This addendum for the referenced project comes, in part, from uncontrolled sources and may not conform to WCAG 2.1 at level AA. Individuals with disabilities seeking assistance with the individual project plans or specifications should e-mail Contractadministration@tampagov.net .

ADDENDUM 2
DATE: January 29. 2026

Contract: 25-C-00041; FY25 Annual Stormwater Projects (Clark, Annona and Woodmere)

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.

Item 1 – The Bid Opening date is hereby changed to February 17, 2026.

Item 2 – Replace the Contract Item Section C with the attached Section C.

Item 3 – Replace the Specific Provisions Section SP with the attached Section SP.

Item 4 – Add the attached Supplemental detail for Clark/Fairoaks.

Item 5 – Add the attached Roadway construction drawings, part of the Lois/Woodmere project.

Item 6 – Add the attached Watermain replacement plans for the Lois/Woodmere project work to be performed by the Tampa Water Department and is provided for informational purposes only.

Item 7 – Add the attached W&M sections for Stormwater work.

Item 8 – Replace the Proposal Pages P-2 & P-3 with P-2R, P-3R & P-3RR.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect. Questions are to be e-mailed to ContractAdministration@tampagov.net.

Jim Greiner, P.E., Contract Management Supervisor

Contract 25-C-00041 FY25 - Stormwater Improvement Projects (Clark, Annona Woodmere)

Date: 1/20/2026 14:29

Item Number	Description	Unit	Quantity Total Bid	Unit Price in Words	Unit Price	Total
	Schedule A - Stormwater Projects (Clark, Annona and Lois Ave. 2A)					
100	CONTINGENCY	NTE	$165,000.00		$165,000.00	$165,000.00
101	MOBILIZATION	LS	1			
102	MAINTENANCE OF TRAFFIC	LS	1			
104	NPDES PERMITTING, SEDIMENTATION & EROSION CONTROL	LS	1			
105.10	TREE ROOT PRUNING	LS	1			
105.50	TREE BARRICADES	LS	1			
110	Demolition and Disposal - all roadway base and asphalt	LS	1			
120	REMOVAL OF UNSUITABLE MATERIAL & REPLACEMENT OF SUITABLE SOIL	CY	500			
160	TYPE B STABILIZATION, 12" thick 75 psi/FBV	SY	1,086			
285	OPTIONAL BASE, GROUP 04 (8" CRUSHED CONCRETE)	SY	1,086			
285.10	OPTIONAL BASE, GROUP 11 (12" CRUSHED CONCRETE)	SY	428			
327	1.5" MECHANICAL MILLING	SY	2,029			
327.10	2" MECHANICAL MILLING	SY	1,186			
334	SUPERPAVE ASPHALTIC CONCRETE, SP 9.5 (2")	TN	205			
334.10	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (1.5")	TN	167			
334.20	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (2.5")	TN	59			
425.10	DEMOLISH/REMOVE EXISTING SIDEWALK AND DRIVEWAY	SY	259			
425.132	TYPE J MANHOLE STRUCTURE (5' DIA) STORMWATER	EA	5			
425.133	TYPE J MANHOLE STRUCTURE (6' DIA) STORMWATER	EA	1			
425.1300	INLET, COT GRATE TYPE E, <10'	EA	5			
425.131	INLET, COT CURB TYPE 1, <10'	EA	2			
425.14	INLET, COT CURB TYPE 2, <10'	EA	6			
425.131	INLET, COT GRATE TYPE T, <10'	EA	3			
425.17	INLET, COT CURB TYPE BR-1, <10'	EA	2			
430.161	STORMWATER HEADWALLS, DITCH GRADING & RIPRAP (Clark & Fairoaks)	EA	2			
430.10	15" ROUND STORMWATER PIPE (RCP)	LF	12			
430.20	18" ROUND STORMWATER PIPE (RCP)	LF	616			
430.300	24" ROUND STORMWATER PIPE (HDPP)	LF	120			
430.31	24" ROUND STORMWATER PIPE (RCP)	LF	24			
430.34	24" ROUND STORMWATER PIPE (RCP) (CLASS IV)	LF	44			
430.301	30" ROUND STORMWATER PIPE (RCP)	LF	384			
430.70	12"X18" ELLIPTICAL STORMWATER PIPE, (ERCP) CLASS IV	LF	176			
430.80	14"X23" ELLIPTICAL STORMWATER PIPE, (ERCP) CLASS IV	LF	72			
430.90	19"X30" ELLIPTICAL STORMWATER PIPE, (ERCP)	LF	139			
430.91	CONNECT STORMWATER PIPE TO EXISTING STRUCTURE (30-60") >10'	EA	1			
515.062	PEDESTRIAN/BICYCLE RAILING (ALUMINUM) - (Clark & Fairoaks)	LF	85			
520.20	CONCRETE CURB & GUTTER, TYPE F	LF	90			
522.10	SIDEWALK CONCRETE, 4" THICK (SIDEWALKS)	SY	93			

Contract 25-C-00041 FY25 - Stormwater Improvement Projects (Clark, Annona Woodmere)

522.20	SIDEWALK CONCRETE, 6" THICK (DRIVEWAYS)	SY	233			
523	Concrete shock pad (waterline protection per plans)	SY	3			
527	ADA COMPLIANT RAMPS (Concrete Included)	EA	6			
2200	F&I 2" HDPE TUBING BY HDD W/HDPE ADAPTERS AND HDPE FITTINGS AT VARIOUS DEPTHS	EA	1			
8100	FURNISH, TAP, & INSTALL 3/4" OR 1" METER SERVICE (0-15', HDPE)	EA	10			
8101	FURNISH, TAP, & INSTALL 3/4" METER SERVICE (+15-80', HDPE)	EA	10			
900.00	6" DIA. PVC SANITARY LATERAL GRAVITY PIPE (C-900-DR-18) WITH FERNCO ADAPTORS (ALL INCLUSIVE)	EA	10			
900.10	8" DIA. PVC SANITARY GRAVITY PIPE (C-900-DR-18) WITH FERNCO ADAPTORS (ALL INCLUSIVE)	EA	1			
1706	6-INCH DIAMETER PVC PIPE HOUSE LATERAL (SDR-35) (<30') REPLACEMENT	EA	1			
4900.10	CONNECT TO EXISTING MANHOLE	EA	1			
4900.20	REMOVE AND RAISE EXISTING MANHOLE TOPS	EA	2			
8901	RESOD DISTURBED AREAS (ROW) Bahai or St. Augustine	SF	1980			

