreader bar or by inserting a 4"X4" timber into the top of the manhole with a cable or sling attached to the center. Use of chains or cables which may come into contact with the manhole surface shall not be allowed.

W-12F.07 Marking and Identification

Each manhole shall be labeled with the following information:

1. Manufacturer's name or trademark
2. Manufacturer's serial number
3. Length of manhole
4. Location of manufacturer's factory
5. ASTM designation

* * *

SECTION 12 - PRECAST CONCRETE MANHOLES

W-12.01 General

Manholes shall be constructed of precast reinforced concrete sections. Each manhole shall have a base section or tee section, barrel section, and an eccentric or concentric cone top, all as required. Manholes shall be built without steps. Except as otherwise specified or shown, precast concrete manholes shall comply with ASTM Des: C 478.

Manholes are classified as either Standard Deep Type Manholes, Standard Shallow Type Manholes, or Standard Drop Manholes. The maximum depths permitted for Standard Shallow Type Manholes and the locations where Standard Drop Manholes are to be used shall be as shown on the Plans.

Manhole barrel sections shall be constructed with preformed openings properly located for making sewer line connections. The diameter of such openings shall be not more than 4 inches larger than the outside diameter of the pipe or pipe bell to be connected. The distance between the nearest edge of such openings and the shoulder of the barrel joint shall be 6 inches minimum.

W-12.02 Materials

Cement, sand, and water shall meet the requirements of the Workmanship and Materials section headed "Concrete Materials."

Brick shall meet the requirements of ASTM Des: C 32 Grade SM and shall have minimum dimensions of 2-1/4 inches by 3-1/2 inches by 7-1/2 inches. Brick shall be new, solid, sound, hardburned throughout, and uniform in size and quality.

Manhole frames and covers shall be of gray iron, shall meet the requirements of the Workmanship and Materials section headed "Metal Castings" and shall conform to the details shown on the Plans.

W-12.03.1 Manholes on Sewers 24 Inches or Less in Diameter

Base sections for Standard Deep Type and Shallow Type Manholes shall consist of a circular slab base with a minimum thickness of 8 inches, and shall be reinforced as shown on the Plans. The base slab may extend beyond the outside diameter of the barrel section a maximum of 6 inches, providing the extension is equal at all points on the circumference of the slab. The manhole shall be set on not less than 6 inches of thoroughly compacted #57 stone.

Barrel sections for Standard Deep Type Manholes shall have an inside diameter of 48 inches plus or minus 1/2 inch and a minimum wall thickness of 8 inches plus or minus 2/5 inch. The minimum cover from the inside face of the wall to the reinforcement shall be 4-1/4 inches, and the minimum cover from the outside face of the wall to the reinforcement shall be 1-1/4 inches. The bottom section of manhole barrel shall be integrally precast with the manhole base section.

Top sections for Standard Deep Type Manholes shall be eccentric cones as shown on the Plans, with a minimum wall thickness of 8 inches plus or minus 2/5 inch. The minimum cover from the inside face of the cone to the reinforcement shall be 4-1/4 inches, and the minimum cover from the outside face of the cone to the reinforcement shall be 1-1/4 inches.

Standard Drop Manholes shall comply with all applicable sections of the specifications for Standard Deep Type manholes and shall conform to the details as shown on the Plans.

W-12.03.2 Manholes on Sewers 27 to 42 Inches in Diameter

Base sections for Standard Deep Type and Shallow Type Manholes shall consist of a circular slab base, 5 feet or 6 feet in diameter as shown on the Plans, with a minimum thickness of 8 inches, and shall be T-Lok lined and reinforced as shown on the Plans. The base slab may extend beyond the outside diameter of the barrel section a maximum of 6 inches, providing the extension is equal at all points on the circumference of the slab. The manhole shall be set on not less than 8 inches of thoroughly compacted #57 stone.

Barrel sections for Standard Deep Type Manholes shall have an inside diameter of 48 inches plus or minus 1/2 inch, be T-Lok lined and a minimum wall thickness of 5 inches plus or minus 1/4 inch, and the minimum cover from the outside face of the wall to the reinforcement shall be 1-1/4 inches.

Top sections for Standard Deep and Shallow Type Manholes shall be a flat slab as shown on the Plans, with a minimum thickness of 10.5 inches and shall be T-Lok lined.

Standard Drop Manholes shall comply with all applicable sections of the specifications for Standard Deep Type manholes and shall conform to the details as shown on the Plans.

W-12.03.3 Manholes on Sewers 48 Inches or Greater in Diameter

Base sections for Standard Deep Type and Shallow Type Manholes shall be precast reinforced concrete pipe tees in the sewer lines as shown on the Plans. The run of each tee shall have the same diameter as the sewer and shall have the same joints. The run section shall conform to the requirements for Class V pipe, ASTM Des: C 76.

Barrel sections for Standard Deep Type Manholes shall have an inside diameter of 48 inches plus or minus 1/2 inch, T-Lok lined and a minimum wall thickness of 5 inches plus or minus 1/4 inch. The minimum cover from the inside face of the wall to the reinforcement shall be 1-1/4 inches, and the minimum cover from the outside face of the wall to the reinforcement shall be 1-1/4 inches. The bottom section of the manhole barrel shall be integrally precast with the manhole base section.

Top sections for Standard Deep Type Manholes shall be a flat slab, T-Lok lined as shown on the Plans, with a minimum wall thickness of 10.5 inches.

Standard Drop Manholes shall comply with all applicable sections of the specifications for Standard Deep Type Manholes and shall conform to the details as shown on the Plans.

W-12.04 Workmanship

Mortar shall be composed of one part cement to two parts sand.

Concrete for the base invert shall be Class D. The invert shall be constructed as shown in detail on the Plans and shall have a smooth channel with a circular shaped bottom with a radius equal to the inside radius of the sewer section.

Connections to pipes shall be without projections or voids. Connections to pipes shall be made with flexible type boot, cast integrally into the wall of the manhole and stainless steel bands, as detailed on the Plans, or equal.

Manhole sections shall be joined with rubber gaskets as specified for reinforced concrete pipe sewers, except that a preformed joint sealing compound, Waterstop-RX Cold Joint Water Stop, Volclay Waterproofing Systems as manufactured by American Collord Co.; Ram-Nek, manufactured by Hamilton-Kent, Kent, Ohio; or equal, be applied in accordance with the manufacturer's instructions. This may be substituted for the rubber gasket in manholes on sewers 42 inches or less in diameter. Sufficient preformed joint sealing compound shall be installed so as to completely fill the joint and show a "squeeze-out" on the inside and outside of the joint. Annular spaces on the inside and outside of joints with rubber gaskets shall be filled with mortar.

The elevation of the top rim of manhole frames shall be set to conform with grades and transverse slopes furnished by the Engineer. Precast concrete manhole components shall not be ordered until such elevations are issued by the Engineer. Manhole frames shall be firmly embedded in mortar. Wedges of shims shall be provided to ensure accurate placing of the frame.

W-12.05 Curing

All precast concrete manhole sections shall be cured in accordance with any one of the methods specified in ASTM Des: C 478. The facilities for curing shall, however, be subject to review and prior approval of the Engineer. No precast concrete manhole sections shall be delivered to the job site until the specified minimum compressive strength of 4,000 psi (6,000 psi in the case of manhole base sections on sewers 48 inches or larger in diameter), as determined by crushing tests on cured concrete cylinders, has

been obtained.

W-12.06 Inspection and Testing of Precast Concrete Manholes

All precast concrete manholes shall be inspected by an independent, certified testing laboratory, approved by the Engineer, to establish the strength of the concrete and the adequacy of curing, to certify the date that the manhole were cast and to confirm that the steel has been properly placed, all in accordance with the Plans and Specifications. The cost of these tests shall be included in the various unit price Contract Items, and no special payment will be made therefor. This testing shall be performed by the laboratory at the Contractor's manufacturing plan, prior to shipment.

All concrete cylinders must be cured in a natural environment. At least three (3) cylinders shall be taken each day that manholes are cast, with batch samples to be designated by the laboratory representative. At least one set of cylinders shall be taken for each 9 cubic yards of concrete used in the construction of the manhole sections. These samples shall be tested for strength. If the samples fail

to meet minimum concrete strength requirements set forth in the Specifications, all manhole sections manufactured from the concrete from which the cylinders were made will be considered rejected.

In addition, the City reserves the right to core manholes either at the site or point of delivery to validate strength of concrete and placement of steel. If cores fail to demonstrate the required strength or indicate incorrect placement of reinforcing steel, all sections not previously tested will be considered rejected until sufficient additional cores are tested, at the Contractor's expense, to substantiate conformance to these requirements.

W-12.07 Transportation and Delivery

Every precaution shall be taken to prevent injury to the precast manhole sections during the transportations and unloading of the sections. The precast sections shall be unloaded using skids, pipe hooks, rope slings, or suitable power equipment, if necessary, and the sections shall be under perfect control at all times. Under no conditions shall the precast sections be dropped, dumped, or dragged.

If any precast section is damaged in the process of transportation, or handling, such section shall be rejected and immediately removed from the site and replaced at the Contractor's expense.

W-12.08 Test Reports

Each manhole delivered to the construction site must have a concrete test report indicating a minimum of 4,000 psi strength. If the manhole sections are produced from different pours, each section must have a concrete test report. Test reports must be submitted to the Engineer prior to shipment of the manholes.

* * *

SECTION 13 –DIRECTIONAL DRILLING HDPE PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring utilizing high density polyethylene (HDPE) pipe. This work shall include all services, equipment, materials, and labor for the complete and proper installation testing, restoration of underground utilities and environmental protection and restoration.

1.02 QUALITY ASSURANCE

A. Design Requirements

1. Horizontal alignment shall be as shown on the Drawings. The pipe shall have a minimum 48-inch cover. The maximum depth shall be determined based on 36-inch minimum clearance under water or gas lines and 24-inch minimum clearance under all other existing or proposed utilities to be crossed. Compound curvatures may be used, but shall not exceed the maximum deflections as set forth by the HDPE pipe manufacturer or AWWA Standards, whichever is stricter.
2. Entry angle shall be 12° - 14° ideal (not to exceed 15°). Exit angle shall be 6° - 12° to facilitate “pull-back.”
3. Entry and exist angles are defined as angles from the horizontal.

- B. Qualifications: Directional drilling contractor (or subcontractor) shall have a minimum of four years experience with similar construction including pipelines of the same or larger diameter and the same or greater lengths. The Contractor shall also have successfully completed a minimum of five (5) similar projects of the same or larger diameter and of equal or greater lengths. All pipe and appurtenances of similar type and material shall be furnished by a single manufacturer.

1.03 SUBMITTALS

- A. Work Plan: Prior to beginning work, the Contractor must submit to the Engineer a work plan detailing the procedure and schedule to be used to execute the project. The work plan should include a description of all equipment to be used, down-hole tools, a list and résumé of key personnel and their qualifications and experience, list of subcontractors, a schedule work activity, a safety plan, traffic control plan, an environmental protection plan and contingency plans for possible problems. Work plan should be comprehensive, realistic and based on actual working conditions for this particular project. Plan should document the thoughtful planning required to successfully complete the project.
- B. Equipment: Contractor will submit 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: drilling rig, mud system, mud motors (if applicable), down-hole tools, guidance system, rig safety systems. Calibration records for guidance equipment shall be included and evidence of calibration within the last 6 months must be provided. Specifications for any drilling fluid additives that Contractor intends to use or might use will be submitted.

- C. Material: Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item which is to be an installed component of the project.

PART 2 - EQUIPMENT AND PRODUCTS

2.01 GENERAL

- A. The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pull-back the pipe, a drilling fluid mixing, delivery and recovery system of sufficient capacity to successfully complete the crossing, a drilling fluid recycling system to remove solids from the drilling fluid so that the fluid can be reused, a magnetic guidance system to accurately guide boring operations and record data for as-built purposes, a vacuum truck of sufficient capacity to handle the drilling fluid volume, trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

2.02 DRILLING SYSTEM

- A. 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 crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations. The rig shall be grounded during drilling and pull-back operations. There shall be a system to detect electrical current from the drilling string and an audible alarm, which automatically sounds when an electrical current is detected.

2.03 PIPE

- A. Pipe shall be AWWA C-906 HDPE and have a ductile iron pipe outside diameter ("DIPS"). The pipe shall contain a minimum of 2 impregnated, longitudinal green stripes. The dimension ratio shall be verified by the Contractor based on the pipe pull strength required for the directional drilling. The minimum working pressure rating of the pipe supplied shall be 160 psi.
- B. HDPE resin shall be PE4710 resin characterized by ASTM D3350.
- C. HDPE pipe shall have a minimum thickness as that of SDR-11. HDPE pipe shall be in minimum nominal lengths of 20 feet.
- D. Fittings shall be HDPE with ductile iron outside diameter meeting ANSI/AWWA C906, latest revision, with a minimum working pressure rating of 160 psi. Ductile iron fittings may be used only where specified on the plans and provided butt fused HDPE MJ adapters are used to transition from the pipe to the fitting. HDPE transition fittings, adapters, and service fittings shall be heat (butt) fused unless otherwise approved by the engineer.
- E. Pipes shall be marked in accordance with AWWA requirements.

2.04 DRILLING FLUIDS

- A. Drilling fluids shall consist of a mixture of potable water and gel-forming colloidal material such as bentonite, or a polymersurfactant mixture producing a slurry of custard-like consistency.

PART 3 - EXECUTION

3.01 PERSONNEL REQUIREMENTS

- A. Responsible representatives of the Contractor and Subcontractor(s) shall be present at all times during the actual crossing operations. A responsible representative as specified herein is defined as a person experienced in the type of work being performed and who has the authority to represent the Contractor in a routine decision making capacity concerning the manner and method of carrying out the work specified herein.
- B. The Contractor and Subcontractor(s) shall have sufficient number of competent workers on the project at all times to ensure the utility placement is made in a timely, satisfactory manner. Adequate personnel for carrying out all phases of the actual crossing operation (where applicable: tunneling system operators, operator for removing spoil material, and laborers as necessary for various related tasks) must be on the job site at the beginning of work. A competent and experienced supervisor representing the Contractor or Subcontractor that is thoroughly familiar with the equipment and type of work to be performed, must be in direct charge and control of the operation at all times. In all cases, the supervisor must be continually present at the project site during the actual crossing operation.

3.02 COORDINATION OF THE WORK

- A. The Contractor shall notify the Engineer at least 24 hours in advance of starting work. In addition, the actual crossing operation shall not begin until the Engineer or his representative is present at the project site and agrees that proper preparations for the crossing have been made. The Engineer's approval for beginning the crossing shall in no way relieve the Contractor from the ultimate responsibility for the satisfactory completion of the work.
- B. The Contractor and the Engineer shall select a mutually convenient time for crossing operation to begin in order to avoid schedule conflicts.

3.03 MAINTENANCE OF TRAFFIC

- A. Erection or installation of appropriate safety and warning devices in accordance with the Florida Department of Transportation (FDOT) Manual on Traffic Control and Safe Practices shall be completed prior to beginning work.

3.04 JOINING AND CUTTING

- A. Joining and Connections: Before joining, and before any special surface preparation, surfaces must be clean and dry. General dust and light soil may be removed by wiping the surfaces with clean, dry, lint-free cloths. Heavier soil may be washed or scrubbed off with soap and water solutions, followed by thorough rinsing with clean water, and drying with dry, clean, lint-free cloths.
- B. Cutting Pipe: Joining methods for plain end pipe require square-cut ends. Pipe cutting is accomplished with guillotine shears, run around cutters, and saws.

- C. Cutting Branch Outlet Holes: Except for self-tapping saddle tees, hole cutting is required for field installed side outlet fittings. Polyethylene pipe hole saws shall be used.
- D. Conventional heat fusion joining is the process where mating surfaces are prepared for joining, heated until molten, joined together, and cooled under pressure. All fusion procedures require appropriate surface preparation tools, alignment tools, and temperature controlled heating irons with properly shaped, non-stick heater faces. An open flame cannot be used for heating because it oxidizes the surface and prevents bonding. During joining, all heat fusion procedures require the mating components to be moved several inches apart to accommodate surface preparation and surface heating tools. All fusions shall be constructed in strict accordance with pipe and fitting manufacturers' recommendations. The following methods of conventional heat fusion with restrictions may be used:
 - 1. Socket fusion shall be used with ½ inch through 4-inch pipe and fittings.
 - 2. Saddle fusion outlets may be used on 8 inch and smaller outlets applied to 12 inch and smaller mains. Larger outlets and pipe sizes shall be factory fabricated.
 - 3. Butt fusion joints shall be field constructed between pipe and fittings. Fusion may occur in the trench.
- E. Electrofusion is an acceptable heat fusion process where a socket or saddle fitting contains an integral heating source. After surface preparation, the fitting is installed on the pipe, and the heating source is energized. During heating, the fitting and pipe materials melt, expand, and fuse together. Heating and cooling cycles are automatically controlled.
- F. All heat fusion techniques and methods shall be in STRICT ACCORDANCE with the manufacturer's recommendations.

3.05 INSTALLATION

- A. Erosion and sedimentation control measures and on-site containers shall be installed to prevent drilling mud from spilling out of entry and/or exit pits. Drilling mud will be disposed of off-site in accordance with local, state and federal requirements and/or permit conditions.
 - 1. No other chemicals or polymer surfactant shall be used in the drilling fluid without written consent of the Engineer, and after a determination is made that the chemicals to be added are not harmful or corrosive to the facility and are environmentally safe.
- B. Pilot Hole: Pilot hole shall be drilled on bore path with no deviations greater than 2 percent of depth over a length of 100 feet. In the event that pilot does deviate from bore path more than 2 percent of depth in 100 feet, Contractor will notify Engineer and Engineer may require Contractor to pull-back and re-drill from the location along bore path before the deviation.
- C. Reaming: Upon successful completion of pilot hole, Contractor will ream bore hole to a minimum of 25 percent greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle. The Contractor shall take all precautions required to avoid inadvertent mud returns (frac outs).

- D. Pull-Back: After successfully reaming bore hole to the required diameter, Contractor will put the pipe through the bore hole. In front of the pipe will be a swivel and barrel reamer to compact bore hole walls. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into bore hole. During pull-back operations, Contractor will not apply more than the maximum safe pipe pull pressure at any time. Contractor shall protect the pipe from damage or gouging at all times and at no time overstress the pipe during pull back or any other operation. Above ground rollers shall be used to prevent gouging or damage during fusing and pullback operations.
- E. The system must be remotely steerable and permit electronic monitoring of tunnel depth and locations. The system must be able to control the depth and direction of the pipe and must be accurate to a window of ± 2 ".
- F. Equipment shall be fitted with a permanent alarm system capable of detecting an electrical current. The system shall have an audible alarm to warn the operator if the drill head contacts electrified cables.
- G. Two strands of #8 gauge green insulated copper or #10 gauge green insulated copper clad steel tracing wire shall be attached to the pipe in a manner that assures the wires will be affixed near the top of the pipe. See Section W-24 "PVC Pipe Force Main" requirements for direct bury pipe. Wire insulation must be suitable for buried service such as HDPE or HMWPE. Nylon insulation is not acceptable. Wires must be spliced together with wire connectors suitable for buried service such as DBR Kit by 3M, Snakebite by Copperhead Industries or approved equal. Twisting wires together and sealing with electrical tape is not acceptable. No payment will be made for pipe that does not pass a continuity test through the wires after installation. See standard details for additional requirements.

The locating wire shall terminate at the top of each valve box, air release valve box and manhole and must be capable of extending 24" above the top of the box (or manhole) in such a manner so as not to interfere with the valve operation.
- H. The Contractor shall field locate all utilities and plan his work to avoid conflict with all sewer laterals and all other utilities. SP-31 details the Contractor's responsibilities for locating utilities.
- I. Depth and horizontal location of the pipe shall be shown on the As-built Drawings at intervals of 10 feet. Horizontal location shall be referenced to edge of pavement, right-of-way line or as directed by the Engineer. Horizontal location shall be accurate to within 2 feet. All valves, fittings, points of connection, depth and horizontal changes from the plans shall be shown on the As-built Drawings at all locations.
- J. The pipe entry area shall be graded to provide support for the pipe to allow free movement into the bore hole. The pipe shall be guided in the bore hole to avoid deformation of, or damage to, the pipe.
- K. If unexpected subsurface conditions are encountered during the bore, the procedure shall be stopped. The installation shall not continue until the Engineer has been consulted.
- L. The pipe shall be pulled back through the bore hole using the wet insertion construction technique. The pipe may be installed full of water.
- M. The pipe shall be installed in a manner that does not cause upheaval, settlement, cracking, movement or distortion of surface features.

- N. Prior to construction, the Contractor shall submit for approval by the Engineer, a plan that establishes a means to determine if other utilities have been damaged by directional drilling operations. For gravity sewers, sewer laterals, storm sewer and other non-pressure conduits this may involve checking manholes, inlets or other structures for evidence of drilling fluids or drilled soil materials.

3.06 FIELD TESTING

- A. Testing shall be in accordance with Section W-18 "Leakage Tests" and as described below:

All newly joined and laid pipe, including fittings, valves and service lines shall be pressure tested in accordance with AWWA standard C-600. Allowable leakage shall be as defined by the equation in Section 4.1.6. of AWWA C-600.

Two tests shall be performed. The first test shall be after pipe joining but prior to installation (pulling). This test shall be per AWWA C-600 and allowable leakage used as the pass/fail criteria. A second pressure test per AWWA C-600 shall be performed after pipe installation.

The Contractor shall provide all necessary equipment and instrumentation required for flushing and testing of the piping systems. If requested by the City, the Contractor shall furnish to the City certified test data for the pressure gauges and recorders used on hydrostatic equipment. The cost to purchase water for test purposes will be paid by the City. Testing shall be conducted in the presence of and to the satisfaction of the City as a condition precedent to the approval and acceptance of the system. Not less than 3 days notice shall be given prior to start of such tests, and such testing shall not be scheduled until preliminary testing by the Contractor has indicated that the test section is ready for testing. The schedule and procedures for testing shall be determined by the Contractor and reviewed with the City prior to testing.

The duration of each pressure test shall be at least 2 hours with a test pressure of 100 psi. At no time shall the test or line pressure exceed 110 psi. If required by the City, pump test equipment will be equipped with pressure relief valves pre-set to 110 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 City 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.

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 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. At the option of the City, flow meters and/or pressure gauges used on hydrostatic testing equipment with approved strip or round chart recorders shall be supplied by the Contractor. Tests shall be made in sections not to exceed ½ mile.

Throughout the duration of the test, the Contractor is required to maintain a minimum pressure in excess of 100 psi. The Contractor is advised that, should the test pressure fall to or below 100 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 100 psi.

The Contractor is warned that pressure testing against existing valves is done at his own risk. Failure of these valves to hold test pressure will not relieve the Contractor of the pressure testing.

All exposed pipe, fittings, valves and joints shall be carefully examined for leaks. Any cracked or defective pipe, fittings, valves or other appurtenances discovered as a consequence of the pressure test shall be removed and replaced with acceptable material. All leaking or defective joints shall be repaired, corrected or replaced. After all necessary replacements and corrections have been made, the test shall be repeated to the satisfaction of the City.

If the pipeline fails the pressure test twice, then the Contractor shall be required to retest the pipeline and provide to the certification by a Professional Engineer registered in the State of Florida, that the pipeline has passed the test in accordance with these standards before the department will witness another test.

* * *

SECTION 15 - LAYING AND JOINTING PIPE
FOR FORCE MAINS AND SEWERS

W-15.01 General

The installation, delivery, transportation, unloading, and stringing of pipes, fittings, and accessories for force mains and sewers shall be done in accordance with AWWA C600 for ductile iron pipe and ASTM Des: C 12 for clay and concrete pipe and ASTM D 2321 and pipe manufacturer's recommendations for PVC pipe, as modified or supplemented by the specifications of this section and by the details shown on the Plans.

Proper and suitable tools and appliances for the safe and convenient cutting, handling, and laying of the pipe and fittings shall be used.

Suitable fittings shall be used where shown and at connections where grade or alignment changes require offsets greater than those recommended by the pipe manufacturer.

Pipes and fittings shall be thoroughly cleaned before they are laid and shall be kept clean until they are accepted in the completed work.

All lines shall be closed off with bulkheads when pipe laying is not in progress.

Before being laid, all pipe and specials shall be thoroughly examined for defects, and no piece shall be installed which is known to be defective. If any defective piece should be discovered after having being installed, it shall be removed and replaced with a sound one in a satisfactory manner by the Contractor at his own expense.

Pipe shall be thoroughly cleaned before it is laid and shall be kept clean until it is accepted in the completed work. Special care shall be exercised to avoid leaving bits of wood, dirt, and other foreign particles in the pipe. If any such particles are discovered before the final acceptance of the work, they shall be removed and the pipe cleaned at the Contractor's expense.

Pipe laying for sewers shall begin at the low end of a run and proceed upgrade. Generally, all such pipe shall be laid with bells or grooves pointing uphill. Each pipe shall be carefully placed and checked for line and grade.

Adjustments to bring pipe to line and grade shall be made by scraping away or filling in granular material under the body of the pipe, but in no case by wedging or blocking up the barrel. The faces of the spigot ends and the bells shall be brought into fair contact, and the pipe shall be firmly and completely shoved home. As the work progresses, the interior of the pipelines shall be cleaned of all dirt and superfluous materials of every description. All lines shall be kept absolutely clean during construction. Pipelines shall be laid accurately to line and grade.

Gaskets for pipe joints shall be stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed. Any gaskets showing signs of checking, weathering, or other deterioration will be rejected.

Pipe shall be of the types, sizes, and classes shown on the Plans or as listed in the Contract Items.

Each piece of pipe shall be inspected and cleaned before it is lowered in the trench and any lumps or projections on the face of the spigot or tongue end or the shoulder shall be cut away. No cracked, broken, or defective pieces shall be used in the work.

Concrete pipe manufactured with a plastic sheet liner shall be laid so that the liner is on the crown of the pipe and placed symmetrically about the vertical centerline of the pipe.

Pipe laying will be permitted only in dry trenches having a stable bottom. Where groundwater is encountered, the Contractor shall make every effort to secure an absolutely dry trench bottom.

If, in the opinion of the Engineer, the Contractor has failed to obtain an absolutely dry trench bottom by improper or insufficient use of all known methods of trench dewatering, the Engineer may then order the Contractor to excavate below grade and place sufficient selected fill material, crushed stone, or Class D concrete over the trench bottom at the Contractor's own expense.

If all efforts fail to obtain this condition and the Engineer determines that the trench bottom is unsuitable for pipe foundation, he will order in writing the kind of stabilization to be constructed.

W-15.02 Transportation and Delivery

Every precaution shall be taken to prevent injury to the pipe during transportation and delivery to the site. Extreme care must be taken in loading and unloading the pipe and fittings. Such work must be done slowly with skids or suitable power equipment, and the pipe shall be under perfect control at all times. Under no condition shall the pipe be dropped, bumped, dragged, pushed, or moved in any way which will cause damage to the pipe or coating. When handling the pipe with a crane, a suitable pipe hook or sling around the pipe shall be used. Under no condition shall the sling be allowed to pass through the pipe unless adequate measures are taken to prevent damage to the pipe ends.

If in the process of transportation, handling, or laying, any pipe or special is damaged, such pipe or pipes shall be replaced or repaired by the Contractor at his own expense.

The Contractor shall furnish and install suitable blocking and stakes so as to prevent the pipe from rolling. The type of blocking and stakes, and the method of installation, shall be approved by the Engineer.

W-15.03 Pipe Laying - Trenches

Pipelines shall be laid in trench excavation on bedding material as specified under the Workmanship and Materials section headed "Backfilling," Class D concrete cradle or other foundations as shown on the Plans, specified, or ordered in writing by the Engineer. The pipe shall be properly secured against movement and pipe joints shall be made in the excavation as required.

The pipe bedding shall be carefully graded, compacted, and formed to fit the bottom quadrant of the pipe. Bell holes shall be cut out for each joint as required to permit the joint to be properly made and allow the barrel of the pipe to have full bearing throughout its length.

Where pipelines are laid in Class D concrete cradle or encasement, the installation shall conform to the requirements of the Workmanship and Materials section headed "Pipe Cradles and Encasements."

Pipelines laid on other type foundations shall be installed as specified for such other foundations or as directed in writing by the Engineer.

W-15.04 Lateral Detection Tape

Detectable underground marking tape shall be installed over all laterals from the edge of pavement to the property line. The tape shall be Lineguard encased aluminum foil, or equal. The 2-inch wide tape shall be APWA green and reverse printed bearing the identification of the sewer line below it and a warning such as "CAUTION."

The tape shall be buried 4-6 inches. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill.

W-15.05 Mechanical Joints for Ductile Iron Pipe

In making up mechanical joints, the spigot shall be centered in the bell. The surface with which the rubber gasket comes in contact shall be cleaned thoroughly and the gasket shall be washed thoroughly with soapy water just prior to assembly of the joint. The gasket and gland shall be placed in position, the bolts inserted, and the nuts

tightened fingertight. The nuts then shall be tightened by means of a torque wrench in such a manner that the gland shall be brought up evenly into the joint. The following range of bolt torques shall be applied:

<u>Bolt Size</u> <u>Inches</u>	<u>Range of Torque</u> <u>Foot-Pounds</u>
5/8	45 - 60
3/4	75 - 90
1	80 - 100
1-1/4	105 - 120

If effective sealing is not obtained at the maximum torque listed above, the joint shall be disassembled and reassembled after a thorough cleaning.

All bolts and nuts shall be field coated with a bituminous coating after assembly of the joint.

W-15.06 Push-on Joints for Ductile Iron Pipe

In making up push-on joints, the gasket seat in the socket shall be cleaned thoroughly and the rubber gasket shall be wiped clean with a cloth. The gasket shall be placed in the socket and a thin film of lubricant shall then be applied to the inside surface of the gasket that will come in contact with the entering pipe. The plain end of the pipe to be entered shall be cleaned thoroughly and placed in alignment with the bell of the pipe to which it is to be joined. The joint shall be made up by exerting sufficient force on the entering pipe so that its plain end is moved past the gasket until it makes contact with the base of the socket.

W-15.07 Joining Clay Pipe

The joining of clay pipe with flexible plastic joints shall be done in accordance with the manufacturer's instructions. The joint surface on both the bell and spigot ends shall be wiped clean and coated with a lubricant furnished by the manufacturer to facilitate assembly. The spigot end shall be inserted in the bell and pressure applied sufficient to seat the pipe properly. After the joint has been completed, any voids in the excavation beneath the spigot shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-15.08 Joining of PVC Pipe-Gravity

The assembly of gasketed joints shall be performed as recommended by the pipe manufacturer. In all cases clean the gasket and bell, especially the groove area and the spigot area, with a rag, brush or paper towel to remove any dirt or foreign material before the assembly. Lubricant shall be applied as specified by the pipe manufacturer.

Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Apply firm steady pressure either by hand or by bar and block assembly until the spigot easily slips through the gasket.

If undue resistance to insertion of the pipe end is encountered or the reference mark does not position properly, disassemble the joint and check the position of the gasket. If it is twisted or pushed out of its seat ("rolled"), inspect components, repair or replace damaged items, clean the components, and repeat the assembly steps. Be sure both pipe lengths are in concentric alignment. If the gasket was not out of position, verify proper location of the reference mark.