Schedule A - Stormwater $

Contract Item #	**Schedule B - Lois Ave. Transportation Project - 2B**					
B-0100	CONTINGENCY	NTE	$60,000.00			
B-0101	MOBILIZATION	LS	$20,000.00			
B-0102	MAINTENANCE OF TRAFFIC	LS	$20,000.00			
B-0110.11	CLEARING & GRUBBING	AC	0.36			
B-0120.1	REMOVAL OF UNSUITABLE MATERIAL & REPLACEMENT OF SUITABLE SOIL	CY	35			
B-0120.61	EMBANKMENT	CY	103			
B-0160	TYPE B STABILIZATION, 12" thick 75 psi/FBV	SY	128			
B-0285.06	OPTIONAL BASE, GROUP 06	SY	108			
B-0327	1.5" MECHANICAL MILLING	SY	741			
B-0327.2	MILLING EXISTING ASPHALT PAVEMENT, 3" AVG DEPTH	SY	339			
B-0334.4	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (VARIABLE DEPTH)	TN	147			
B-0425.1	DEMOLISH/REMOVE EXISTING SIDEWALK AND DRIVEWAY	SY	52			
B-0520.1	CONCRETE CURB & GUTTER, DROP CURB	LF	69			
B-0520.3	CONCRETE CURB, TYPE D	LF	311			
B-0522.2	SIDEWALK CONCRETE, 6" THICK (DRIVEWAYS)	SY	100			
B-0527	ADA COMPLIANT RAMPS (Concrete Included)	EA	2			
B-0630.212	CONDUIT, FURNISH AND INSTALL, DIRECTIONAL BORE	LF	84			
B-0635.211	PULL AND SPLICE BOX, FURNISH AND INSTALL, 13X24 COVER SIZE	EA	2			
B-0646.111	ALUMINUM SIGNALS POLE, PEDESTAL	EA	2			
B-0646.16	ALUMINUM SIGNALS POLE, REMOVE	EA	1			
B-0653.111	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	2			
B-0653.16	PEDESTRIAN SIGNAL, REMOVE PED SIGNAL- POLE/PEDESTAL TO REMAIN	AS	1			
B-0660.2101	LOOP ASSEMBLY- F&I, TYPE A	AS	4			
B-0665.111	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	2			
B-0700.1111	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA	2			

Contract 25-C-00041 FY25 - Stormwater Improvement Projects (Clark, Annona Woodmere)

B-0700.16	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	9			
B-0700.3101	SINGLE POST SIGN, REMOVE	AS	7			
B-0706.13	RETRO-REFLECTIVE PAVEMENT MARKERS YELLOW/YELLOW	EA	16			
B-0710.11123	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	LF	207			
B-0710.11125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE OR CROSSWALK, 24"	LF	172			
B-0710.11201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	LF	256			
B-0711.11123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF	207			
B-0711.11125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	LF	46			
B-0711.14125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF	127			
B-0711.16201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	LF	256			
B-4900.2	REMOVE AND RAISE EXISTING MANHOLE TOPS	EA	5			
B-4900.3	VALVE BOXES, ADJUST	EA	1			
B-8901	RESOD DISTURBED AREAS (ROW) Bahai or St. Augustine	SF	2205			
					Schedule B - Transportation $	
					TOTAL for Contract	

CONTRACT PAY ITEMS

C1.00 - Contingency

The Contractor shall include a $225,000 contingency sum (Project 1 – Clark and Fairoaks $25,000, Project 2A/2B – Woodmere and Lois $160,000 and Project 3 - Annona and 17th Street $40,000 and), 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.

Contingency funds shall be disbursed for work considered out-of-scope at the determined by the Engineer. No contingency funds shall be disbursed if there are no contingent items.

Item No.	Description	Unit
100	CONTINGENCY – Stormwater	NTE
B-0100	CONTINGENCY – Transportation	NTE

C1.01 - 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; 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.

Payment for Mobilization will be made at a (LS) lump sum price. The total cost for Mobilization will include all three projects but will be billed per project.

Item No.	Description	Unit
101	MOBILIZATION -Stormwater	LS
B-0101	MOBILIZATION - Transportation	LS

C1.02– Maintenance of Traffic

The Contractor shall furnish all materials, equipment, and labor to establish and maintain all traffic maintenance devices and personnel as shown on the Plans, specified, and directed by the Engineer.

The work includes installation of all signs, video and photographic preconstruction pictures, structural testing, barricades, lights and flagmen, additional earth excavation, selected fill, temporary wearing surface, temporary bridges, temporary ADA paths, roadway closures and requirements, as-built survey and all appurtenant work complete in place as necessary to control traffic and provide for safety to the public, all in compliance with the Manual on Uniform Traffic Control Devices, "MUTCD," with subsequent revisions and additions, and to the satisfaction of the Engineer. MOT direction shall conform to project Plans and Specific Provisions. The Contractor shall provide metal walkways for pedestrian access from on-street parking to residential homes during street closures.

The Contractor will be required to have a licensed Professional Engineer sign and seal a Maintenance of Traffic Plan to be submitted to the City's Right-of-Way Department for permit.

Payment for Maintenance of Traffic will be made at a (LS) lump sum price. The total cost for Maintenance of Traffic will include all three projects but will be billed per project.

Item No.	Description	Unit
102	MAINTENANCE OF TRAFFIC - Stormwater	LS
B-0102	MAINTENANCE OF TRAFFIC - Transportation	LS

C1.04 - NPDES PERMITTING, SEDIMENTATION AND EROSION CONTROL

The Contractor shall furnish all materials, equipment, and labor to establish and maintain all sediment and erosion control BMPs for all projects as required by permitting authorities, shown on the Plans, specified, and/or directed by the Engineer. Additionally, the contractor shall obtain coverage under the NPDES program for construction projects, as is applicable.

Work in this Contract Item includes, but is not limited to, synthetic bales, hay bales, staked silt fence, floating turbidity barriers, drainage inlet protection, and all other BMPs required to sedimentation from leaving the project limits or entering drainage systems as specified on the Plans or directed by the Engineer. The sediment barriers shall conform to the latest version of the FDOT Standard Specifications – Workmanship and Materials Section 104 – Prevention, Control, and Abatement of Erosion and Water Pollution.

Payment for Erosion Control will be made at a Lump Sum (LS) Price.

Item No.	Description	Unit
104	EROSION CONTROL	LS

C1.05 –TREE ROOT PRUNING AND PROTECTION

The Contractor shall furnish and install all labor, materials, services, permitting, public noticing, equipment and appurtenances to root prune and protect trees as shown in the Contract Drawings for root pruning and tree protection.

The Contractor shall furnish and install all labor, materials, services, permitting, public noticing, equipment and appurtenances to prune trees and tree roots of both grand trees and non-grand trees within the limits of construction as shown in the Contract Drawings and properly dispose of material off site.

The work includes, but is not limited to, the following: removal of brush, pruning of trees and brush, prune the roots of trees and the removal of any undesirable material within the limits of construction as shown in the Contract Drawings. All pruning of trees and roots must be done under the direction of a City Approved Certified Arborist and in coordination with Planning and Development, Natural Resource Division.

Root pruning shall conform to the requirements of the City of Tampa Workmanship and Materials Section 105 – Root Pruning.

Payment for the Root Pruning will be made at a Lump Sum (LS) Price
Payment for the Tree Barricades will be made at a Lump Sum (LS) Price

Item No.	Description	Unit
105.10	ROOT PRUNING	LS
105.50	TREE BARRICADE	LS

C1.10 CLEARING AND GRUBBING

The Contractor shall furnish all materials, equipment, and labor for clearing and grubbing as shown on the Drawings, required by the improvements, specified, and directed by the Engineer.

Work in this Contract Item include, but are not limited to, removal and disposal of base and asphalt outside of pipe trench, tree and vegetation removal including stumps and roots, fencing, pavement, as required or specified on the Drawings.

The work shall conform to the FDOT Standard Specifications – Workmanship and Materials Section 110- Clearing and Grubbing or City of Tampa W&M – Clearing and Grubbing (Clark, Annona and Woodmere – Stormwater Projects).

Payment for Clearing and Grubbing will be made at the appropriate Contract Acreage Price or LS.

Item No.	Description	Unit
110	Demolition and Disposal – roadway materials outside of pipe trench	LS
B-0110.11	Clearing and Grubbing – Woodmere Transportation Schedule B	AC

C1.20 –EXCAVATION OF UNSUITABLE SOIL & REPLACEMENT WITH SUITABLE SOILS

The Contractor shall furnish all materials, equipment, and labor for excavation shown on the Plans, specified, and directed by the Engineer.

Work in this Contract Item includes the excavation required as shown on the Plans. The work also includes all necessary grading, testing, backfilling, sheeting, shoring, bracing, temporary ramps, construction fencing, dewatering, regrading of excavated soil per grading plans, regrading of impacted ponds, clean fill, over excavation of unsuitable (clayey) materials, disposal of surplus excavated material, replacement with suitable soils and protection of adjacent facilities, sodding and all appurtenant work, complete and in place.

The work shall conform to the City of Tampa Standard Specifications – Workmanship and Materials Section 1 – Excavation – Earth and Rock and Section 108- Dewatering.

The Contractor shall refer to the latest version of FDOT Workmanship and Materials Section 120 – Excavation and Embankment.

Disposal of unsuitable materials shall conform to the requirements of the City Standard Specifications for Workmanship and Materials Section 113 – Disposal of Debris and Section 108- Dewatering.

Payment for removal of unsuitable soils and replacement will be made at the Contract Item Unit Price per Cubic Yard (CY).

Item No.	Description	Unit

120	REMOVAL OF UNSUITABLE MATERIAL & REPLACEMENT OF SUITABLE SOIL	CY
B-0120.1	REMOVAL OF UNSUITABLE MATERIAL & REPLACEMENT OF SUITABLE SOIL	CY

C1.60 – Stabilization

The Contractor shall furnish all materials, equipment, and labor for the required stabilization of subgrade within the trench for installation of the stormwater pipe on the Plans, specified, and directed by the Engineer.

Items included in this Contract Item include, but are not limited to, the material, equipment and labor necessary to stabilize designated portions of the roadbed to provide a firm and unyielding subgrade, having the required bearing value specified as specified on the Plans and shall conform to the latest version of the FDOT Standard Specifications – Workmanship and Materials Section 160 – Stabilization.

Payment for Stabilization will be made at the appropriate Contract Square Yard (SY) Price.

Item No.	Description	Unit
160	STABILIZATION 12” (LBR40)	SY
B-0160	TYPE B STABILIZATION, 12" thick 75 psi/FBV	SY

C2.85 – OPTIONAL BASE

The Contractor shall furnish all materials, equipment, and labor for the required installation of base material shown on the Plans, specified, and directed by the Engineer. The disposal of all base/asphalt outside of the limits of pipe trench for the Stormwater Projects will be included in Contract Item 110 – Demolition and Disposal.

Items included in this Contract Item include, but are not limited to, the material, equipment and labor necessary to construct a base course composed of one of the optional materials as specified on the Plans and shall conform to the latest version of the FDOT Standard Specifications – Workmanship and Materials Section 285 – Optional Base.

Payment for Optional Base will be made at the appropriate Contract Square Yard (SY) Price.

Item No.	Description	Unit
285	OPTIONAL BASE, GROUP 04 (8” CRUSHED CONCRETE)	SY
B-0285.06	OPTIONAL BASE, GROUP 06	SY
285.10	OPTIONAL BASE, GROUP 11 (12” CRUSHED CONCRETE)	SY

C3.27 - Milling of Roadway

The Contractor shall furnish all equipment, hauling and labor for the required removal of existing asphalt by milling material shown on the Plans, specified, and directed by the Engineer.

Items included in this Contract Item include but are not limited to equipment and labor necessary to mill roadway material as specified on the Plans and shall conform to the latest version of the FDOT Standard Specifications – Workmanship and Materials Section 327 – Milling. The existing pavement shall be milled two inches unless otherwise specified on the plans or directed by the Engineer.

The Engineer may require re-milling of any area where a surface lamination causes a non-uniform texture to occur.

Payment for Milling will be made at the appropriate Contract Square Yard/Inch (SY) Price.

Item No.	Description	Unit
327	1.5" MECHANICAL MILING	SY
B-0327	1.5" MECHANICAL MILING	SY
327.10	2" MECHANICAL MILLING	SY
B-0327.2	3" MECHANICAL MILLING	SY

C3.34 - SUPERPAVE ASPHALTIC CONCRETE, SP 12.5

The Contractor shall furnish all materials, equipment, and labor for the required installation of asphalt material shown on the Plans, specified, and directed by the Engineer.

Items included in this Contract Item include, but are not limited to, the material, equipment and labor necessary to construct a superpave asphalt concrete pavement with the type of mixture specified on the Plans and shall conform to the latest version of the FDOT Standard Specifications – Workmanship and Materials Section 334 – Superpave Asphaltic Concrete.

Restoration of City Streets shall conform to the requirements of the City Standard Specifications for Workmanship and Materials Section 16 – Restoration of Street Pavements.

Payment for superpave asphaltic concrete will be made at the appropriate Contract Item Unit Price per Ton (TN) of material placed.

Item No.	Description	Unit
334	SUPERPAVE ASPHALTIC CONCRETE, SP9.5 (2")	TN
334.10	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (1.5")	TN
334.20	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (2.5")	TN
B-0334.4	SUPERPAVE ASPHALTIC CONCRETE, SP12.5 (variable depth)	TN

C4.25 – STORMWATER INLETS, MANHOLES, AND JUNCTION BOXES

The Contractor shall furnish all materials and equipment, test, construct, install, reconstruct, and maintain the stormwater inlets, stormwater manholes and stormwater junction boxes as shown on the Plans, specified, and directed by the Engineer.

Stormwater inlets, manholes, and City Manholes shall conform to the City of Tampa Stormwater Details and Workmanship and Materials Section 425 – Stormwater Inlets, FDOT W&M Section 425 - Manholes and FDOT Index 200 – Manholes. Manhole frames and covers shall conform to the City of Tampa standards. Grouting annular space in conflict manhole for sanitary shall conform to the FDOT Workmanship and Materials Section 121 – Flowable Fill.

The work includes all testing, excavation, backfilling, limestone screenings, bedding, sheeting, shoring, bracing, dewatering, formwork, castings, brickwork, adjusting structures, removal of pavement, sidewalks, curb and curb gutter, concrete work and reinforcing, all inlet and outlet pipe, 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, and all appurtenant work, complete and in place.

The Contractor shall furnish and install all labor, materials, services, equipment and appurtenances to demolish and remove the existing storm pipe and structures that are located outside of the excavation trenched limits of the new pipe and structure areas.

The demolition and removal of existing storm structures shall conform to the requirements of the City Standard Specifications for Workmanship and Materials Section 27 – Demolition.

Disposal of debris shall conform to the requirements of the latest version of the City Standard Specifications for Workmanship and Materials Section 113 – Disposal of Debris.

Payment for inlets, manholes, junction boxes and demolish and remove existing stormwater structures driveway or sidewalk will be made at the appropriate Contract Item Unit Price per Each (EA) or Square Yards (SY).

Item No.	Description	Unit
425.10	Demolish and remove existing sidewalk and driveways	SY
B-0425.1	Demolish and remove existing sidewalk and driveway	SY
425.132	TYPE J MANHOLE STRUCTURE (5' DIA) STORMWATER	EA
425.133	TYPE J MANHOLE STRUCTURE (6' DIA) STORMWATER	EA
425.1300	INLET, COT GRATE TYPE E, <10'	EA
425.131	INLET, COT CURB TYPE 1, <10'	EA
425.14	INLET, COT CURB TYPE 2, <10'	EA
425.131	INLET, COT GRATE TYPE T, <10'	EA
425.17	INLET, COT CURB TYPE BR-1, <10'	EA

C4.3 – PIPE CULVERTS AND STORM SEWERS

Under the respective Contract Items for pipe culverts and storm sewers, the Contractor shall furnish all materials and equipment, construct, test, and maintain complete all pipe culverts and storm sewers as shown on the Plans, specified, and directed by the Engineer.