To join field-cut pipe, first square cut the pipe end. Use a factory-finished beveled end as a guide for proper bevel angle and depth of bevel plus the distance to the insertion reference mark. Bevel the end using a pipe beveling tool or a wood rasp which will cut the correct taper. Round off any sharp edges on the leading edge of the bevel.

W-15.09 Joining Concrete Pipe

Before joining concrete pipe using flexible rubber gaskets, the joint surfaces of both the bell and spigot (tongue and groove) ends shall be wiped clean. Any lumps, projections, burrs, or chips which would interfere with the proper compression of the gasket shall be repaired. The spigot or tongue end with the gasket in place and with all surfaces lubricated as recommended by the manufacturer, shall be inserted into the bell or groove. Pressure shall be applied to seat the pipe properly in the bell or groove. Voids under the pipe shall be tamped full of granular material to provide full bearing for the pipe.

Curves for reinforced concrete pipe sewers shall be constructed with standard pipe where the opening of the joint on the outside of the curve is less than 1/2 inch. Where greater opening of the joint would be required, the curves shall be constructed using beveled or radius pipe with standard joints.

Curves for reinforced concrete pressure pipe or prestressed concrete pipe shall be constructed with standard pipe sections, where the opening of the joint on the outside of the curve is less than 1/2 inch, or with beveled pipe, precast elbows or combination of these methods.

W-15.10 Concrete Pipe Rubber Gasket Joints

Rubber gaskets shall be of the O-ring type or equivalent cross section approved by the Engineer. The composition and properties of the gaskets for gravity flow sewers shall meet the requirements of ASTM Des: C 443.

Composition and properties for concrete pressure pipe gaskets shall meet the requirements of the specifications for the concrete pressure pipe with which the gasket will be used.

In making O-ring rubber gasketed joints, the gasket and the pipe socket shall be lubricated with an approved rubber gasket lubricant, and the gasket shall be stretched over the spigot and placed accurately in position. The tongue or spigot end shall be carefully centered in the socket of the preceding pipe so as to avoid displacement of the gasket, and the pipe shall be drawn home fully compressing the gasket. Adjustments to line and grade shall be made in such a manner that the compressed rubber gasket will not be disturbed. Before proceeding with backfilling, the joint shall be felt completely around to determine whether the gasket is in its proper position. If the gasket can be felt out of place, the pipe shall be withdrawn and the gasket examined for cuts or breaks. If the gasket has been damaged, it shall be replaced with a new one before the pipe is replaced.

Rubber gaskets shall be stored in a cool place and protected from light, sunlight, heat, oil, or grease until installed. Any gaskets showing signs of checking, weathering, or other deterioration will be rejected.

W-15.11 Temporary Bulkheads

At the ends of contract sections, where adjoining pipelines have not been completed, and in connections built into pipelines where adjoining pipelines or structures have not been completed and are not ready to be connected, temporary bulkheads, approved by the Engineer, shall be built. Such bulkheads encountered in connecting sewers or structures included in the Contract, or pipelines or structures previously built, shall be removed by the Contractor when the need for them has passed or when ordered by the Engineer.

W-15.12 Testing

The testing of pipelines shall be done in accordance with the requirements of the Workmanship and Materials section headed "Leakage Tests."

W-15.13 Joining Clay or PVC Pipe to Ductile Iron Pipe

The joining of clay pipe to ductile iron pipe shall be accomplished with flexible compression couplings. Such couplings shall meet the requirements of ASTM DES: C 425 and shall be Series No. 1002 flexible polyvinyl chloride couplings with stainless steel compression bands as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Band-Seal couplings as manufactured by Mission Clay Products Corp., Whittier, California; or approved equal.

Installation of flexible couplings shall be done in accordance with the manufacturer's instructions. After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

The joining of PVC pipe to ductile iron pipe shall be accomplished with rigid PVC C900 x SDR-35 adapter couplings. Such couplings shall be molded of PVC material meeting ASTM D-1784 specifications. Joints shall meet ASTM D-3213 requirements with gaskets conforming to ASTM F-477. The adapter couplings shall be manufactured by Harco, Lynchburg, VA, or equal. Installation of rigid couplings shall be done in accordance with the manufacturer's instructions. After the joint has been completed, any voids in the excavation beneath the coupling shall be thoroughly tamped full of granular fill material to provide a full bearing for the pipe and prevent excessive pressure on the bottom of the joint.

W-15.14 Connection to Manholes

The Contractor will be required to submit a shop drawing, detailing the method of connecting the proposed pipe to the manhole and making it watertight:

1. For connecting vitrified clay or ductile iron pipe, the Contractor shall use nonshrink grout to seal the opening between the pipe O.D. and manufactured opening in the manhole or flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock.
2. For connecting PVC pipe, the Contractor shall use a flexible rubber boot, precast into the manhole. The boot shall have stainless steel bands to compress and seal to the proposed pipe or shall be a compression type, such as A-Lock. Should the flexible rubber boot need to be relocated or when connecting to an existing manhole, the Contractor shall perform the connection by one of two methods. The preferred method is to core the manhole and install a rubber boot. The rubber boot shall be manufactured by Kor-n-Seal, or equal. The boot shall be installed and the PVCP connection shall be in accordance with the manufacturer's instructions. If the manhole cannot be cored or if the manhole is constructed of brick, the connection shall be made with a PVC manhole adapter which has an exterior impregnated silica surface layer. The adapter shall be manufactured by GPK Products, Inc., Fargo, ND, or equal. The adapter shall be installed and grouted into the manhole wall in accordance with the manufacturer's instructions with nonshrink grout. The PVCP shall be inserted through the adapter.

W-15.15 Joint Grouting

Joints for concrete pipelines using rubber gaskets and steel end rings shall be grouted on the outside with cement mortar composed of one part Type IA portland cement to one part sand by volume. The materials shall be thoroughly mixed to produce a uniform mortar with all aggregate particles well coated.

The joint grouting shall not advance closer than two pipe lengths to the laying operations. In grouting the joint, a cloth diaper shall be used to encase the outside diameter of the bell of the pipe and adequately straddle the joint recess so as to keep out dirt and to serve as a form for grouting. The joint space shall be filled with cement mortar, just thin enough to run around the joint. The diaper is to be left in place permanently. Before the mortar has taken its initial set, the diaper shall be examined, and if not completely filled, additional mortar shall be forced into the joint.

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SECTION 16 - RESTORATION OF STREET PAVEMENTS

W-16.01 General

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.

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.

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.

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.

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.

All replaced concrete pavements shall have a minimum bearing on undisturbed earth outside the line of excavations of at least nine (9) inches.

W-16.02 Standards

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:

1. 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.
2. 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.
3. County Roads are under the jurisdiction of the Hillsborough County Engineering Department. Work on such pavements shall conform to County specifications.

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.

W-16.03 Temporary Restoration

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.

Where the area over which existing pavement has been disturbed is to be repaved as part of an overall project by the agency having jurisdiction, any special temporary pavement replacement shall be as specified in the "Specific Provisions."

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.

Curbs, where possible, shall be temporarily reset in place, as part of the work of temporary restoration of pavement.

Damaged or destroyed sidewalks shall be temporarily restored, immediately upon placing of the backfill, by placing a compacted layer of fine crushed limestone, choked with limestone screenings, which shall have a minimum thickness of three inches below the existing finished sidewalk grade.

The temporary pavement shall be maintained by the Contractor and all holes and depressions filled until the permanent pavement is placed.

Limerock or shell placed in areas where the existing pavement is shell, limerock, crushed stone, or other similar material and is classed as nonpermanent pavement, will not be measured for separate payment. Placement of limerock or shell as nonpermanent pavement replacement will be included for payment under the various classified Unit Price Contract Items for pipelines.

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.

Limestone screenings for temporary sidewalk surface shall be incidental to sidewalk replacement, and no separate payment will be made therefor.

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.

W-16.04 Preparation of Temporary Pavement for Permanent Pavement Replacement

After due notice and within the time specified, the temporary pavement shall be prepared as the base to receive the new permanent pavement surface.

Prior to construction of the pavement base, the City will furnish the Contractor with the preconstruction survey notes for the streets disturbed by construction. The Contractor shall use these notes in bringing the base installed to grade allowing for the permanent pavement surface to be constructed.

The 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.

After completion of the base, the Contractor shall furnish the Engineer with survey notes verifying the base has been constructed to grade. Upon approval, payment will be made for permanent pavement base.

W-16.05 Certification for Pavement Base

The Contractor shall furnish notarized certifications from all suppliers of base material stating that all material supplied for use as pavement base conforms to the requirements of the applicable sections of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

W-16.06 Permanent Pavement Base Densities

Permanent base material shall be installed and compacted to the required densities (98% modified proctor) in layers not exceeding six inches.

W-16.07 Permanent Pavement Surface Restoration

Permanent restoration of pavement shall be pavement of the type and thickness detailed in the Plans, Specific Provisions, or as directed by the Engineer.

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.

W-16.08 Replacement of Curb, Curb and Gutter, Sidewalk and Driveways

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 grade of the restored curb and curb and gutter shall conform with the grade of the existing adjacent curb or curb and gutter.

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 lines and grades as given by the Engineer. No patching of concrete driveway areas will be allowed between joints or dummy joints.

Where sidewalks are replaced, the replacement shall be the full width of the walk and minimum lengths shall be 60 inches. Restoration of adjacent lawn is incidental to sidewalk replacement, and no separate payment will be made therefor.

W-16.09 Replacement of Traffic Markings and Signalization Loops

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 appurtenance work as shown on the Plans, specified and directed by the Engineer.

The replacement of traffic markings (temporary and permanent), signalization loops and all appurtenant work shall be replaced by the Contractor in kind.

It shall be the Contractor's responsibility to field verify before construction begins all markings and signalization loops to be replaced.

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.

Payment for the replacement of temporary and permanent traffic markings, signalization loops and all appurtenant work shall be included in the unit bid price for Permanent Pavement Surface Replacement, Asphaltic Concrete, and no separate payment shall be made therefor.

W-16.10 Hot Bituminous Mixtures (Section 330) Type S Asphaltic Concrete (Section 331)

This Subsection shall Replace and/or Modify Portions of F.D.O.T. Standard Specifications for Road and Bridge Construction (1991) Sections 330 and 331.

330-10.3 Density Control

330-10.3.1 Density Control Nuclear Method:

The in-place density of each course of asphalt mix construction, with the exceptions of patching courses, leveling and intermediate courses less than 1 inch thick or a specified spread rate less than 100 pounds per square yard, overbuild courses where the minimum thickness is less than 1 inch, and open-graded friction courses, shall be determined by the use of the Nuclear Density Backscatter Method as specified by FM 1-T238 (Method B). The required density of a completed course shall be at least 95% of the job mix design laboratory density submitted by the Contractor and approved by the construction engineer or 96% of the laboratory density which results from a sample of the same day's productions and determined by the City laboratory performing all acceptance testing.

330-10.3.2 Control Strips:

Control strips may be constructed by the Contractor for the purpose of determining the necessary pattern of compacting procedures to achieve the density requirements specified. However, control strips are not used for the validity of acceptance testing.

330-10.3.3 Lots:

For the purpose of acceptance and partial payments, each day's production will be divided into lots. The standard lot size shall be 500 linear feet and consist of one subplot with its appropriate test per every 100 linear feet of any pass made by the paving train, regardless of the width or thickness of the course being laid. Any partial lot will be redefined as a whole lot and the evaluation of it will be based on its subplot test determinations.

For the standard lot (500 linear feet), five density determinations - one for each subplot - will be made at random locations within the lot, but not to be taken within one foot of any unsupported edge.

For the Contractor to receive full payment for density, the average density of a lot will be a minimum of 95% of the submitted and approved job mix design laboratory density or 96% of the same day sampled laboratory density performed by the City laboratory performing acceptance testing. To calculate the average density of a lot, the lowest subplot test will be discarded and the remaining four sublots will be averaged. Once the average density of a lot has been determined, the Contractor will not be permitted to provide additional compaction to raise the average. The average density will be rounded off according to City standards.

330-10.3.4 Acceptance:

The completed pavement will be accepted with respect to density on a lot basis. Partial payment will be made for those lots that have an average density less than the specified 95% of the approved job mix design laboratory density or 96% of the same day sampled laboratory density based on the following table:

City of Tampa Revised Table 330-3
Payment Schedule for Density

<u>Percent of Control Strip Density</u>	<u>Percent of Payment</u>
95.0 (job mix design) ₁ or 96.0 (lab density sample) ₂ & above	100
94.0 to < 95.0 ₁ or 96.0 ₂	95

<u>Percent of Control Strip Density</u>	<u>Percent of Payment</u>
93.0 to < 94.0 (Applies to both ₁ & ₂)	90
< 93.0 (Applies to both ₁ & ₂)	75

330-10.3.5 Density Requirements for Small Projects:

For projects less than 500 linear feet in length including intersections, turnouts, patches, crossings, etc., the requirements for specified densities are the same as a standard lot. For the purpose of acceptance and partial payment determination, the project less than 500 linear feet will be considered as a lot in its entirety and payment will apply accordingly with Table 330-3. The Contractor will use standard rolling procedures in 330-10.

331-5 Acceptance of the Mixture

331-5.1 General:

The bituminous mixture will be accepted at the site with respects to a gradation and asphalt content on a lot to lot basis. The material will be tested for acceptance in accordance with the provisions of 6-8.2 and the following requirements. However, any load or loads of mixture which, in the opinion of the City representative, are found unacceptable for reasons of being excessively segregated, aggregates improperly coated, or of excessively high or low temperature shall be rejected for use in the work. The composition and physical test properties for all mixes must meet the specification ranges provided in Tables 331-1 and 331-2.

A standard size lot at the site shall consist of one day's placement or equivalent to a standard quantity of 1,000 tons. The number of samples required to evaluate the lot will be divided into one or two sublots as indicated below. Testing for acceptance of the lot will be performed by the City material testing laboratory or by a licensed private testing laboratory of the City's choice. Quantities between 500 tons and 1,000 tons shall have 2 sublots; quantities between 50 tons and 500 tons shall have 1 subplot; quantities up to 50 tons will be accepted by the City representative on the basis of visual inspection.

331-5.2 Acceptance Procedures:

Sample selection for acceptance tests will be by random sampling of loaded trucks on site at the discretion of the City testing technician in accordance with FM-T168. The use of a random sample chart may be used but it is not required. Sampling shall not be taken in any of the following circumstances:

- 1) First load produced that day.
- 2) Last load produced that day.
- 3) Near end of quantity reached because of an underrun.

The Contractor and/or the plant quality control technician (Q.C.T.) will be notified of the time of sampling and may:

- 1) Observe the sampling.
- 2) Take a sample at the same time and run the tests.
- 3) Ask for a split sample and run the tests.
- 4) Observe the City testing technician run the tests.

The five acceptance determinations made from the sample are:

- 1) The % bitumen content per F.M.I. - T164.
- 2) The % passing the No. 4 sieve per F.M.I. - T030.
- 3) The % passing the No. 10 sieve per F.M.I. - T030.
- 4) The % passing the No. 40 sieve per F.M.I. - T030.
- 5) The % passing the No. 200 sieve per F.M.I. - T030.

For each acceptance sample taken, the technician will box and keep two split portions for referee tests. If the lot receives 100% payment, the referee sample will be discarded. If the lot sample shows a pay reduction, then one or both of the referee samples will be submitted for a second analysis to determine the validity of the acceptance test results. Referee samples will be tested by a licensed private laboratory of the City's choice. This second analysis will only be done at the request of the Contractor and will be paid for by the Contractor in the event that the original analysis results requiring a pay reduction is confirmed.

In the event that the second analysis does not confirm the pay reduction, the City will pay for the second analysis.