All pipe culverts and storm sewers, including fittings, shall be manufactured and installed in accordance with the City of Tampa Standard Specifications – Workmanship and Materials Section 430 – Pipe Culverts, Section 108- Dewatering and FDOT Index 630, latest Design and Workmanship and Materials Section 948 – Optional Drainage Products (HDPP pipe).

The work includes all removal of sidewalks, driveways, curbs, curb and gutter, existing storm sewer systems, and permanent pavement restoration up to the first lift of asphalt (see trench detail, City of Tampa); video inspection, excavation, short tunnels, backfill, sheeting, shoring, bracing, dewatering, clearing and grubbing for Stormwater Projects, pipe bedding, pipe fittings, pipe work, making all pipe connections, flared and mitered end sections, standard pipe cradles and encasements shown on the Plans, anchors, sealants, jackets and coupling bands, installation and removal of plugs and bulkheads, testing, special temporary and nonpermanent pavement replacement, restriping restored roadway (stormwater projects), 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 existing culverts and other storm sewerage facilities and all utilities, reconstruction or regrading of road shoulders and ditches, disposal of surplus excavated material, protection of existing structures, regrading of ditch embankment and necessary rip rap around headwall, making joints in protective plastic lining between pipes and between pipes and manholes or structures and all other work incidental to the installation of all pipe culverts and storm sewers complete in place.

The work does not include rock excavation, manholes, junction chamber, surface restoration comprising lawn or permanent pavement replacement over the first lift of asphalt, additional earth excavation or additional selected fill material, short tunnels and driveway, sidewalk and curb and curb gutter replacement. When shown on the Plans or ordered, such work will be paid for under other appropriate Contract Items.

The quantity of storm 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. Pipelines will be measured along the centerline of the pipe.

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.

Payment for pipe culverts and storm sewers will be made at the appropriate Contract Item Unit Price per linear foot (LF) of pipe installed.

Payment for connection of pipe to existing stormwater structures or headwall will be made at the appropriate Contract Item Unit Price per Each (EA).

Item No.	Description	Unit
430.161	STORMWATER HEADWALLS, DITCH GRADING & RIPRAP (PER PLANS)	LS
430.10	15" ROUND STORMWATER PIPE (RCP)	LF
430.20	18" ROUND STORMWATER PIPE (RCP)	LF
430.300	24" ROUND STORMWATER PIPE (HDPP)	LF
430.31	24" ROUND STORMWATER PIPE (RCP)	LF
430.34	24" ROUND STORMWATER PIPE (CLASS IV) (RCP)	LF
430.301	30" ROUND STORMWATER PIPE (RCP)	LF
430.70	12"X18" ELLIPTICAL STORMWATER PIPE, (ERCP) CLASS IV	LF
430.80	14"X23" ELLIPTICAL STORMWATER PIPE, (ERCP) CLASS IV	LF
430.90	19"X30" ELLIPTICAL STORMWATER PIPE, (ERCP)	LF
430.91	CONNECT STORMWATER PIPE TO EXISTING STRUCTURE (30-60")>10'	EA

C5.15 – PEDESTRIAN/BICYCLE RAILING (ALUMINUM)

The Contractor shall furnish all materials, equipment, and labor for the required installation of aluminum pedestrian/bicycle railings as shown on the Plans, specified, and directed by the Engineer.

Items associated with this Contract Item include, but are not limited to, the material, equipment and labor necessary to construct the railing as specified on the Plans and shall conform to the latest version of the FDOT Standard Plans Index 515-062 and FDOT Standard Specification Section 515 - METAL PEDESTRIAN/BICYCLE RAILINGS, GUIDERAILS, AND HANDRAILS.

Payment for railing will be made at the appropriate Contract Item Unit Price per linear foot (LF) of railing placed.

Item No.	Description	Unit
515.062	Pedestrian/Bicycle Railing – (Clark & Fairoaks Drainage Improvements)	LF

C5.20 – PERMANENT CURB REPLACEMENT

The Contractor shall furnish all labor, equipment, and materials to construct and maintain all permanent concrete, bituminous, and granite curb or curb, and drop curb, removed or damaged by pipeline construction and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

All concrete work under this series shall conform to the latest FDOT Standard Specifications – Workmanship and Materials Section 346 - Portland Cement Concrete (except 346.6.1).

The work includes all excavation, filling, shaping, grading, base material, compaction of stabilization subbase, and lawn replacement incidental to curb, or curb replacement, drop curb, 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 replacement along pipelines shall include removal and replacement of gutter incidental to construction of manholes and structures. All curb 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 replacement will be made at the Contract Item Unit Price per Linear Foot (LF) of curb placed.

Item No.	Description	Unit
B-0520.1	CONCRETE CURB & GUTTER, DROP CURB	LF
520.20	CONCRETE CURB & GUTTER, TYPE F	LF
B-0520.3	CONCRETE CURB, TYPE D	LF

C5.22 - PERMANENT SIDEWALK/DRIVE REPLACEMENT/CONCRETE STRUCTURE REMOVAL/CONC PAD

The Contractor shall furnish all labor, equipment, and materials to replace and maintain all permanent sidewalks, driveways removed or damaged by pipeline construction, and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Permanent sidewalk/driveway replacement shall conform to the requirements of the City of Tampa Standard Specification for Workmanship and Materials Section 16 - Restoration of Street Pavements.

Reconstruction of concrete flumes and headwall concrete work under this series shall conform to the latest version of the FDOT Standard Specification – Workmanship and Materials Section 346 – Portland Cement Concrete.

The work includes all excavation, filling, shaping, grading, temporary limestone surface, base material, paved surface, architectural pavers, lawn replacement incidental to sidewalk/driveway, and other appurtenant work complete and in place.

The quantity of permanent sidewalk/driveway replacement to be measured for payment will be the actual area of permanent sidewalk/driveway surface placed in the work within payment limits and ordered by the Engineer.

Payment limits for permanent sidewalk/driveway replacement along pipelines shall include removal and replacement of sidewalk/driveway surface incidental to construction of manholes and structures. All sidewalk/driveway 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/driveway 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/driveway surface. Replacement of surface for such nonpermanent sidewalk/driveway surfaces will be included in the various classified unit price Contract Items for pipelines or considered under the provisions for "Extra Work."

Payment for permanent sidewalk/driveway replacement, reconstruction of headwall or flume will be made at the Contract Item Unit Price per Square Yard (SY) of sidewalk/driveway removed/replaced/Concrete Shock Pad.

Item No.	Description	Unit
522.10	SIDEWALK CONCRETE, 4" THICK (SIDEWALKS)	SY
522.20	SIDEWALK CONCRETE, 6" THICK (DRIVEWAYS)	SY
B-0522.2	SIDEWALK CONCRETE, 6" THICK (DRIVEWAYS)	SY
523	Concrete Shock Pad (waterline protection)	SY

C5.27 –ADA COMPLIANT RAMPS

The Contractor shall furnish all labor, equipment and materials to construct the ADA compliant ramps and appurtenant work as shown on the Contract Plans, specified, and directed by the Engineer.

The work includes all detectable warning surfaces and all concrete work and appurtenant work complete in place. All ADA pedestrian ramps will comply with FDOT Index 304, latest Design and Workmanship and Materials section 527 – Detectable Warnings on Walking Surfaces.

The quantity of ADA compliant ramps measured for payment will be the number of each as shown on the Contract Plans, or as specified and directed by the Engineer.

Payment for ADA compliant ramps will be made at the Contract Item Unit Price for Each (EA) of the pedestrian ramps placed.