Acceptance of the mixture shall be on the basis of test results on consecutive random samples from each lot. One random sample shall be taken from each subplot. The bituminous mixture will be sampled at the site in accordance with FM 1-T168, except that samples may be collected from the paving machine at the receiving hopper. The percent bitumen content of the mixture will be determined in accordance with FM 1-T164 (as modified by DOT test procedures). The percents passing the No. 4, No. 10 and No. 200 sieves will be determined in accordance with FM 1-T030.

Calculations for the acceptance test results for bitumen content and gradation (percent pass No. 4, percent pass No. 10, percent pass No. 40 and percent pass No. 200) shall be shown to the nearest hundredth (0.01). Calculations for arithmetic averages shall be carried to the thousandths (0.001) and rounded to the nearest hundredth (0.01) in accordance with the Department's rules of rounding.

When the Contractor or producer chooses to use a storage bin for mix storage overnight or longer, the material processed in this manner will be sampled and tested for acceptance after the mix has been removed from the storage bin. The City representative may reject a mix at any time that is obviously defective due to asphalt content, insufficiency of mixing, inadequacy of coating, improper proportions of fine and coarse aggregates, temperature, contamination, etc. The Contractor and/or the L.Q.C.T. will be given the option of not placing the mix and sampling the following truck, or if it has been placed, sample it. The City reserves the right to test or have the mix tested by a licensed private testing laboratory of their choice. Payment will be made on the basis of the City's revised Table 331-6 "Acceptance Schedule of Payment."

City of Tampa Revised Table 331-6
 Acceptance Schedule of Payment
 (Asphalt Plant Mix Characteristics)

Deviation of the Arithmetic Average of the
 Lot Acceptance Tests from Job Mix Formula

<u>Characteristics</u>	<u>Factor</u>	<u>One Test</u>	<u>Two Tests</u>
Asphalt Cement Content (Extraction)	1.00	0.00 - 0.55	0.00 - 0.43
	0.95	0.56 - 0.65	0.44 - 0.50
	0.90	0.66 - 0.75	0.51 - 0.57
	0.80*	Over 0.75	Over 0.57
No. 4 Sieve**	1.00	0.00 - 8.00	0.00 - 5.95
	0.95	8.01 - 9.00	5.96 - 6.66
	0.90	9.01 -10.00	6.67 - 7.36
	0.80	Over 10.00	Over 7.36
No. 10 Sieve**	1.00	0.00 - 6.50	0.00 - 5.04
	0.95	6.51 - 7.50	5.05 - 5.74
	0.90	7.51 - 8.50	5.75 - 6.45
	0.80*	Over 8.50	Over 6.45
No. 40 Sieve**	1.00	0.00 - 5.50	0.00 - 4.62
	0.95	5.51 - 6.50	4.63 - 5.33
	0.90	6.51 - 7.50	5.34 - 6.04
	0.80*	Over 7.50	Over 6.04
No. 200 Sieve**	1.00	0.00 - 2.00	0.00 - 1.71
	0.95	2.01 - 2.40	1.72 - 1.99
	0.90	2.41 - 2.80	2.00 - 2.04
	0.80*	Over 2.80	Over 2.04

* If approved by the City, the Contractor may accept the indicated partial pay. The City may require removal and replacement at no cost. The Contractor has the option to remove and replace at no cost to the City at any time.

** When there are two or more reduced payments for these items in one lot of material, only the greatest reduction in payment will be applied. CAUTION: This rule applies only to these four gradation test results.

Note: 1) The No. 40 sieve applies only to Types S-I, S-II, S-III, FC-1, and FC-4.
 2) Deviations are absolute value with no plus or minus signs.

* * *

SECTION 17 - LAWN REPLACEMENT AND SODDING

W-17.01 General

The Contractor shall replace all lawn areas which have been removed or damaged due to construction. Lawn replacement includes fine grading the areas to be restored and furnishing and placing topsoil, fertilizer, sod, sprigs, seeding, and maintaining all areas. Grassing and mulching or sodding lawn areas will be required as directed. Grassing shall be accomplished by seeding.

Sod shall be Argentine Bahia, St. Augustine, or other approved native grass sod, and shall be well matted with grass roots. It shall be sufficiently thick to secure a dense stand of live grass, with a minimum thickness of 2 inches. The sod shall be live, fresh and uninjured, and shall contain sufficient moisture at the time of planting to induce growth. The type and quality of sod shall be approved by the Engineer before placing.

Grass seed shall be Argentine Bahia, 60 #/acre from March 1 to November 1; 50 #/acre with 20 #/acre of rye grass seed from November 1 to March 1. Argentine Bahia seed shall be a scarified seed having a minimum active germination of 40% and total of 85%.

Mulch material shall be free of weeds and shall be oat straw or rye, Pangola, peanut, Coastal Bermuda or Bahia grass hay.

W-17.02 Topsoil

Where areas are to be restored by sodding, topsoil shall be placed to a minimum compacted depth of 2 inches over the subgrade. Where areas are to be restored by grassing, topsoil shall be placed to a minimum compacted depth of 4 inches over the subgrade. All topsoil shall be suitable excavated topsoil which has been segregated or other topsoil material approved by the Engineer. Topsoil shall be free from stones, roots, sticks, or other foreign substances.

W-17.03 Water

The Contractor shall furnish at his own expense all water required for lawn replacement and maintenance of the work until final acceptance.

W-17.04 Construction Methods

Prior to sodding or grassing, the Contractor shall fine grade the subgrade to 4 inches below finished grade. Topsoil shall be spread over the subgrade to a uniform depth and density. Topsoil shall be uniformly compacted by a light hand roller weighing between 250 and 750 pounds to the specified depths for sodding or grassing.

Immediately before sodding, 14-4-14 or 15-0-15 fertilizer shall be applied at the rate of approximately 600 pounds per acre, either in the furrows or by broadcasting and raking, into the planting area. After the surface has been properly prepared, the sod shall be placed and firmly embedded by light tamping. Additionally, dolomite (lime) shall be applied at a rate of 2 tons per acre.

Immediately after the sod has been planted, if the soil does not contain sufficient moisture to ensure growth, water shall be applied twice daily for the first week, once in the morning or late evening and once at approximately 2:00 P.M. Water shall then be applied once a day over the next 2 weeks and alternating days for an additional 2 weeks. If rooting has not taken place by the end of the third week, 1 daily watering shall continue until sod is firmly rooted.

One week after the sod has been planted, a complete fertilizer with minor elements shall be applied weekly at the rate of 1# nitrogen per 1,000 square foot in a 2-1-2 or 4-1-2 formula for a period of 4 weeks, and thereafter every 2 weeks for an additional 30 days. The ground shall not be wet when the fertilizer is applied but will be immediately watered after application of the fertilizer to remove it from the leaf area.

Prior to grassing, 14-4-14 or 15-0-15 fertilizer shall be applied to the soil at the rate of approximately 300 pounds per acre. Grass seed at the specified rate per acre shall then be raked into the soil and covered with mulching material. The area shall then be thoroughly rolled with approved equipment.

After the grass has been planted, if the soil does not contain sufficient moisture to ensure growth, water shall be applied as directed by the Engineer. After the grass has started growing, fertilizer shall be applied uniformly over the area weekly, at a rate of 0.5# nitrogen and potash per 1,000 square feet, until turf cover the area. The fertilizer shall not be applied unless the surface of the ground or sod is sufficiently moist to quickly dissolve the fertilizer.

W-17.05 Caretaking

The Contractor shall keep all replaced lawn areas in good, healthy, insect free, moist condition by watering, replanting or resodding, weeding, fertilizing, and cutting as specified, and directed by the Engineer.

* * *

SECTION 18 - LEAKAGE TESTS

W-18.01 General

All pipelines will be tested and inspected for infiltration or leakage by the Engineer with the assistance of the Contractor prior to final acceptance of the work. All tests and inspections will be conducted in a manner to minimize as much as possible any interference with the Contractor's work or progress.

The Contractor shall notify the Engineer when the work is ready for testing and inspecting, and tests and inspections shall be made as soon thereafter as practicable under the direction of the Engineer. Personnel for reading meters, gauges, or other measuring devices will be furnished by the Engineer. The Contractor shall furnish all other labor, materials, services, and equipment, including power, fuel, meters and gauges, pumps, bulkheads, backflow preventers, water, and other items and apparatus necessary for making leakage tests, preparing pipelines for testing, assembling, placing, and removing testing equipment, and placing pipelines in service, all to the satisfaction of the Engineer. Only City water shall be used for testing unless otherwise approved by the Engineer. The water shall be obtained and metered from sources approved by the Engineer. After testing, the water shall be disposed of by the Contractor into storm sewers or drainage courses approved by the Engineer.

W-18.02 Tests of Sewer - General

All sewers shall be tested for infiltration or leakage after completion of backfilling. All wyes, house connections, and stubs shall be suitably plugged or bulkheaded to the satisfaction of the Engineer prior to testing. All sewers shall be cleaned and pumped out as necessary prior to testing.

Sewer shall be tested for infiltration, unless otherwise ordered by the Engineer. If the Engineer determines that groundwater conditions are not suitable for infiltration testing, sewers shall be tested for leakage. Sewers may be tested for leakage by measuring leakage out of the sewer or by air testing. The length of sewer to be tested shall be subject to prior approval of the Engineer.

The length of house connections, if any, will be included in the total length of sewer under test when computing infiltration or leakage.

All testing equipment and the arrangement of such equipment shall be subject to the prior approval of the Engineer. Sections of sewers under test shall be arranged to prevent the internal pressure on any joint from exceeding 10 psi.

Refer to Section 11 - PVC Pipe Gravity for specific requirements for infiltration and leakage testing for PVC gravity pipe.

W-18.03 Infiltration Test of Sewers

Infiltration tests shall be performed when the groundwater level is a minimum of 2 feet above the crown of the sewer at the highest point in the test section. No such tests

shall be started until the infiltration conditions are established in the work to be tested. The Contractor shall provide suitable observation wells along the line of the work or other approved means to determine the groundwater level.

Infiltration tests will be made by measuring the infiltrated flow of water over a measuring weir set up in the invert of the sewer a distance, as approved by the Engineer, from a temporary bulkhead or other limiting point of infiltration. Testing shall be for a minimum period of 4 hours. The quantity of infiltration for any section of the sewer shall not exceed 50 gallons/mile/day/inch of pipe diameter.

W-18.04 Leakage Test of Sewers

Leakage tests shall be performed by bulkheading the section of sewer under test at the manhole, at the lower end, and filling the sewer with clear water until the water level is up a minimum of 2 feet above the crown of the sewer or a minimum of 2 feet above the groundwater level, whichever is greater, in the manhole at the highest point in the section. Leakage will be the measured amount of water added to maintain the level in the higher end manhole. Tests shall be carried on a minimum of 4 hours with readings at 30-minute intervals. The quantity of leakage for any section of the sewer shall not exceed the limits specified for infiltration in the subsection headed "Infiltration Test of Sewers."

W-18.05 Air Leakage Test of Sewers

Air pressure leakage tests shall be limited to sewers 30 inches in diameter and smaller. The maximum allowable air leakage is based on prewetted pipe walls. The contractor may, therefore, fill the pipe with clear water and then empty the pipe prior to air testing. When pipe walls are prewetted, air leakage tests shall be completed within 24 hours after filling the sewer section to be tested.

Air pressure tests shall be made by placing the sewer under 3.0 psig air pressure and measuring the volume of air required to maintain this pressure. The rate of air leakage shall be determined when the system reaches an equilibrium state and air flow shall be read by means of an approved rotameter.

The maximum rate of air loss shall be 0.003 cfm per square foot of interior pipe surface, and the maximum air flow shall not exceed 2.0 cfm when the total pressure on the sewer is maintained at 3.0 psig. When the groundwater level is above the invert of the sewer, but below a level adequate for infiltration testing, the maximum air loss shall be reduced 6 percent for each foot of groundwater above the sewer invert.

Air testing equipment shall be arranged so that compressors, valving, gauges, and other test devices are located at the ground surface. Air testing equipment shall have an approved air relief arrangement to prevent the sewer from being pressurized to greater than 10.0 psig.

W-18.06 Leakage Tests of Force Mains

For Directional drilled pipe, see Section W-13 for additional testing requirements.

Force mains shall be tested as a whole or in sections valved or bulkheaded at the ends. The mains shall be tested under an average hydrostatic pressure of not less than 100 pounds per square inch, unless otherwise indicated in the Specific Provisions. The pressure shall be applied to the pipeline through a tap in the pipe by means of a hand pump or other method and shall be maintained for a minimum of 2 hours. Air shall not be used for testing force mains.

The leakage for all force mains, as determined by the above test, shall not exceed the allowable leakage for iron water mains as given by the following formula in Section 4.2.2. of AWWA Specification C605-05:

$$L = \frac{SD\sqrt{P}}{148,000}$$

in which L is the allowable leakage, in gallons per hour, S is the length of force main tested in feet, D is the nominal diameter of the pipe in inches, and P is the average test pressure in psi gauge.

During the test, each valve shall be operated through several complete cycles of closing and opening. In addition, each valve, when in the closed position, shall have the test pressure applied to one end of the valve only. Each end of the valve shall be tested in this manner. There shall be no visible leakage through the valves, and the valves shall not show any evidence of structural distress.

All harnessed sections of the buried force main shall be completely backfilled before such sections are tested.

W-18.07 Repairing Leaks

When infiltration or leakage occurs in excess of the specified amount, defective manholes, pipe, pipe joints, or other appurtenances shall be located and repaired at the expense of the Contractor. If the defective portions cannot be located, the Contractor, at his own expense, shall remove and reconstruct as much of the original work as necessary to obtain a sewer or force main within the allowable infiltration or leakage limits upon such retesting as necessary and directed by the Engineer.

* * *

SECTION 20 - MAINTAINING EXISTING SANITARY SEWER IN OPERATION

W-20.01 General

It shall be the Contractor's responsibility to preserve all existing sanitary sewer services without interruption while performing the work included in this project. The Contractor shall furnish all labor, materials, and equipment required to bypass wastewater flow around the working area to an acceptable point of discharge. Also, if deemed necessary by the engineer, the contractor will be responsible to provide necessary noise suppression devices to minimize bypass pump noise.

The Contractor shall not be permitted to pump or otherwise direct the flow of sanitary sewage into storm sewers, streams, or other open channels or onto streets or alleys at any time during the course of the work.

W-20.02 Bypass Pumping

The Contractor shall submit the proposed plan to the Engineer for approval prior to proceeding with the work. All required agency approvals and permits shall be the responsibility of the Contractor. The hydraulic design of the bypass pumping arrangement shall be the sole responsibility of the Contractor.

Pumping equipment shall be of a type suitable for pumping raw unscreened sewage over an indefinite period without clogging or requiring shutdown for routine maintenance. Bypass pumping shall be continuous during the entire length of time each portion of the work is being accomplished. The Contractor shall submit drawings and equipment specifications, detailing the proposed pumping equipment and the method of installation, to the Engineer for approval.

The Contractor shall possess at least one (1) backup pump, no smaller than the largest pump in use, on site for every 1 to 3 bypass pumps in operation. An additional backup pump shall be required on site for each increment of 3 pumps in operation as illustrated on the following table:

<u>Operating Bypass Pumps</u>	<u>Required Backup Pumps On Site</u>
1 - 3	1
4 - 6	2
7 - 9	3

W-20.03 Connections

All house laterals and connections to lateral sewers shall be maintained in operation without leakage or backup during the work.

W-20.04 Street Closures

The Contractor shall be responsible for coordination of maintenance of traffic and all street closures with the City of Tampa, Department of Public Works; Hillsborough County, Superintendent of Maintenance; and the State of Florida, Department of Transportation.

* * *

SECTION 24 - PVC PIPE - FORCE MAIN

W-24.01 General

All pipe and fittings, 4"-48" nominal diameter, shall be solid wall polyvinyl chloride (PVC) pipe manufactured to standards as outlined in the following sections.