Item No.	Description	Unit
527	ADA COMPLIANT RAMPS (concrete included)	EA
B-0527	ADA COMPLIANT RAMPS (concrete included)	EA

C6.30 – CONDUIT – Directional Bore

The Contractor shall furnish and install conduit for traffic control signals and devices, highway lighting, and other electrically powered or operated devices as shown in the Contract Documents and directed by the Engineer.

Restore the conduit trench construction area to an acceptable condition. Such work includes repair or replacement of all pavement areas, sidewalks, driveways, curbs, structures, landscaping, grass areas (including removal of excavated materials and spoils), removal and disposal of drilling fluids, and backfilling areas disturbed by the conduit installation.

All Conduit work will comply with FDOT Index 630, latest Design and Workmanship and Materials section 630 – Conduit.

Payment for Conduit shall be made at the appropriate Contract Item Unit Price per liner foot (LF).

Item	Description	Unit
B-0630.212	Conduit, Furnish and Install (directional drill)	LF

C6.35 – PULL BOXES, SPLICE BOXES, JUNCTION BOXES, AND FIBER OPTIC SPLICE VAULTS

The Contractor shall furnish and install Furnish and install pull boxes, splice boxes, junction boxes, and fiber optic splice vaults as shown in the Plans, Contract Documents and directed by the Engineer.

The Contract unit price for each furnished and installed pull box, splice box, junction box, splice vault, and toll site pull box will include all required hardware for the type of box and location as specified in the Contract Documents as well as all labor and materials necessary for a complete and accepted installation.

All PULL BOXES, SPLICE BOXES, JUNCTION BOXES, AND FIBER OPTIC SPLICE VAULTS work will comply with FDOT Index 635, latest Design and Workmanship Materials Section 635.

Price and payment will be full compensation for all work specified in this Section for each (EA) box isntalled. No separate payment will be made for the removal of pull, splice, and junction boxes.

Item	Description	Unit
B-0635.211	PULL AND SPLICE BOX, FURNISH AND INSTALL, 13X24 COVER SIZE	EA

C6.46 – ALUMINUM POLES, PEDESTALS, AND POSTS

The Contractor shall furnish and install aluminum poles, pedestals, and posts at the locations shown in the Plans and in accordance with the details shown in the Plans and Standard Plans.

The Contract unit price per each for aluminum pedestals and posts, furnished and installed, will include all materials and equipment as specified in the Contract Documents, and all labor and materials necessary for a complete and accepted installation.

All install aluminum poles, pedestals, and posts work will comply with FDOT Index 646, latest Design and Workmanship Materials Section 646.

Price and payment for each (EA) pole installation and removal will be per plans.

Item	Description	Unit
B-0646.111	ALUMINUM SIGNALS POLE, PEDESTAL	EA

B-0646.160	ALUMINUM SIGNALS POLE, REMOVE	EA

C6.53 – PEDESTRIAN SIGNAL ASSEMBLIES

The Contractor shall furnish and install pedestrian signal assemblies as shown in the Plans and Standard Plans, FDOT Index 653-001. Meet the requirements of Section 603.

The Contract unit price per assembly for pedestrian signal assembly, furnished and installed, (including mounting hardware but not including poles or pedestals) will include all materials and equipment as specified in the Contract Documents, and all labor and materials necessary for a complete and accepted installation.

All furnish and install pedestrian signal assemblies work will comply with FDOT Index 653, latest Design and Workmanship Materials Section 653.

Price and payment for each assembly (AS) pedestrian signal and/or removal will be per plans.

Item	Description	Unit
B-0653.111	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS
B-0653.160	PEDESTRIAN SIGNAL, REMOVE PED SIGNAL- POLE/PEDESTAL TO REMAIN	AS

C6.60 – VEHICLE DETECTION SYSTEM

The Contractor shall Furnish and install a vehicle detection system in accordance with the Contract Documents and this Section. Meet the requirements of FDOT Section 603 and comply with FDOT Index, 660 – Vehicle Detection System

Price and payment will be full compensation for all work specified in this Section including furnishing, placement, and testing of all materials and equipment, and for all tools, labor, equipment, hardware, operational software packages and firmware, supplies, support, personnel training, shop drawings, warranty documentation, and incidentals necessary for a complete and accepted installation.

Price and payment for each assembly (AS) loop assembly will be per plans.

Item	Description	Unit
B-0660.2101	LOOP ASSEMBLY- F&I, TYPE A	AS

C6.65 – PEDESTRIAN DETECTION SYSTEM

The Contractor shall install a pedestrian detection system as shown in the Plans. Pedestrian detection systems are classified into three categories: Standard Pedestrian Pushbutton Detectors, Accessible (Audible/Tactile) Pedestrian Pushbutton Detectors, and Passive Detectors. The components of the pedestrian detection system include pushbuttons, pedestrian actuation signs, electronics, wiring, and mounting hardware.

All furnish and install pedestrian detection systems will comply with FDOT Index 665, latest Design and Workmanship Materials Section 665.

The Contract unit price for pedestrian detectors, will be paid per each (EA), and will include the pedestrian actuation sign, all mounting hardware, wiring, materials and equipment, and all labor and miscellaneous materials necessary for a complete and accepted installation.

Item	Description	Unit
B-0665.111	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA

C7.00 – ROADWAY SIGNING

The Contractor shall Furnish and install roadway signs in accordance with the details in the Standard Plans and as shown in the Plans.

All roadway signage will comply with FDOT Index 700, latest Design and Workmanship Materials Section 700.

The Contract unit price per each for single column ground mounted signs will include the sign panels, sheeting, support structure, foundation, hardware, and labor necessary for a complete and accepted installation.

The Contract unit price per each for multi-column ground mounted signs will include the sign panels, support structure, foundation, hardware, and labor necessary for a complete and accepted installation.

The Contract unit price for removal of signs will include the removal of the support and footing. Restore the area to the condition of the adjacent area.

Item	Description	Unit
B-0700.3101	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA
B-0700.1111	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS
B-0700.1600	SINGLE POST SIGN, REMOVE	AS

C7.06 - RAISED PAVEMENT MARKERS AND MARKER ADHESIVE

The Contractor shall supply and install Raised pavement markers (RPMs) and adhesive provide a positive guidance system to supplement other reflective pavement markings.

Installation shall be in compliance with FDOT Section – 706 – Raised Pavement Markers and Marker Adhesive.

The quantity of RPMs to be paid for under this Section will be the quantity per each, furnished and installed, completed and accepted.

Item	Description	Unit
B-0706.13	RETRO-REFLECTIVE PAVEMENT MARKERS YELLOW/YELLOW	EA

C7.10 - PAINTED PAVEMENT MARKINGS

The Contractor shall apply painted pavement markings, in accordance with the Contract Documents and FDOT Standard Specifications – Section 710 Painted Pavement Markings

Price and payment for painted pavement markings (final surface) will be full compensation for all applications of painted pavement markings in accordance with FDOT Section 710-4.1.1 and 710-9.1 and will be paid per linear foot (LF).

Item	Description	Unit

B-0710.11123	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	LF
B-0710.11125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE OR CROSSWALK, 24"	LF
B-0710.11201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	LF

C7.11 – THERMOPLASTIC STRIPING AND MARKING

The Contractor shall furnish all labor, equipment, and materials to install thermoplastic, standard, white, yellow, solid, 6”-12” traffic stripes and markings as shown on the Plans and as directed by the Engineer.

The work includes all necessary labor, equipment, and materials required to apply new thermoplastic traffic stripes and markings, or refurbish existing thermoplastic traffic stripes and markings, as shown in the plans and in accordance with the details and Contract Documents and the latest version of the FDOT Standard Specifications – Workmanship and Materials – Section 711 – Thermoplastic Traffic Stripes and Markings.

Payment for Thermoplastic Markings shall be made at the appropriate Contract Item Unit Price per Linear Feet (LF) of Thermoplastic Markings installed.

Item	Description	Unit
B-0711.11123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12"	LF
B-0711.11125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24"	LF
B-0711.14125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF
B-0711.16201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	LF

C8.10 Metered Services Two-Inch and Less with Pipe Work

The Contractor shall provide all labor, materials and equipment for the installation and/or transfer of 3/4" (single or dual service) or 1” meter service as specified, and issued in conjunction with a pipeline project.

Meter service lengths (as described in the pay items) are defined as follows:

- 0-15' service line required from main to meter is up to 15' long
- +15-80' service line required is greater than 15', up to and including 80'

Meter service installation shall include, but may not be limited to:

1. Excavating and maintaining the trench;
2. Making the appropriate size tap;
3. When directed by the Engineer or as indicated in the standard details, furnish and install an appropriately sized steel, PVC or HDPE sleeve under paved areas for long-side meter service by open cut, horizontal directional drilling/directional bore or "moling" as directed by the Engineer or as indicated in the standard details;
4. For use on DIP, CIP or PVC, furnish and install the appropriate size and type of corporation stop, high density polyethylene, PVC pipe, any required service fittings, curb stop, meter box, and tail piece extension as designated by the Tampa Water Department's Technical Specifications. For use on HDPE pipe, furnish and install the appropriate size and type of electrofusion tapping tee

or electrofusion corporation, HDPE tubing or pipe, any required service fittings, curb stop, meter box and tail piece extension as designated by the Tampa Water Department's Technical Specifications;

5. On all long-side HDPE service lines, furnishing and installing, two continuous 12 gauge wires along the top of the pipe, inside the sleeve. There shall be no dead ends and each locator wire shall be routed from the corporation to the meter box. Connections between wire ends shall be made using an approved connections at each end as shown in the standard details;
6. Installation of the appropriate sized, furnished, meter or transferring an existing meter to the new service line;
7. Relocating existing meters and/or adjusting existing meters to grade;
8. Backfilling and compacting of all excavations;
9. Clean-up and return the job site to its original condition which includes but is not limited to restoring the elevation of surface to its original grade;
10. Removing and legally disposing of all waste materials.

Payment shall be made for each meter service furnished and installed, and accepted by the Engineer.

Any restoration required shall be compensated in accordance with the restoration pay items in the Contract.

Payment shall be made under:

Item No.	Description for Services on PVCP, DIP, OR CIP	Unit
8100	Furnish, tap, & install 3/4" or 1" meter service (0-15', HDPE)	EA
8101	Furnish, tap, & install 3/4" meter service (+15-80', HDPE)	EA

C89.00 – SOD REPLACEMENT

The Contractor shall furnish all labor, materials, equipment and services to replace and maintain all lawn areas removed or damaged by pipeline and appurtenant work as shown on the Plans, specified, and directed by the Engineer.

Sod replacement by St. Augustine or equal shall conform to the requirements of the City of Tampa Workmanship and Materials Section 2930 – Sodding.

Sod 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 foot, to be measured for payment will be the actual area of Bahia/St. Augustine 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 sod replacement will be made at the appropriate Contract Item Unit Price per Square Foot (SF) Unit.

Item No.	Description	Unit
8901	SOD – ST. AUGUSTINE OR BAHIA	SF
B-08901	SOD – ST. AUGUSTINE OR BAHIA	SF

C9.00 - PVC PIPE (GREEN AWWA C900 DR-18 & C905 DR-25)

The Contractor shall furnish all materials and equipment, construct, test, and maintain complete all pipe sewers as shown on the Plans, specified, and directed by the Engineer.

The pipe sewers shall conform to the latest version of the City of Tampa– Workmanship and Materials Section 11 – PVC Pipe Gravity.

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 up to the first lift of asphalt (per the City of Tampa Trench Details – latest), excavation, saw cutting concrete and asphalt, short tunnels, backfill, sheeting, shoring, bracing, dewatering, pipe bedding, pipe fittings, pipe work, making all pipe connections, locate wire, 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, protection, trimming and replacement of trees and shrubs, protection, repair and replacement of culverts and other storm water facilities, reconstruction or re-grading of road shoulders and ditches, disposal of surplus excavated material, protection of existing structures, removal and replacement of fence, clearing and grubbing, 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 above the first lift of asphalt, 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 by the Engineer. 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 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 (LF) or Each (EA) of the respective pipe and installation.

Item No.	Description	Unit
900.10	8" Dia. PVC Pipe (C-900, DR-18) (incl. all adapters and connections)	EA

C17.06 - SOLID WALL PVC PIPE HOUSE LATERAL AND SANITARY PVC

The Contractor shall furnish all materials and equipment, construct, test and maintain house laterals.

The pipe laterals shall conform to the latest version of the City of Tampa– Workmanship and Materials Section 11 – PVC Pipe Gravity.

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 to the first lift of asphalt, pipe bedding, pipe, pipe fittings used to change in line or grade where directed by the Engineer, 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.

Payment for house lateral will be made at the Contract Item Unit Price per Each (EA) of house lateral and unit price per Linear Foot (EA) to replace sanitary lateral.

Item No.	Description	Unit
1706	6-Inch Diameter PVC Pipe House Lateral (SDR-35) (<30' length)	EA

C49.00 – MODIFICATIONS TO EXISTING MANHOLES AND ADJUST MANHOLE TOPS

The Contractor shall furnish all labor, equipment and materials required to connect the proposed pipeline into existing manholes, and to raise existing manholes tops 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, re-working manhole bench if necessary, removing old force main and sealing opening, backfilling, compacting and all other work incidental to connection to existing manhole or raising manhole tops.

Payment for Connection to Existing Manholes or Raising/Lowering (adjustment) to Existing Manhole Tops will be made at the appropriate Contract Lump Sum Price or per manhole as designated in the proposal.

Item No.	Description	Unit
4900.10	CONNECT TO EXISTING MANHOLE	EA
4900.20	REMOVE AND ADJUST EXISTING MANHOLE TOPS	EA
B-4900.2	REMOVE AND ADJUST EXISTING MANHOLE TOPS	EA

WATER CONTRACT PAY ITEMS

General

The Contractor shall receive and accept the compensation provided in the Proposal and the Agreement as full payment for furnishing all materials and all labor, tools and equipment, for performing all operations necessary to complete the work under the Agreement, and also in full payment for all loss or damages arising from the nature of the work, or from any discrepancy between the actual quantities of work and quantities herein estimated by the Engineer, or from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the work until the final acceptance by the Department.

It is the intent of these contract documents that any cost for which compensation is not directly provided by a bid item shall be prorated and included in the bid item for which they are required. Failure of the Contractor to follow this procedure shall be basis for rejection of his bid.

The prices stated in the Bid Proposal include all costs and expenses for taxes, labor, equipment, commissions, transportation charges and expenses, patent fees and royalties, labor for handling material during inspection together with all other costs and expenses for performing and completing the work as shown on the plans and specified herein. The basis of payment for any item at the unit price shown in the Proposal shall be in accordance with the description of that item in this Section.