Only 1 pipe manufacturer will be allowed for the entire project.

W-24.02 Pipe standards

For PVC force mains, 4" through 12", the pipe shall be AWWA C900, DR-18 (class 150). For PVC force mains 14" through 48", the pipe shall conform to AWWA C905, DR-25. The outside diameter dimensions shall be identical to ductile iron pipe dimensions. The pipe shall have integral bell push on type joints conforming to ASTM D3139. Bell ends shall be equipped with elastomeric gaskets meeting the requirements of ASTM F477. The color shall be green and the nominal laying length per pipe section shall be 20 ft.

W-24.03 Pre-Installation Tests, Reports, Markings and Submittals

All pipe and fittings shall be marked per Section 2.6 "Marking Requirements" of AWWA C900.

PRIOR TO SHIPMENT of the pipe and fittings to the project site, the Contractor shall submit to the Engineer test reports and certifications as described below, duly certified by the manufacturer's testing facility or an independent certified testing laboratory demonstrating full compliance with AWWA C900 or C905. Certification from the supplier is not acceptable.

An original, plus four (4) copies of the following, shall be submitted to the Engineer.

1. The name, address, and phone number of the pipe and fittings manufacturer and the location of the plant at which they will be manufactured.
2. **CERTIFICATION AND CERTIFIED TEST REPORTS** that each **LOT** of pipe and fittings has been manufactured, sampled, and tested per AWWA C900 or C-905. The City shall be provided in writing with the means to cross-reference the markings with the certification and test reports (i.e. date of manufacturer, lot number and shift number etc.). If this information is marked on the pipe in a code, the markings shall be decoded in writing.

W-24.04 Bedding Requirements

Unless otherwise indicated on the Plans, the PVCP force main shall be installed with Class "C" bedding as shown on the plans. If suitable fill material is not excavated at the project site, it shall be imported. Compaction requirements are described in subsection W-24.12 "Bedding Placement for Pipelines". In no cases shall a concrete cradle be used. In the event the Contractor opts to install crushed stone, it shall be **NO**

GREATER THAN A #57 STONE.

W-24.05 Fittings

Both PVC and ductile iron fittings are acceptable unless the plans specifically call for PVC fittings. For standard angles, in sizes 4" through 8", fittings shall be injection molded in accordance with AWWA C907 and CSA B137.2. For larger sizes (10" and greater) and for non-standard angles, fittings shall conform to the requirements of CSA B137.3 and shall be fabricated in a factory from AWWA C900/905 pipe.

Injection molded fittings shall have a dimensional ratio of 18 (DR18) and fabricated fittings shall have a dimensional ratio equal to that of the pipe they are being installed on. All injection molded fittings shall conform to AWWA C907, CSA B137.2 and fabricated fittings shall conform to CSA B137.3

All PVC fittings shall incorporate integral elastomeric gasket bell joints push on type.

Materials used in the manufacture of PVC fittings shall equal or exceed cell class 12454 (ASTM 1784) with a hydrostatic design basis of 27.58 Mpa at 23°C as outlined in AWWA C900 and C905, and CSA B137.3.

Fabricated fittings shall be manufactured from segments of PVC pipe to the requirements of AWWA C900 and C905, and CSA B137.3. Segments shall be bonded together and over wrapped with fiberglass-reinforced polyester. All bends, up to and including 45°, shall be constructed from a single section of PVC pipe, without joints, bonding or fiberglass-reinforced polyester wrapping.

The pressure rating of the fittings shall be equal to the pressure rating of the pipe they are being installed on.

The manufacturer shall meet all the qualification test requirements as outlined in CSA B137.3

All fittings shall be marked with the following identifications:

- Nominal size, CIOD
- Manufacturers name or trademark
- AWWA pressure rating/pressure class and standard number to which the fitting is made
- CSA Standard number
- Proper handling label

W-24.06 Harnessing

Joint restraint devices for all pipes and fittings shall meet requirements as specified under the "RESTRAINING DEVICES" specification. Thrust blocks shall not be allowed.

All wedge devices assemblies and related parts shall be processed through a phosphate wash, rinse and drying operation prior to coating application. The coating shall consist of a minimum of two coats of liquid Xylan fluoropolymer coating with heat cure to follow each coat.

All casting bodies shall be surface pretreated with a phosphate wash, rinse and sealer before drying. The coating shall be electrostatically applied and heat cured. The coating shall be a polyester based powder to provide corrosion, impact and UV resistance.

The coating system shall be Mega-Bond as manufactured by EBAA Iron, Inc., Eastland, Texas, or approved equal.

W-24.07 Marking and Locating

Two strands of #12 gauge green insulated copper tracing wires shall be attached to the pipe with duct tape at regular intervals in the 10 and 2 o' clock position. The wires shall be looped around each bell. See Section W-13 "Directional Drilling HDPE Pipe" requirements for directional drilled pipe. Wire insulation must be suitable for buried service such as HDPE or HMWPE. Nylon insulation is not acceptable. Wires must be spliced together with wire connectors suitable for buried service such as DBR Kit by 3M, Snakebite by Copperhead Industries or equal. Twisting wires together and sealing with electrical tape is not acceptable. No payment will be made for pipe that does not pass a continuity test through the wires after installation. See standard details for additional requirements.

The locating wire shall terminate at the top of each valve box, air release valve box and manhole and must be capable of extending 24" above the top of the box (or manhole) in such a manner so as not to interfere with the valve operation.

W-24.08 Installation

Installation of PVCP force mains shall comply with the requirements of AWWA Standard C605 "Underground Installation Of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings For Water".

Pipe bending shall not be allowed.

Joint deflections up to a maximum of 1 degree will be permitted at integral bell and spigot joints. Deflections larger than 3 degrees may be accomplished with factory molded or fabricated standard angle fittings; or, a standard deflection shall be accomplished with a factory fabricated fitting of the proper angle. Refer to Section W-24.05.

Air release valves shall use service saddles to attach the corporation stop connection to the PVC pipe. The service saddle body shall be sized exactly to the outside diameter of the pipe, with double straps anchored with a minimum of a four bolt pattern. The service saddle body shall be ductile iron, the sealing gasket shall be BUNA-N rubber and the straps shall be corrosion resistant alloy steel.

W-24.09 Testing

Testing of PVCP force mains shall comply with the requirements of AWWA Standard C605 "Underground Installation Of Polyvinyl Chloride (PVC) Pressure Pipe And Fittings For Water" Section 7 (less references to disinfecting). The hydrostatic and leakage testing may be performed simultaneously. The average hydrostatic test pressure

shall be 100 psi.

Air pressure testing of installed pressure pipe is expressly prohibited due to the catastrophic nature of failure should failure occur.

W-24.10 Storage of PVC Pipe

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage, or deformation to bell ends of the pipe. When unit packages of PVC pipe are stacked, the Contractor ensure that the weight of upper units does not cause deformation to pipe in lower units.

PVC pipe unit packages shall be supported by racks or dunnage to prevent damage to the bottom during storage. Supports shall be spaced to prevent pipe bending.

PVC pipe shall not be stored close to heat sources or hot objects such as heaters, boilers, steam line, engine exhaust, etc.

When unit packages of PVC pipe are stacked, ensure that the height of the stack does not result in instability which could cause stack collapse, pipe damage, bodily injury, and property damage.

The interior as well as all sealing surfaces of pipe, fittings, and other accessories shall be kept free from dirt and foreign matter.

Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease.

W-24.11 Handling of PVC Pipe - Standard Procedures

When using fork lifts or other handling equipment, prevent damage to PVC pipe.

When handling PVC pipe, avoid severe impact blows, abrasion damage and gouging or cutting by metal surfaces or rocks. Avoid stressing bell joints and damage of bevel ends.

Pipe shall be lowered, not dropped, from trucks and into trenches.

In preparation for pipe installation, placement (stringing) of pipe shall be as close to the trench as practical and on the opposite side from excavated earth. Bell ends shall point in the direction of work progress.

The Engineer may reject any pipe that shows visible signs of damage resulting from poor storage and handling practices.

W-24.12 Bedding Placement for Pipelines

Select fill material, used as pipe bedding, shall be placed by hand, in uniform layers not greater than 6 inches in loose thickness and thoroughly compacted in place. Select fill material pipe bedding shall extend to one foot over the top of the pipe.

Each layer of select fill shall be thoroughly tamped and compacted in place by hand or with suitable mechanical or pneumatic tools to a dry density not less than 95 percent of the maximum dry density as determined by AASHTO Des: T-180. No stone larger than 4 inches in diameter shall be placed closer than two feet to any point on any pipe.

W-24.13 Trench Backfill

Trench backfilling work shall be done in a manner to prevent dropping of material directly on top of any conduit or pipe from a vertical distance greater than 5 feet. In no case shall backfilling material from a bucket be allowed to fall directly on a structure or pipe and in all cases, the bucket shall be lowered so that the shock of falling earth will not cause damage.

Lumps shall be broken up and if there are any stones, pieces of crushed rock or lumps which cannot be readily broken up, they shall be distributed throughout the mass so that all interstices are solidly filled with fine material.

W-24.14 Backfill for Short Tunnel

Where pipelines are placed in short tunnels, the annular space between the outside of the pipe wall and the tunnel wall shall be completely filled with select fill material or suitable excavated material. Pipelines in short tunnels shall be suitably supported, to permit placing backfill which shall be suitably tamped in place.

W-24.15 Inspection and Testing of Backfilling

All backfill shall be subject to test by the Engineer.

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SECTION 26 - FILLING OF EXISTING SANITARY OR STORM SEWER SYSTEM

W-26.01 General

All void spaces in sewers, manholes, and structures designated to be filled shall be completely filled and closed. The Contractor shall submit to the Engineer for approval a complete description of the equipment, methods, and materials proposed to be employed in demolishing and filling sewers and appurtenances. The Contractor shall be solely responsible for the protection of all utilities, structures and trees, and for the safety of his workmen and the public during the course of the work. All damage to existing utilities, structures, and trees caused by the Contractor's operations shall be promptly repaired by the Contractor to the satisfaction of the Engineer. If, in the opinion of the Engineer, the equipment, methods, and materials proposed by the Contractor may result in damage to nearby structures and utilities or may not assure complete filling of all voids in the sewer and appurtenances to be filled, the Contractor shall alter the equipment, methods, and materials to the satisfaction of the Engineer.

W-26.02 Filling Existing Sewers

Where existing sewers and appurtenances are designated to be filled, the Contractor shall completely fill all sewers, manholes, and other structures with concrete. The concrete shall have a minimum 28-day compressive strength of 500 psi. Fly ash and admixtures, including water reducing agents, plasticizers, and air-entraining agents will be permitted in the mix design for the concrete. No sand will be permitted in the mix design. The concrete mix shall be designed to facilitate flow for long distances by pumping (only) with minimum separation of materials.

Before beginning the grouting operation, the Contractor shall pump clean water through each run of pipe to ensure that there are no obstructions and that the intake/discharge/vent tube system is functional. Prior to and during filling of existing sewers with concrete, the Contractor shall pump or drain water from the storm sewers being filled to other storm sewers, and shall pump or drain water and sewage from the sanitary sewers being filled to other sanitary sewers, as directed by the Engineer to prevent dilution of the fill concrete. Sediment in existing sewers may remain in place.

The Contractor shall fill the sewers with concrete by pumping (only) through vertical pipes passing through bulkheads, all installed by the Contractor and penetrating the pipe to be filled. All intake, discharge, and intermediate vent pipes shall be, at minimum, 4 inches in diameter and installed at regular intervals close enough to ensure complete filling. Filling shall be accomplished in stages as directed by the Engineer. While filling is in progress through one manhole or fill-pipe, the Engineer will observe the level of concrete in the adjacent manhole(s) or pipe(s). If, in the opinion of the Engineer, complete filling of all voids in the sewers and appurtenances is not assured, the Contractor shall install additional fill-pipes or alter his methods of filling, or both, as directed by the Engineer. If, in the opinion of the Engineer, complete filling is still not assured, the Contractor shall excavate and open the top of the pipe at regular intervals as directed by the Engineer to confirm that the entire run is completely filled.

Manhole frames and covers and all other castings and appurtenances shall be removed and conveyed by the Contractor to his own place of disposal unless otherwise directed by the Engineer. The top 2 feet of the manholes shall be removed. Where the manholes are located in grassed areas, 2 feet of top soil shall be placed and the area sodded. Where the manholes are located in the street, the top 2 feet shall be filled with base material or asphalt. All fill-pipes shall be withdrawn and the holes completely filled with concrete. The surface at each manhole and fill-pipe location shall be restored to match the adjacent undisturbed surface to the satisfaction of the Engineer.

Prior to commencing any filling operations, the Contractor shall submit his proposed plan for filling and the proposed concrete mix design for approval by the Engineer. The plan shall show the proposed locations of all fill pipes as well as the location of all existing manholes and structures along the sewer. The plan and mix design shall be revised by the Contractor as considered necessary by the Engineer.

In order to avoid misinterpretation, whenever the words "sewer" or "sanitary sewer" is used within Section 26; "force main" or "sanitary force main" is understood to be included and interchangeable in the use of those words.

* * *

SECTION 32 - VALVES

W-32.01 General

This section includes all valves except ball valves and special regulating valves. Requirements of this subsection apply to all valves described in this section, unless exceptions are shown or stated herein or in the Contract Items.

Valves 2 inches in diameter and smaller shall be all brass or bronze, except the handwheel, and shall have screwed ends. Valves 2-1/2 inches in diameter and larger shall be iron body, bronze mounted with flanged ends, except that in the smaller sizes, valves may be all bronze at the Contractor's option.

All gate, globe, and angle valves shall have rising stems, unless otherwise specified, and shall open when the nut or handwheel is turned counterclockwise. Each handwheel shall be marked with an arrow and the word "Open." Each nut shall be marked with an arrow and shall not be greater than 24 inches in depth below finished grade.

All valves of the same type shall be from a single manufacturer. Parts of valves of the same type and size shall be interchangeable.

The Contractor shall prepare and submit for approval complete detail drawings of all valves in accordance with the requirements of the General Provisions.

All valves shall be carefully erected in their respective positions, free from all distortion and strain, and shall be packed and left in satisfactory operating condition.

W-32.02 Flanges

Flanges shall be cast solid and faced accurately at right angles to the axis of the casting. Flanges shall be faced and drilled and shop coated with a rust preventive compound before shipment.

Dimensions and drillings of flanges shall meet the requirements of ANSI B16.1 for working pressures of 125 pounds per square inch. Special drillings shall be provided where required.

W-32.03 Gate Valves

Except as otherwise specified, gate valves shall meet the requirements of Fed. Spec. WW-V-54, Class A, 125 pounds.

Gate valves shall have standard stuffing box seals. Bonnet bolts, studs, and nuts shall be cadmium plated. Wedging devices shall be bronze to iron or bronze to bronze as specified. Glands shall be bronze bushed; gland bolts and nuts shall be bronze.

Gate valves 2-1/2-inch diameter and larger shall be of the double disc type. Gate valves 2-inch diameter and smaller may be of the double disc or solid wedge type.

W-32.04 Globe and Angle Valves

Except as otherwise specified herein, globe and angle valves shall meet the requirements of Fed. Spec. WW-V-51, Class A, 125 pounds.

W-32.05 Hose Valves

Hose valves shall be globe or angle valves with rising stems, and rubber composition discs for cold water pressures up to 200 psi, nonshock.

Hose valves shall be all bronze or brass, except the handwheel which shall be of malleable iron. Hose threads shall conform to ANSI B2.4.

W-32.06 Check Valves

Check valves, unless otherwise specified, shall be APCO Series 100 or equal of the horizontal, swing type designed to allow full diameter passage and to operate with a minimum loss of pressure.

Check valves shall have body and body cover of heavily constructed cast iron meeting requirements of ASTM A48, Class 30. Check valve body shall have integrally cast-on end flanges. The flapper shall be rubber and have an "O" ring seating edge and be internally reinforced with steel. The flapper shall be easily replaced while the valve remains in place.

The exterior of the check valve shall be painted for high resistance to corrosion.

W-32.07 Eccentric Plug Valves

Plug valves shall be DeZurik Series 100 or equal of the eccentric valve design for not less than 100 psig water, oil or gas operating pressure; stainless steel bearings that do not require lubrication, bolted bonnet,, resilient faced eccentric plug which moves into raised eccentric seat from open to closed position and provides dead-tight shutoff; cast iron body conforming to ASTM A 126 Class B with welded-in nickel seats, straight through flow with port area a minimum of 80% of pipe area and accessibility to multiple packing rings without disassembly of the valve, wrench operated to 8-inch, gear operated 10-inch and larger, chains and chain wheels 7 feet or more above a floor.

W-32.08 Multiport Valves

Three-way and four-way valves, unless otherwise specified, shall meet the requirements of the specifications for eccentric plug valves.

W-32.09 Solenoid Valves

Solenoid valves, unless otherwise shown or specified, shall be normally closed packless type with full area ports. The body and bonnet shall be forged brass and the solenoid core shall be stainless steel. The diaphragm shall be of synthetic rubber assuring long service life. The coils shall be designed for 115-volt, 60-hertz operation and shall be embedded in molded plastic in NEMA Type I general purpose enclosure.

W-32.10 Testing

All valves shall be given hydrostatic shop pressure tests at twice the working pressure specified. The valves shall be tested, first by applying the hydrostatic pressure with the valve open and then with the valve closed. The valves shall be tight and secure under the test pressure.

Valves shall be tested in place by the Contractor, as far as practicable, and any defects in valves or connections shall be corrected to the satisfaction of the Engineer.

W-32.11 Painting and Coating

Inside iron or steel surfaces of valves and exterior surfaces of valves that are to be buried in the ground or immersed in sewage or water shall be given two coats of asphalt varnish meeting the requirements of Fed. Spec. TT-V-51a. Exterior iron and steel surfaces of other valves shall be painted as specified for machinery and equipment in Workmanship and Materials section headed "Painting." Chain wheels shall be coated by galvanizing or electroplating with zinc or cadmium. The chain shall be coated by electroplating with zinc or cadmium. Zinc electroplating shall meet the requirements of Fed. Spec. QQ-Z-325, Type II, Class 2; and cadmium electroplating shall meet the requirements of Fed. Spec. QQ-P-416, Type II, Class 2.

* * *

SECTION 105 - ROOT PRUNING

W-105.01 General

The Contractor shall make provisions for tree protection to the satisfaction of the Engineer prior to any excavation. All applicable site inspections by the City of Tampa Parks Department, and permits, shall be obtained prior to commencing work.

The Contractor shall provide root pruning services as directed by the Engineer.

W-105.02 Performance of Work

All root pruning shall be performed by a qualified, licensed tree professional as approved by the Engineer.

All roots designated to be removed shall be severed leaving a smooth, uniform section at the remaining root end to prevent root damage.

Root pruning shall be performed with a chain saw, Dosco root pruner, or equal, as approved by the Engineer.

No excavation shall occur inside the circumference of the root-pruned area.

* * *

SECTION 9100- LINE STOPS

W-9100.01 General

This specification covers furnishing, installing and removing of temporary line stops into existing force mains ranging from 6-inch to 20-inch diameter at the locations shown in the drawings or as directed by the Engineer.

W-9100.02 Scope

The scope of the line stopping procedure shall consist of a pressure tap with tapping valve into the existing force main and insertion of a line stop-plugging device while the pipe is under pressure. Upon completion of the fitting installation, a pressure test shall be performed. Line stops shall be rated to withstand a maximum pressure of 100 psi and therefore the test should conform to this pressure unless otherwise directed by the Engineer. At the conclusion of the work necessitating the line stop, the plugging device shall be extracted and a special closure piece and blind flange shall be installed so that the temporary tapping valve can be removed. Temporary line stops shall be performed by International Piping Services Company, Orlando, Florida or equal.

In the event that the line stop does not achieve a 100 percent shutdown, the Contractor shall collect and properly dispose of the leaking sewage in a manner approved by the Engineer at no additional cost to the City.

In order to provide thrust restraint for the existing force main and vertical load support of the line stop assembly, the line stop fitting shall be encased in class "A" concrete. The encasement shall extend a minimum 6-inches on all sides of the fitting.

W-9100.03 Materials and Shop Drawing

All line stop fittings to remain in-place shall be fabricated steel with an exterior epoxy coating. The hardware, including nuts and bolts, shall be 304 Stainless Steel.

Shop drawings of all the equipment and materials proposed, and a detailed outline of the procedure, shall be submitted to the Engineer for approval.

W-9100.04 Line Stop Contractor Qualifications

The line stop contractor shall have been engaged in the business of furnishing and installing line stops of similar size for a minimum of 3 years. Upon written request, the contractor shall submit a list of successfully completed projects with contact names and telephone numbers.

CONTRACT ITEMS

CONTRACT ITEM 0101 - MOBILIZATION

The Contractor shall furnish all equipment, labor, and materials necessary to mobilize his forces as necessary to perform all the work under this Contract.

Work under this section includes bonding and insurance; transportation, and otherwise movement of all personnel, equipment, supplies, materials and incidentals to the project site; establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities; and all other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, to be constructed under this Contract as shown on the Plans and directed by the Engineer.

As part of the first Work Order issued, the Contractor will be paid a mobilization payment of \$25,000 to cover bonding, insurance, etc., in addition to the cost of the work. Mobilization will be based upon the cost of the work excluding the mobilization payment. Each subsequent Work Order will include a mobilization payment as follows:

If the Work Order is less than \$10,000 the mobilization payment will be \$500.

If the Work Order is \$10,000 or more the mobilization payment will be \$1,000.

Additionally, in the event the Department desires the Contractor to mobilize and start work within 24 hours of first notification, the "Expedited Mobilization" payment will be \$2,500.

Payment for Mobilization will be made at the appropriate Contract Item Unit Price per mobilization.

CONTRACT ITEM - 0102 CONTINGENCY

As directed by the Engineer, this item is to allow payment for any incidental work that may arise as construction operations proceed and was not addressed as part of the original work portrayed in the Plans and Specifications.

Payment for Contingency will be made at the negotiated price per instance.

CONTRACT ITEM 103 – PROJECT SIGN

If specified in the work order, the Contractor shall furnish for each project under this contract all materials, equipment, and labor to construct, erect, and maintain the project sign as shown on the Specific Provisions, specified, and directed by the Engineer.

Project Signs shall conform to the requirements of the Workmanship and Materials section headed "Timber and Lumber".

The work includes all post hole excavation, backfilling, compaction, disposal of excess excavated material, plywood and lumber, cutting, painting, lettering, bolts, and all work incidental to construction, erection and removal of the project sign.

Payment for Project Sign will be made at the Contract Item Unit Price per project sign constructed, erected and removed.

CONTRACT ITEM 0110 - ADDITIONAL EARTH EXCAVATION

The Contractor shall make any additional earth excavation which may be ordered by the Engineer in writing.

The work includes all clearing, pavement, sidewalk, curb, curb and gutter removal, care of structures and

adjacent property, placing, maintenance, and removal of shoring, sheeting, and bracing, removal of water, backfilling, disposal of surplus excavated material, temporary restoration of street surfaces, digging test pits to locate existing house laterals when requested by the Engineer, and other work appurtenant to the additional earth excavation as specified and directed.

The quantity of Additional Earth Excavation, in cubic yards, to be measured for payment will be the total excavation, as ordered and approved by the Engineer, beyond and outside the established lines and grades which would have controlled and been maintained had not the additional excavation been ordered. Additional earth excavation for placement of select fill material or to permit construction of other types of pipeline foundations will be included for payment under this Contract Item. Unauthorized additional earth excavation will not be measured or paid for.

Payment for Additional Earth Excavation ordered in writing by the Engineer will be made at the Contract Item Unit Price per cubic yard of excavation.

CONTRACT ITEM 120-1-1 – EXCAVATION FOR THRUST
RESTRAINT INSTALLATION ON EXISTING FORCE MAIN

The Contractor shall excavate for thrust restraint installation on existing force main as shown on the plans, specified, and directed by the Engineer. Excavation For Thrust Restraint Installation on Existing Force Main shall conform to the requirements of the Workmanship and Materials Section headed "Excavation – Earth and Rock."

The work includes all clearing, pavement, sidewalk, curb, curb and gutter removal, care of structures and adjacent property, placing, maintenance, and removal of shoring, sheeting, and bracing, removal of water, backfilling, disposal of surplus excavated material, temporary restoration of street surfaces, and other work appurtenant to the Excavation For Thrust Restraint Installation as shown on the plans specified and directed by the Engineer.

The quantity of Excavation For Thrust Restraint Installation, in cubic yards, to be measured for payment will be the total excavation, as approved by the Engineer.

Payment for Excavation For Thrust Restraint Installation on Existing Force Main will be made at the Contract Item Unit Price per cubic yard of excavation.

CONTRACT ITEM 0130 - ADDITIONAL SELECT SAND FILL MATERIAL

The Contractor shall furnish, from sources other than excavations made in the Contract, transport, place, and compact select sand as ordered by the Engineer in writing and not specifically included under other Contract Items. The work also includes disposal of surplus excavated material and all labor and equipment. Excavation for placement of select sand will be paid for under other Contract Items. Select sand shall be as defined under the Workmanship and Materials Section 2 - Backfilling.

The work does not include transporting, placing, and compacting approved surplus sand from excavations made in this Contract. The Contractor shall use all such approved surplus sand available from excavations made in this Contract prior to supplying select sand from other sources.

The quantities of Additional Select Sand Fill Material, obtained from sources other than excavations in this Contract, in cubic yards, to be measured for payment will be the actual compacted volume of select sand placed within the payment limits shown on the Plans or established by the Engineer.

Select sand used to fill voids resulting from unauthorized excavation, or where required for dewatering, will not be measured for payment even though their use is ordered by the Engineer. Select sand used for pipe bedding will not be measured for payment under this Contract Item. Such select sand is included in the various classified unit price Contract Items for pipelines.

Payment for Additional Select Sand Fill Material, ordered by the Engineer in writing, will be made at the Contract Item Unit Price per cubic yard of sand fill material.

No payment will be made under this Contract Item for approved surplus sand obtained from excavations made in this Contract.

CONTRACT ITEM 0140 - ADDITIONAL SELECT
CRUSHED STONE FILL MATERIAL

The Contractor shall furnish, transport, place, and compact select crushed stone as ordered by the Engineer in writing and not specifically included under other Contract Items. The work also includes disposal of surplus excavated material and all labor and equipment. Excavation for placement of select crushed stone will be paid for under other Contract Items. Select crushed stone shall be as defined under the Workmanship and Materials section headed "Backfilling."

The quantities of Additional Select Crushed Stone Fill Material, in cubic yards, to be measured for payment will be the actual compacted volume of select crushed stone placed within the payment limits shown on the Plans and established by the Engineer.

Select crushed stone used to fill voids resulting from unauthorized excavation will not be measured for payment even though their use is ordered by the Engineer. Select crushed stone used for pipe bedding shown on the Plans will not be measured for payment under this Contract Item. Such select stone is included in the various classified unit price Contract items for pipelines.

Payment for Additional Select Crushed Stone Fill Material, ordered by the Engineer in writing, will be made at the Contract Item Unit Price per cubic yard of crushed stone fill material.

CONTRACT ITEM 0170 - CLASS D CONCRETE

The Contractor shall furnish and place any Class D Concrete ordered by the Engineer in writing and not specifically included under other Contract Items. Included in this item are standard nonreinforced encasements, pipe cradles, and like work not shown on the Plans or specified. The work includes all materials, mixing, placing, forming, and curing of the concrete, and work incidental thereto. Excavation for the placement of Class D Concrete will be paid for under other Contract Items.

The quantity of Class D Concrete, in cubic yards, to be measured for payment will be shown on the Plans for cradles or encasements or the actual volume of concrete placed in the work, measured in place, within the lines and grades as ordered. All concrete placed outside these lines and grades to fill unauthorized excavations, and all concrete for replacing defective work, shall be at the expense of the Contractor. Concrete specifically included under other Contract Items will not be measured, or paid for, under this Contract Item.

Payment for Class D Concrete will be made at the Contract Item Unit Price per cubic yard of Class D Concrete.

CONTRACT ITEM 0200 - SHORT TUNNEL

The Contractor shall construct such sewer in tunnel under trees, utility lines, or structures as are specified, shown on the Plans or ordered by the Engineer in writing to be constructed in tunnel.

The work includes all earth excavation, sheeting, shoring, bracing, dewatering, backfilling with selected fill material or suitable excavated material, tamping, and all other work required for a complete installation, except as specified herein.

The work does not include sheeting left in place. The work also does not include furnishing and placing new pipelines in the tunnel, which work will be included for payment under the appropriate classified unit price Contract Item

for pipelines or paid under the provisions for "Extra Work."

The length of Short Tunnel to be measured for payment will be the actual number of linear feet of tunnel constructed for each size of pipeline as shown on the Plans, specified, and ordered in writing by the Engineer to be placed in tunnel.

Payment for Short Tunnel will be made at the Appropriate Contract Item Unit Price per linear foot of tunnel.

CONTRACT ITEM 520 SERIES - PERMANENT CURB AND
GUTTER REPLACEMENT

The Contractor shall furnish all labor, equipment, and materials to replace and maintain all permanent concrete, bituminous, and granite curb, curb and gutter, or Miami gutter, removed or damaged by pipeline construction and appurtenant work as shown on the drawings, specified, and directed by the Engineer.

Permanent curb or curb and gutter, and Miami gutter replacement shall conform to the requirements of the Workmanship and Materials Section 16 - Restoration of Street Pavements.

All concrete work under this series shall conform to Workmanship and Materials Section 5 - Concrete.

The work includes all excavation, filling, shaping, grading, base material, lawn replacement incidental to curb, or curb and gutter replacement, Miami gutter, and other appurtenant work complete in place.

The length of Permanent Curb and Gutter Replacement to be measured for payment will be the actual length of gutter placed in the work within payment limits for surface restoration shown on the Plans, or ordered by the Engineer.

Payment limits for Permanent Curb and Gutter Replacement along pipelines shall include removal and replacement of gutter incidental to construction of manholes and structures. All curb and gutter removed or damaged and requiring replacement outside payment limits will not be measured for payment and shall be replaced by the Contractor at his own expense.

Payment of Permanent Curb and Gutter Replacement will be made at the Appropriate Contract Item Unit Price per linear foot of curb and gutter placed.

CONTRACT ITEM 0700 SERIES - SOLID WALL PVC PIPE
CONTRACT ITEM 0900 SERIES - PVC PIPE SEWER
(GREEN AWWA CL. 150, C900)

The Contractor shall furnish all materials and equipment, construct, test, and maintain complete all pipe sewer as shown on the Plans, specified, and directed by the Engineer.

The work includes all related work and appurtenances required to locate existing sanitary sewer lines and make the connections as shown on the Plans to the proposed lines, maintaining existing sanitary sewer in operation, removal of existing abandoned or out-of-service pipes encountered during excavation, sidewalks, driveways, curbs, curb and gutter, and permanent pavement, excavation, short tunnels, backfill, sheeting, shoring, bracing, dewatering, pipe bedding, pipe fittings, pipework, making all pipe connections, standard pipe cradles and encasements shown on the Plans, installation and removal of plugs and bulkheads, testing, special temporary and nonpermanent pavement replacement, nonpermanent sidewalk and driveway replacement, protection, repair and replacement of utilities and house services, maintenance of traffic, including maintaining access across driveways along the line of the work, protection, trimming and replacement of trees and shrubs, protection, repair and replacement of culverts and other storm water facilities, reconstruction or regrading of road shoulders and ditches, disposal of surplus excavated material, protection of existing structures, making joints between pipes and manholes or structures and all other work incidental to

the installation of the sanitary sewer pipe complete in place.