No separate payment will be made for the following items; the cost of such work shall be included in the applicable contract pay items of work, including separate mobilization/demobilization charges for compliance with any agency:

1. Clearing and grubbing;
2. Excavation, including necessary pavement/slab removal;
3. Shoring and sheeting as required by OSHA trench excavation safety standards unless specifically provided for in a pay item;
4. Dewatering and proper disposal of all water unless specifically provided for in a pay item;
5. Backfill and proper compaction, including suitable fill;
6. Grading;
7. Replacement or restoration of paved or unpaved roadways, grass and shrubbery plots outside of established pay limits above the first lift of asphalt;
8. Temporary facilities and controls during construction such as water/sanitary facilities, traffic control, informational signs and environmental protection, unless specifically provided for in a pay item;
9. Providing and maintaining silt barriers for drainage structures and silt fences for the duration of the project;
10. Removing and legally disposing of waste material due to construction, including but not limited to valve boxes that need to be removed from abandoned water mains;
11. Cleanup and restoring the job site to its original condition, which includes but is not

necessarily limited to restoring the ground surface to its original grade;
12. Testing and placing system in operation, including re-mobilization for FDEP testing;
13. Any material and equipment required to be installed and used for the tests;
14. Maintaining the existing quality of service during construction, including flushing mains that are cleared but not put into service after the bacteriological (bac-T) tests are complete;
15. Repair of water services damaged during construction;
16. Adjusting new or existing water meter boxes to grade which are affected by construction;
17. Appurtenant work as required for a complete and operable system;
18. Coordination with all utilities and all Federal, State and Local agencies;
19. Cutting of existing or new pipe for purposes of abandonment or installation of new pipe, valves or fittings;
20. Tree trimming as required by the City of Tampa Parks Department or any other agency unless specifically provided for as a contract item;
21. Verification of pipe elevation as stated in Section 8 of the General Provisions and Section S-23.01 the Specific Provisions;
22. Repair of private irrigation systems damaged during construction;
23. Furnishing and installing suitable temporary fences, as directed by the Engineer, to adequately secure areas protected by a permanent fence when that permanent fence must be removed. The temporary fence shall remain in place until the permanent fence is replaced;
24. Furnishing and installing all HDPE MJ adapters, HDPE flanged adapters, HDPE electrofusion tapping tees, electrofusion corporation saddles or HDPE electrofusion couplings;
25. Maintaining red-line drawings of changes to construction plans, to be submitted for FDEP clearance;
26. Furnishing record drawings based on the redline drawings in AutoCAD 2015 or higher and one set of drawings on paper. The City will provide the AutoCAD plans used for the design. **Final Payment will not be made for work orders until as-built drawings are received and accepted by the City.**
27. Furnishing and installing polyethylene encasement per Standard Detail 2.05 for all buried ductile iron pipe, all fittings and tapping sleeves.

The Contractor's attention is again called to the fact that the quotations for the various items of work are intended to establish a total price for completing the work in its entirety. Should the Contractor feel that the cost for any item of work has not been established by the Proposal or Contract Pay Items, he shall include the cost for that work in some other applicable bid item, so that his proposal for the project does reflect his total price for completing the work in its entirety.

Following final payment by the City, the Contractor shall maintain the surface of the unpaved trenches, shrubbery, fences, sod, and other surfaces disturbed for a period of one (6) months thereafter and shall maintain the repaved areas, curbs, gutters and sidewalks, trees, if replaced by the Contractor, for one (1) year after acceptance. The cost of maintaining the restored areas is considered incidental to the cost of restoring the areas disturbed by the Contractor. These costs shall be prorated and included in the cost for the bid item for which it is required.

The quantities for payment under this Agreement shall be determined by actual measurement of the completed items, in place, ready for service and accepted by the City, in accordance with the applicable method of measurement therefore contained herein. A representative of the Contractor shall witness all field measurements.

All work shall be in accordance with the Technical Specifications and Standard Details herein. All materials shall be in accordance with the Material Specifications herein.

C22.00 Furnish and Install HDPE Pipe by Horizontal Directional Drilling

The Contractor shall provide all labor, equipment, and materials to furnish and install the HDPE pipe using horizontal directional drilling (HDD) as a work method. The furnishing and installation of the HDPE pipe shall include, but may not be limited to:

1. Furnish and install construction layout by a registered professional land surveyor;
2. Field locating all utilities, except existing water lines not shown properly on the plans, to confirm horizontal and vertical location in areas of possible conflict;
3. Excavating the access pits;
4. Maintaining the pits which shall include dewatering and sheeting and bracing as required by OSHA or as directed by the Engineer;
5. Joining pipe sections by butt fusion or by furnishing and installing an appropriately sized HDPE electrofusion coupling;
6. Pigging, cleaning or flushing the line to remove dirt, debris if directed by the engineer;
7. Furnishing and installing temporary valve, pipe shorts and bends to accomplish full port flushing of mains;
8. Furnishing and installing Department approved pipe and any pipe shorts as part of the pipeline;
9. Furnishing and installing 2-inch HDPE tubing at various depths by horizontal directional drilling;
10. Furnishing and installing on all HDPE pipe and tubing, two continuous 10 gauge wires along the top of the pipe. There shall be no dead ends and each locator wire shall be routed into a curb stop box at every valve box. Connections between wire ends shall be made using an approved connection as shown in the standard details;
11. Furnishing and installing 10 gauge tracer wire on Ductile Iron Water Mains 16” and greater;
12. Removing excess water main pipe and appurtenances;
13. Pressure testing the water main pipe;
14. Disinfecting the water main pipe;
15. Furnishing and installing push-on and mechanical joint restrainers on existing pipe as shown on the plans or as directed by the Engineer;
16. Backfilling and compacting the trenches or pits including re-grading the terrain;
17. Cleaning up and restoring the job site which shall include re-grading the terrain; and
18. Removing and legally disposing of all waste materials.

Cover over pipe shall be defined as the vertical distance from the top of the pipe to the surface grade above the main. Trench depth shall be defined as the vertical distance from the bottom of the barrel of the pipe to the surface grade above the main.

Payment for connecting new water mains to existing water mains will be made utilizing the contract unit price for installing the tapping sleeves, restraints, fittings or valves used in the connection.

The cost to hydrostatically test and disinfect the HDPE water mains shall be prorated and included in the HDPE pipeline construction unit prices. The prorated cost should include, but may not be limited to furnishing and installing all:

1) Material
2) Labor
3) Necessary pumps
4) Recorder charts
5) Gages (200 PSIG limit, oil filled)
6) Chemicals
7) Temporary valves
8) Temporary plugs
9) Sample Taps, (including furnishing and installation of brass dry main plugs in HDPE electrofusion corporation saddles after sample tap removal)
10) Blow off assemblies (including removal after disinfection is complete)
11) Dry main plugs installed in HDPE electrofusion corporation saddles.

necessary to pressure test and disinfect various sizes and depths of HDPE pipe. Furthermore, no extra compensation shall be paid to the Contractor for:

1. Furnishing and installing brass, dry main plugs in HDPE electrofusion corporation saddles at the locations of all removed sample taps, or
2. Removing existing "end of line" or blow-off valves after the pipeline has been disinfected and prior to connecting the newly installed pipeline to the existing water main.

All temporary materials or materials not remaining in the ground after the completion of the disinfection and pressure testing shall remain the property of the Contractor.

The pipe quantities to be paid for under this section shall be based on the size and the horizontal distance in linear feet of HDPE pipe measured along the top centerline of the pipe in place complete and acceptable to the Engineer.

Payment shall be made under:

Item No.	Description	Unit
2200	F&I - 2" HDPE tubing w/HDPE transition adapters at various depths offset	EA
B-4900.3	Adjust valve box (water)	EA

SPECIFIC PROVISIONS

Table of Contents

SP-1 Scope

The work under these Contract Documents includes the construction of (three separate stormwater improvement projects, listed in order of start below) and/or rehabilitation of existing facilities along with all miscellaneous and appurtenant work. The total contract time for all projects will be 18 months total.