The work does not include sheeting left in place, rock excavation, manholes, surface restoration comprising lawn or permanent pavement replacement, additional earth excavation or additional selected fill materials, driveways, sidewalk and curb or curb and gutter replacement and, when shown on the Plans or ordered, such work will be paid for under other appropriate Contract Items.

The quantity of sewer pipe, in linear feet, to be measured for payment shall be the actual length of new pipelines placed in the work, as shown, specified and directed. Depth of cut for sanitary sewers shall be measured from the original ground surface to the pipe invert. Pipelines will be measured along the centerline of the pipe.

The measured length of gravity sanitary sewers, regardless of pipe material, will include all fittings, short tunnels and manholes with no deductions for wyes, tees and the width of manholes. Deductions in the measured length of gravity sanitary sewers will be made for the width of structures, such as junction boxes, measured from the outside face to the outside face of the structure walls, plus one foot.

The measured length for sanitary force mains will include all fittings and short tunnels with deductions for the laid length of valves.

Payment for Sewer Pipe will be made at the appropriate Contract Item Unit Price per linear foot of the respective pipe.

CONTRACT ITEM 1005 SERIES - DIRECTIONAL DRILLED PIPE

The Contractor shall furnish all materials and equipment, construct, test, and maintain complete all directional drilled pipe as shown on the Plans, specified, and directed by the Engineer.

The work includes all related work and appurtenances required to construct new directional drilled HDPE force mains as shown on the Plans or directed by the Engineer, including removal of all sidewalks, driveways, curbs, curb and gutter, and permanent pavement, excavation, short tunnels, backfill, sheeting, shoring, bracing, dewatering, pipe bedding, pipe, short sections of open cut HDPE that may be required including all restoration, restrained joints, making all pipe connections, standard pipe cradles and encasements shown on the Plans, installation and removal of plugs and bulkheads, testing, special, temporary and permanent pavement replacement, all curb, gutter and all other surface restoration, permanent sidewalk and driveway replacement, protection, repair and replacement of utilities and house services, maintenance of traffic, including maintaining access across driveways along the line of the work, protection, trimming and replacement of trees and shrubs, lawn restoration and replacement with sod, protection, repair and replacement of culverts and other stormwater facilities, reconstruction or regrading of road shoulders and ditches, disposal of surplus excavated material, protection of existing structures, making joints between pipes, and all other work incidental to the installation of the force main system complete in place.

The work does not include HDPE to PVC or Ductile Iron fittings, rock excavation, additional earth excavation or additional selected fill materials, and when shown on the Plans or ordered, such work will be paid for under other appropriate Contract Items.

The quantity of directional drilled pipe, in linear feet, to be measured for payment shall be the actual length of new pipelines placed in the work, as shown, specified, and directed. Pipelines will be measured along the centerline of the pipe.

Payment for Directional Drilled Pipe will be made at the appropriate Contract Item Unit Price per linear foot of the respective pipe.

CONTRACT ITEM 1063 SERIES – INSTALL TEE OR WYE OR HOT TAP ON EXISTING PIPE

The Contractor shall furnish all labor, equipment and materials to install a tee or wye or "hot tap" on existing

pipe as shown on the Plans, specified and directed by the Engineer.

The work includes excavating and maintaining the trench; dewatering; sheeting, shoring and bracing the trench; removal of pavement, sidewalks, curb, curb and gutter; making at least (2) complete cuts of the pipe; removing the pipe and/or appurtenances; installing the PVC or DIP tee or wye, any necessary spool pieces and the cutting-in-sleeve; or as an alternate a "hot tap"; protection and repair of utilities and adjacent structures; backfilling; compaction; site clean-up and all appurtenant work.

Note: the price of the cutting-in-sleeve is included in the complete price of "Install Tee or Wye on Existing Pipe" and will not be paid separately.

The quantity measured for payment will be the actual number of tees or wyes or hot taps installed on an existing pipe.

Payment for Install Tee or Wye or Hot Tap on Existing Pipe will be made at the appropriate Contract Item Unit Price per tee or wye or hot tap installed.

CONTRACT ITEM 1700 SERIES - SOLID WALL PVC PIPE HOUSE LATERAL

The Contractor shall furnish all labor, materials and equipment, construct, test and maintain house laterals.

The work includes all related work and appurtenances required to locate existing house connections and make the connections to the proposed lines, excavation, short tunnels, backfill, sheeting, shoring, bracing, dewatering, removal of sidewalks, driveways, curbs, curb and gutter and permanent pavement, pipe bedding, pipe, pipe fittings used for change in line or grade where directed by the Engineer, plug and treated wooden stake at end of house lateral, disposal of surplus excavated material, protection, repair and replacement of utilities, house services, trees and shrubs and other storm sewerage facilities, special temporary pavement, restoration and regrading of road shoulders and ditches and all other work incidental to the installation of pipe house laterals complete in place as shown on the Plans, specified, and directed by the Engineer.

The length of House Lateral to be measured for payment will be the actual length of house lateral placed between payment lines and shown on the Detail Sheets.

Payment for House Lateral will be made at the Contract Item Unit Price per linear foot of house lateral.

CONTRACT ITEM 2400 SERIES - PVC PIPE BENDS, SLEEVES, REDUCERS, CAPS OR PLUGS

The Contractor shall furnish all labor, materials and equipment, construct, test and maintain pipe bends, sleeves, reducers, caps or plugs as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, backfill, sheeting, shoring, bracing, dewatering, removal of sidewalks, driveways, curbs, curb and gutter, and permanent pavement, pipe bends, couplings, disposal of surplus excavated material, protection, repair of utilities, house services, trees and shrubs and culverts and other storm sewerage facilities, and all other work incidental to the installation of pipe bends, sleeves, reducers, caps or plugs complete in place as shown on the Plans, specified, and directed by the Engineer.

The number of pipe bends, sleeves, reducers, caps or plugs to be measured for payment will be the actual number of respective pipe bends, sleeves, reducers, caps or plugs placed in the work.

Payment for pipe bends, sleeves, reducers, caps or plugs will be made at the appropriate Contract Item Unit Price per bend, sleeve, reducer, caps or plugs installed.

CONTRACT ITEM 2700 SERIES - SOLID WALL (SDR-35) PVC PIPE WYE

The Contractor shall furnish all materials and equipment, construct, test and maintain pipe wyes.

The work includes all excavation, backfill, sheeting, shoring, bracing, dewatering, removal of sidewalks, driveways, curbs, curb and gutter and permanent pavement, pipe bedding, pipe wye and adjacent pipe bend, disposal of surplus excavated material, protection, repair and replacement of utilities, house services, trees and shrubs, and culverts and other storm sewerage facilities, and all other work incidental to the installation of pipe wyes complete in place as shown on the Plans, specified, and directed by the Engineer.

The number of Pipe Wyes to be measured for payment will be the actual number of pipe wyes installed in the work.

Payment for Pipe Wyes shall comprise the additional cost of each wye over the cost of straight sewer pipe of equivalent length and diameter and will be made at the Contract Item Unit Price per wye.

CONTRACT ITEM 2800 SERIES – C900 PVC OR DUCTILE IRON PIPE TEE OR WYE

The Contractor shall furnish all materials and equipment, construct, test and maintain C900 PVC or Ductile Iron pipe tees or wyes as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, backfill, sheeting, shoring, bracing, dewatering, removal of sidewalks, driveways, curbs, curb and gutter, and permanent pavement, C900 PVC or Ductile Iron pipe tee or wye, couplings, disposal of surplus excavated material, protection, repair of utilities, house services, trees and shrubs and culverts and other storm sewerage facilities, and all other work incidental to the installation of tees or wyes complete in place as shown on the Plans, specified, and directed by the Engineer.

The number of C900 PVC or Ductile Iron Pipe Tees or Wyes to be measured for payment will be the actual number of respective pipe tees or wyes placed in the work.

Payment for C900 PVC or Ductile Iron Pipe Tees or Wyes will be made at the appropriate Contract Item Unit Price per tee or wye installed.

CONTRACT ITEM 3300 - THRUST RESTRAINT

The Contractor shall provide all labor, equipment, and materials to completely furnish and install thrust restraint as shown on the Plans, specified, and directed by the Engineer.

The installation of the thrust restraint shall include, but not be limited to, excavating and maintaining the trench; dewatering and bracing and sheeting where required or as directed by the Engineer; furnishing and installing approved push-on joint restraining devices, wedge action restraint fittings or flange joint restraints, approved manufactured restrained joints, backfilling and compacting the trench, and all incidentals necessary to complete the work complete and in place.

Payment for installation of manufactured restrained joints shall be for each bell and spigot joint assembled. No additional payment will be made for manufactured restrained joint pipe.

Concrete thrust restraints shall not be accepted.

Payment shall be made under the appropriate Contract Item Unit Price per thrust restraint installed.

CONTRACT ITEM 3500 SERIES - FLEXIBLE COUPLINGS

The Contractor shall furnish all materials and equipment, construct, test and maintain flexible couplings. Each flexible coupling shall include an appropriate stainless steel shear ring.

The work includes all excavation, backfill, sheeting, shoring, bracing, dewatering, removal of sidewalks, driveways, curbs, curb and gutter, and permanent pavement, flexible couplings, disposal of surplus excavated material, protection, repair of utilities, house services, trees and shrubs, culverts and other storm sewerage facilities, and all other work incidental to the installation of flexible couplings complete in place as shown on the Plans, specified, and directed by the Engineer.

The number of Flexible Couplings to be measured for payment will be the actual number of respective flexible couplings installed in the work.

Payment for Flexible Couplings will comprise the additional cost of each coupling over the cost of straight sewer pipe of equivalent length and diameter and will be made at the Contract Item Unit Price per flexible coupling.

CONTRACT ITEM 4000 SERIES - PRECAST CONCRETE MANHOLE STANDARD OR DOGHOUSE BASE

The Contractor shall furnish all materials and equipment, test, install, and maintain the manhole bases as shown on the Plans, specified, and directed by the Engineer.

The work includes all testing, excavation, backfilling, limestone screenings, bedding, sheeting, shoring, bracing, dewatering, removal of pavement, sidewalks, curb, curb and gutter, concrete work and reinforcing, making all pipe connections, setting pipe stubs and plugs for future connections, nonpermanent and special temporary pavement replacement, disposal of surplus excavated material, and protection of adjacent facilities.

Not included in the work are shallow type manhole bases, sheeting left in place, additional earth excavation or additional select fill material which, if ordered or specified, will be included for payment under other Contract Items.

The number of Precast Concrete Manhole Standard or Doghouse Bases to be measured for payment will be the actual number of bases installed in the work.

Payment for Precast Concrete Manhole Standard or Doghouse Bases will be made at the Contract Item Unit Price per base.

CONTRACT ITEM 4100 SERIES - PRECAST CONCRETE MANHOLE BARREL

The Contractor shall furnish all materials and equipment, test, install and maintain the manhole barrels as shown on the Plans, specified, and directed by the Engineer.

The work includes all testing, concrete work, all pipe connections and setting pipe stubs and plugs for future connections as required.

The length of Precast Concrete Manhole Barrel to be measured for payment will be the actual length of manhole barrel installed in the work between payment lines as shown on the Plans.

Payment of Precast Concrete Manhole Barrel will be made at the appropriate Contract Item Unit Price per linear foot of barrel.

CONTRACT ITEM 4200 SERIES - PRECAST CONCRETE MANHOLE CONE

The Contractor shall furnish all materials and equipment, test, install and maintain the manhole cones as shown on the Plans, specified, and directed by the Engineer.

Not included in the work are cast iron manhole frames and covers, sheeting left in place, additional earth excavation, or additional selected fill material which, if ordered or specified, will be included for payment under other Contract Items.

The number of Precast Concrete Manhole Cones to be measured for payment will be the actual number of such cones installed in the work.

Payment for Precast Concrete Manhole Cones will be made at the Contract Item Unit Price for appropriate Contract Item.

CONTRACT ITEM 4300 - PRECAST CONCRETE STANDARD OR DOGHOUSE SHALLOW TYPE MANHOLE

The Contractor shall furnish all materials and equipment, test, install and maintain the shallow type manholes complete as shown on the Plans, specified, and directed by the Engineer.

The work includes all testing, excavation, backfilling, limestone screenings, bedding, sheeting, shoring, bracing, dewatering, removal of pavement, sidewalks, curb, curb and gutter, concrete work and reinforcing, making all pipe connections, setting pipe stubs and plugs for future connections, nonpermanent and special temporary pavement replacement, disposal of surplus excavated material and protection of adjacent facilities.

Not included in the work are cast iron manhole frames and covers, sheeting left in place, additional earth excavation, or additional selected fill material which, if ordered or specified, will be included for payment under other Contract Items.

The number of Precast Concrete Standard or Doghouse Shallow Type Manholes to be measured for payment will be the actual number of manholes installed in the work.

Payment for Precast Concrete Standard or Doghouse Shallow Type Manholes will be made at the appropriate Contract Item Unit Price per manhole.

CONTRACT ITEM 4400 – FIBERGLASS REINFORCED POLYESTER MANHOLES

The Contractor shall furnish all materials and equipment, test, install and maintain the FRP manholes complete as shown on the Plans, specified, and directed by the Engineer.

The work includes all testing, excavation, backfilling, limestone screenings, bedding, sheeting, shoring, bracing, dewatering, removal of pavement, sidewalks, curb, curb and gutter, concrete work and reinforcing, making all pipe connections, setting pipe stubs and plugs for future connections, nonpermanent and special temporary pavement replacement, disposal of surplus excavated material and protection of adjacent facilities.

Not included in the work are cast iron manhole frames and covers, sheeting left in place, additional earth excavation, or additional selected fill material which, if ordered or specified, will be included for payment under other Contract Items.

Payment for Fiberglass Reinforced Polyester Manholes will be made at the Contract Item Unit Price per vertical foot of manhole.

CONTRACT ITEM 4600 SERIES - CAST IRON MANHOLE FRAME AND COVER

The work includes all brick masonry, furnishing frames and covers, and setting frames in mortar to the lines and grades shown on the Plans, existing, or furnished by the Engineer.

The quantity of Cast Iron Manhole Frame and Cover units to be measured for payment will be the actual number of such units installed in the work.

Payment for Cast Iron Manhole Frame and Cover units will be made at the Contract Item Unit Price per frame and cover.

CONTRACT ITEM 4660 SERIES - PVC CLEANOUT

The work includes furnishing and installing PVC plugs, PVC pipe and fittings with flexible or rigid coupling connecting to the existing or new pipe, cast iron or HDPE covers, and setting the cleanouts to the lines and grades shown on the Plans, existing, or furnished by the Engineer.

If the cleanout will be located within the grass or landscaped area, the cover shall be HDPE. If the cleanout will be located within a driveway or sidewalk, the cover shall be cast iron. Payment for the cleanout will be made regardless of the type of cover used.

The quantity of Cleanout units to be measured for payment will be the actual number of such units installed in the work.

Payment for Cleanout units will be made at the Contract Item Unit Price per cleanout.

CONTRACT ITEM 4700 SERIES - PIPE MANHOLE DROP CONNECTION

The Contractor shall furnish all materials and equipment, construct, test and maintain all manhole drop connections as shown on the Plans, specified, and directed by the Engineer.

The work includes furnishing and installing PVC pipe fittings, masonry work, Class B concrete encasements and all earth excavation, backfilling, sheeting, shoring, bracing, dewatering, removal of pavement or sidewalks and disposal of surplus excavated material in addition to that required for the construction of manholes.

The length of Pipe Manhole Drop Connection to be measured for payment will be the actual lengths of drop connection placed between payment lines as shown on the Plans.

Payment for Pipe Drop Connection will be made at the Contract Item Unit Price per linear foot of drop connection.

CONTRACT ITEM 4900 SERIES - CONNECTION TO EXISTING MANHOLE

The Contractor shall furnish all labor, equipment and materials required to connect the proposed pipeline into existing manholes as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, dewatering, breaking into the existing manhole, removal and disposal of rubble and excess material, installation of sewer pipe, sealing the voids around the pipe, backfilling, compacting and all other work incidental to connection to existing manhole.

Payment for Connection to Existing Manholes will be made at the appropriate Contract Lump Sum Price or per manhole as designated in the proposal.

CONTRACT ITEM 5000 - REMOVAL OF EXISTING MANHOLES
AND SEWER PIPE OUTSIDE OF PAYMENT LIMITS

The Contractor shall furnish all labor, materials and equipment to remove the existing manholes and sewer pipe outside of payment limits complete as shown on the Plans, specified, and directed by the Engineer.

The work includes excavation, backfilling, dewatering, removal of pavement, sidewalks, curb, curb and gutter, pipe and manholes outside of payment limits, concrete or crushed stone work, nonpermanent and special temporary pavement replacement, disposal of surplus excavated material, protection of adjacent facilities and removal and transportation of manhole frames and covers as specified on the Plans.

The Engineer reserves the right to determine and designate the individual manholes and parts of existing

sewer lines to be removed.

Not included in the work are additional earth excavation and additional select sand fill material which, if ordered or specified, will be included for payment under other Contract Items.

Payment for Removal of Existing Manholes and Sewer Pipe outside of payment limits will be made at the Contract Item Unit Price per linear foot of sewer pipe removed measured along the centerline of the sewer including the distance within each manhole. The unit price per foot of length of pipe under this item includes the cost of placing and compacting with approved materials to completely fill the void created by the removal of the pipe and manholes.

CONTRACT ITEM 5051 - FILLING OF EXISTING SANITARY OR STORM SEWER SYSTEM

The Contractor shall furnish all materials, equipment and labor to fill the existing sewer in accordance with the Workmanship and Materials section headed "Filling of Existing Sanitary or Storm Sewer System" and as directed by the Engineer.

The work includes all fill concrete, fill-pipes, dewatering existing sewer, partial demolition of manholes and appurtenances as required, removal and disposal of manhole frames and covers, additional select fill material required to complete the backfilling, protection of existing utilities, structures and trees, repair and replacement of utilities, structures and trees damaged by the Contractor, complete restoration of surface at manhole and fill-pipe locations and at other locations damaged by the Contractor, including pavement base and surface, sidewalk, driveway, curb and gutter and lawn replacement, and all other work related to the complete filling of the sewer, manholes and structures.

Payment for Filling of Sewer will be made at the Contract Item Unit Price per cubic yard of sewer filled.

CONTRACT ITEM 7000 SERIES - PLUG VALVES

The Contractor shall furnish all labor, materials and equipment required to install, test and maintain the force main plug valves and valve boxes complete as shown on the Plans, specified, and directed by the Engineer.

The work includes all removal of permanent pavement, excavation, backfill, sheeting, shoring, bracing, dewatering, pipe bedding, testing, temporary pavement, maintenance of traffic, disposal of excess excavated material and all work incidental to the installation of the plug valves and valve boxes.

The work does not include rock excavation, surface restoration comprising lawn or permanent pavement replacement, additional earth excavation and additional selected fill material. When shown on the Plans, such work will be paid for under other appropriate Contract items.

Payment for the valves and valve boxes will be made at the appropriate Contract Item Unit Price.

CONTRACT ITEM 7500 - AIR RELEASE SYSTEM

The Contractor shall furnish all labor, materials and equipment required to install, test and maintain the air release system complete with valve boxes as shown on the Plans, specified, and directed by the Engineer.

The work includes all removal of sidewalks, driveways, curbs, gutters, permanent pavement, excavation, backfilling, sheeting, shoring, bracing, dewatering, pipe bedding, pipe, fittings, valve, corporation stop, connection to force main, valve box, support bracket, top slab, nonpermanent and special temporary pavement replacement, maintenance of traffic, disposal of excess excavated material and all work incidental to the installation of the air release system.

Not included in the work are additional earth excavation or additional selected fill material which, if ordered or specified, will be included for payment under other Contract Items.

Payment for Air Release Systems will be made at the Contract Item Unit Price per air release system installed.

CONTRACT ITEM 8000 SERIES - PERMANENT
PAVEMENT BASE REPLACEMENT

The Contractor shall furnish all materials, equipment and labor to replace and maintain all permanent pavement base removed or damaged by pipeline construction, including sand sealing the permanent pavement base, and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Permanent pavement base replacement shall conform to the requirements of the Workmanship and Materials section headed "Restoration of Street Pavements."

The quantity of Permanent Pavement Base, in cubic yards, to be measured for payment will be the actual compacted volume of pavement base material within payment limits for surface restoration shown on the Plans, or specified and ordered by the Engineer.

Payment limits for permanent pavement base replacement along pipelines shall include removal and replacement of permanent pavement base from curb to curb or edge of pavement to edge of pavement, along the pipeline route. All permanent pavement base removed or damaged and requiring replacement outside payment limits will not be measured for payment and shall be replaced by the Contractor at his own expense.

Where the existing pavement is nonpermanent type consisting of shell, gravel, limerock, crushed stone, or other similar material, or is specified to be temporary, no payment will be allowed for replacement of pavement base. Replacement of material for such nonpermanent or temporary pavement will be included in the various classified unit price Contract Items for pipelines and no separate payment will be made therefor.

Payment for Permanent Pavement Base Replacement will be made at the Contract Item Unit Price per cubic yard of pavement base replaced.

CONTRACT ITEM 8100 SERIES - PERMANENT PAVEMENT
SURFACE REPLACEMENT

The Contractor shall furnish all labor, equipment and materials to replace and maintain all permanent pavement surface removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Permanent pavement surface replacement shall conform to the requirements of the Workmanship and Materials section headed "Restoration of Street Pavements."

Where Superpave is specified, The Contractor shall provide all material design and testing. No additional payment shall be made.

The quantity of Permanent Pavement Surface Replacement to be measured for payment will be the actual area of permanent pavement surface placed in the work within payment limits for surface restoration shown on the Plans, or as specified and ordered by the Engineer.

Payment limits for permanent pavement surface replacement along pipelines shall include removal and replacement of permanent pavement surface from curb to curb or edge of pavement to edge of pavement, along the pipeline route. All permanent pavement surface removed or damaged and requiring replacement outside payment limits will not be measured for payment and shall be replaced by the Contractor at his own expense.

Where the existing pavement surface is nonpermanent type consisting of shell, gravel, limerock, crushed stone or other similar materials, or is specified to be a special temporary pavement surface, no payment will be allowed for replacement of permanent pavement surface. Replacement of surface for such nonpermanent or special temporary

pavement will be included in the various classified unit price Contract Items for pipelines and no separate payment will be made therefor.

Payment for Permanent Pavement Surface Replacement will be made at the Contract Item Unit Price per ton of pavement surface replaced.

CONTRACT ITEM 8300 SERIES - PERMANENT DRIVEWAY REPLACEMENT

The Contractor shall furnish all labor, equipment and materials to replace and maintain all permanent pavement in driveways removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Permanent pavement driveway surface replacement shall conform to the requirements of the Workmanship and Materials section headed "Restoration of Street Pavements."

The work includes all excavation, filling, shaping, grading, base material, paved surfaces, lawn replacement incidental to driveway replacement, curbing and other appurtenant work complete in place.

The quantity of Permanent Driveway Replacement to be measured for payment will be the actual area of permanent driveway surface placed in the work within payment limits for surface restoration shown on the Plans.

Payment limits for Permanent Driveway Replacement along pipelines shall include removal and replacement of driveway surface incidental to construction of manholes and structures. All driveway surface removed or damaged and requiring replacement outside payment limits will not be measured for payment and shall be replaced by the Contractor at his own expense.

Where existing driveway surface is a nonpermanent type consisting of shell, gravel, limerock, crushed stone, or other similar materials, no payment will be allowed for replacement of permanent driveway pavement surface. Replacement of surface for such nonpermanent driveway surfaces will be included in the various classified unit price Contract Items for pipelines, and no separate payment shall be made therefor.

Payment for Permanent Driveway Replacement will be made at the Contract Item Unit Price per square yard of driveway replaced.

CONTRACT ITEM 8604 - PERMANENT SIDEWALK REPLACEMENT

The Contractor shall furnish all labor, equipment and materials to replace and maintain all permanent sidewalks removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Permanent sidewalk replacement shall conform to the requirements of the Workmanship and Materials section headed "Restoration of Street Pavements."

The work includes all excavation, filling, shaping, grading, reinforcement if specified, temporary limestone surface, base material, paved surface, and other appurtenant work complete in place. Also included as sidewalk replacement is the concrete pads surrounding cast iron cleanout ring and cover when shown on the Plans, or directed by the Engineer.

The quantity of Permanent Sidewalk Replacement to be measured for payment will be the actual area of permanent sidewalk surface placed in the work within payment limits and ordered by the Engineer.

Payment limits for permanent sidewalk replacement along pipelines shall include removal and replacement of sidewalk surface incidental to construction of manholes and structures. All sidewalk surface removed or damaged outside payment limits will not be measured for payment and shall be replaced by the Contractor at his own expense.

Where the existing sidewalk surface is a nonpermanent type consisting of shell, gravel, limerock, crushed stone or other similar material, no payment will be allowed for replacement of permanent sidewalk surface. Replacement of surface for such nonpermanent sidewalk surfaces will be included in the various classified unit price Contract Items for pipelines, and no separate payment shall be made therefor.

Payment for Permanent Sidewalk Replacement will be made at the Contract Item Unit Price per square yard of sidewalk replaced.

CONTRACT ITEM 8900 SERIES - LAWN REPLACEMENT

The Contractor shall furnish all labor, materials, equipment and services to replace and maintain all lawn areas removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Lawn replacement by grassing with seeding (8901), Argentine Bahia sodding (8902), St. Augustine sodding (8903), and/or Bermuda sodding (8904) shall conform to the requirements of the Workmanship and Materials section headed "Lawn Replacement."

Lawn replacement along pipelines, sidewalks, curb and gutters, edge of pavements, house laterals, and around manholes and structures will be included for payment under this Contract Item.

The quantity of lawn area, in square yards, to be measured for payment will be the actual area of seeded or Bahia/St. Augustine/Bermuda sodded areas, within the payment limits for surface restoration shown on the Plans.

Payment limits for lawn replacement along pipelines shall include removal and replacement of lawn area incidental to construction of manholes and structures. All lawn area removed or damaged and requiring replacement outside payment limits will not be measured for payment; however, the type of replacement shall be determined as specified above, and shall be replaced by the Contractor at his own expense.

Payment for Lawn Replacement will be made at the appropriate Contract Item Unit Prices per square yard of lawn replacement.

CONTRACT ITEM 9000 – FORCE MAIN SEWAGE BYPASS PIPING

The Contractor shall furnish all materials, labor, equipment and services to bypass pipe sewage during modifications to existing force mains and appurtenances.

The proposed method and facilities for bypass piping shall be subject to the prior approval of the Engineer.

The work includes all incidental excavation, selected fill material, plugs, bulkheads, labor, maintenance and repair of equipment, discharge piping, timber, sheeting, shoring, bracing, fittings, valves, other necessary facilities to divert sewage in force mains around a construction area, and removal of all sewage piping facilities, all complete and in place.

Payment for Sewage Pumping will be made at the appropriate Contract Lineal Foot Price.

CONTRACT ITEM 9100 SERIES – LINE STOP

The Contractor shall furnish all labor, equipment and materials required to connect the Line stop into existing force mains as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, dewatering, installation of the line stop system, removal and disposal of rubble and excess material, sealing the voids around the

pipe, backfilling, compacting and all other work incidental to installation of line stop.

Payment for Line Stop will be made at the appropriate Contract Item Unit Price per Line Stop installed.

CONTRACT ITEM 9200 - ROOT PRUNING

The Contractor shall furnish all labor, materials, equipment and services to prune the tree roots as shown on the Plans, specified, and directed by the Engineer.

Root pruning shall conform to the requirements of the Workmanship and Materials section headed "Root Pruning."

Root pruning along pipelines and house laterals, and around manholes, structures and appurtenances will be included for payment under this contract item.

The quantity of root pruning, in linear feet, to be measured for payment will be the actual length of root pruning performed as directed by the Engineer.

The work includes all cutting, excavation, removal, hauling and disposal of roots; filling, grading, mulching, barricading and other appurtenant work complete in place.

Payment for Root Pruning will be made at the appropriate Contract Item Unit Price per linear foot of roots pruned.

CONTRACT ITEM 9300 - SAW-CUT PERMANENT PAVEMENT SURFACE

The Contractor shall furnish all labor, equipment and materials to saw-cut permanent pavement surface as shown on the Plans, specified, and directed by the Engineer. The term "Pavement" shall include concrete and/or asphalt pavement, driveways and sidewalks.

Saw-Cut Pavement Surface shall conform to the requirements of the Workmanship and Materials section headed "Restoration of Street Pavements."

The quantity of Saw-Cut Permanent Pavement Surface to be measured for payment will be the actual length of permanent pavement surface saw-cut as shown on the Plans, or as specified and ordered by the Engineer.

Payment for Saw-Cut Permanent Pavement Surface will be made at the appropriate Contract Item Unit Price per linear foot of permanent pavement surface saw-cut.

CONTRACT ITEM 9400 SERIES – MILL EXISTING ASPHALT PAVEMENT

The Contractor shall furnish all labor, equipment and materials to mill existing asphalt pavement as shown on the Plans, specified, and directed by the Engineer.

The workmanship and method shall be as described in the latest FDOT Standard Specifications for Road and Bridge Construction book, Section 327, Milling of Existing Asphalt Pavements.

The quantity of mill Existing Asphalt Pavement to be measured for payment will be the actual area of asphalt pavement milled, shown in the Plans or as specified and ordered by the Engineer.

Payment for Mill Existing Asphalt Pavement will be made at the Contract Item Unit Price per inch per square yard of asphalt pavement milled.

CONTRACT ITEM 10000 SERIES - CONNECTION BETWEEN PVC AND HDPE PIPE

The Contractor shall furnish all labor, equipment and materials required to connect the PVC pipe force main to the HDPE pipe force main as shown on the Plans, specified, and directed by the Engineer.

The work includes all excavation, dewatering, removal and disposal of rubble and excess material, furnishing and installation of fittings, backfilling, compacting and all other work incidental to connection between PVC pipe and HDPE pipe.

Payment for Connection between PVC and HDPE Pipe will be made at the appropriate Contract Item Unit Price per connection.

CONTRACT ITEM 20000 – AS-BUILT PLANS

The Contractor shall furnish all equipment, labor, and materials necessary to prepare As-Built plans to show the precise horizontal and vertical location and various components of his work.

Work under this section shall be provided by a Land Surveyor registered in the State of Florida. Refer to "SP-129 As-Built Plans".

Measurement for payment shall be per each combined Plan and Profile Sheet as provided in the individual work order package. Should the plan set have individual plan sheets and individual profile sheets, they shall be counted as one combined plan and profile sheet. In the event schematic or detail drawings are necessary to show the arrangement of constructed items, they should be included on the appropriate sheet (in a location to not interfere with other data and in an easily read scale) and no additional payment shall be made.

Payment for As-Built Plan will be made at the appropriate Contract Item Unit Price per sheet of As-Built Plan submitted.

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