Location 1 – Clark and Fairoaks : Project area is located at Clark and Fairoaks as identified in the attached plans. Work involves removal of existing CMP stormwater culvert pipes, replacement of approx. 40lf of 30 HDPP pipe, install new 24" RCP headwall, 200lf of various size RCP stormwater pipe, 4 grate inlets, new sidewalk and 2 concrete driveway replacement, sod and restoration and all miscellaneous and appurtenant work to complete construction.

Location 2 – Project area is located along Lois Avenue between Dale Avenue and Azeele Street, including the intersection of Woodmere Road and Lois Avenue. The project consists of two parts: a Stormwater project (Project 3A) and a transportation project (Project 3B). Project 3A involves installation of approx. 784lf of various sizes of RCP and ERCP stormwater pipe, 10 stormwater inlets, 5 manholes, approximately 90lf of curb and gutter, milling and asphalt overlay of Lois Avenue, and all associated restoration and appurtenant work to complete construction. Project 3B includes intersection modifications at Woodmere Road and Lois Avenue and all associated restoration and appurtenant work to complete construction. **Note:** The Water main plans are included for informational purposes only. Water main relocation work noted in the plans "BY OTHERS" will be a full replacement in lieu of the offset work indicated. It is expected that the water main work will be complete prior to start of construction at this location. However, some utility coordination may be necessary.

Location 3 – Annona and 17th : Project area at Annona and 17th Street. Work involves approximately 500lf of various size stormwater RCP (12-30"), 5 grate inlets, sidewalk and driveway restoration, 2"water main offset, 6" sanitary lateral replacement, sod and roadway restoration which will include all miscellaneous and appurtenant work.

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 the work 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 an estimated cost based on the various Contract Items and a Time of Completion for the work.

SP-2 Intent

It is the intent of these documents to fully describe the work required to complete the full intent of this project. Therefore, any work not specifically addressed in either the Plans or in the Specifications, but which is necessary to provide for the full and complete intent of the project, is required to be included and shall be performed by the Contractor in accordance with all requirements herein, as though it were specifically addressed. The cost of this work shall be included in the cost of the pay item to which it is incidental, and no additional payment will be made therefor.

SP-3 Permits & Licensing

The City or its design consultant is responsible for obtaining permits, when required, from State, regional or County agencies and railroads having jurisdiction over the project area, as follows:

- USACOE Section 404 Wetlands Permit
- Statewide (FDEP/SWFWMD) Environmental Resource Permit
- Hillsborough County Environmental Protection Commission Wetlands Permit
- FDOT Driveway and/or Drainage Permit(s)
- FDOT Right-of-Way Use Permit
- FDEP Public Water or Wastewater System Permit(s)
- City of Tampa Tree Removal Permit
- City of Tampa Historic Preservation Approval

The Contractor is responsible for obtaining all other permits required to construct the project. The following permits will be obtained, when required:

- Florida Building Code Permit(s)
- FDEP NPDES Construction Generic Permit
- FDEP Dewatering Permit
- City of Tampa CWS or Hillsborough County ROW permit
- City of Tampa Tree Pruning Permit
- All other permits that may be required.

The Contractor shall be required to comply with all provisions of the permits, including those affecting workmanship, schedules, maintenance of traffic (see SP-26), notification of construction start and completion dates, pavement removal and replacement and other conditions under which each permit is issued.

The Contractor shall maintain full responsibility for any violation of the conditions of a permit under his control and shall work with the Authority Having Jurisdiction (AHJ) to correct any such violation. Any penalties imposed resulting from execution of this Contract shall be the responsibility of the Contractor.

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 building 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 and pay all permit fees associated with the permits for which he is responsible.

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, permits and the requirements of the current Building and Construction Regulations Chapter of the City of Tampa Code.

The Contractor is responsible to schedule and coordinate with the Construction Services of the Contract Administration Department for all required inspections and tests for all phases of work to obtain final approval from the AHJ.

SP-4 Drawings and Technical Standards – City Departments

The City of Tampa, Stormwater Engineering Division's Standard Drawings are available online at https://www.tampa.gov/document/departmental-standards-25996.

The City of Tampa, Transportation Engineering Division Pavement Restoration Standard is available online at https://www.tampa.gov/document/city-tampa-pavement-restoration-standard-26101.

The City of Tampa, Wastewater Engineering Division's Standard Drawings are available online at https://www.tampa.gov/document/technical-standards-14061

The City of Tampa, Water Engineering Division's Standard Drawings are available online at https://www.tampa.gov/water/builders-and-homeowners/standards-and-manuals

SP-5 Temporary Water for Testing

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

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

SP-6 Construction Start

Construction will not begin prior to receipt by the City of the required permits or until all necessary equipment and materials are on-site. Completion of these efforts shall not be unduly delayed by the Contractor. If start of construction is delayed due to permit acquisition, the contract time will be extended by the number of days after Notice to Proceed date that the permit is issued, but no extra payment will be made to the Contractor.

Should the Contractor be delayed by material orders or private utilities, the City of Tampa will give the Contractor an extension of time but no monetary reimbursement will be made.

SP-7 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-8 Connections Between Construction Phases

The Contractor shall provide an approved masonry bulkhead, spigot plug, bell cap, or standard pipe plug in the sanitary or storm sewer pipe, manhole, junction chamber, or other location to provide for terminating construction when the work is performed in phases and the connecting phase is delayed or incomplete.

The Contractor shall remove any such bulkhead or plug encountered when connecting to previously completed work.

The cost of furnishing and removing bulkheads and plugs shall be included in the various Contract Items for pipe lines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

SP-9 Use of Private Property for Temporary Construction Use

For any of the several "Annual Contract Projects" it is expected that all the construction activities will occur within the existing City properties, rights-of-way and/or easements. In the event the Engineer determines that a temporary construction easement or right of access agreement is necessary, the City will obtain such temporary construction easement or right of access. Any items necessary to restore the additional private property use area to its pre-impacted condition that is not established in the contract will be negotiated with the contractor prior to the start of construction.

If, in the opinion of the Contractor, obtaining additional temporary construction easement(s) or property rental, lease or use is necessary or desirable, it shall be the sole responsibility of the Contractor to obtain such use from the Owner of the property and restore the property to its original condition at no additional cost to the City. If such use is obtained by the Contractor, it shall contain provisions to hold the City harmless from any operations of the Contractor within the use areas. The Contractor shall not conduct construction operations on private property outside the limits of any temporary or permanent easement obtained by the City unless a copy of the temporary construction use agreement is filed with the City.

SP-10 Release of Facilities for Use

It is the intent of these Specifications that all newly constructed infrastructure and appurtenant facilities be placed in service as rapidly as possible. A portion of the project may be placed in service upon substantial completion of an agreed upon phase or segment once inspected and approved by the Engineer and the City. Acceptance or use by the City of any portion of the work prior to final acceptance shall not relieve the Contractor of any responsibilities for that work included in the Contract Documents.

SP-11 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-12 Contractor Emergency Response Time

Upon commencement of the work and until final completion of the project, the Contractor must be available to service emergency calls seven (7) days a week, twenty-four (24) hours a day. The response time for emergency calls shall be within two (2) hours. A contact person and telephone number shall be provided to the City for such purposes.

SP-13 Contractor's Field Office

Delete Article G-6.03 Contractor's Field Office on Page G-14 from GENERAL PROVISIONS. The Contractor's superintendent or alternate approved by the City shall be present at all times while work is in progress. The Contractor shall maintain copies of the Contract Documents, submittals and supplemental instructions in a complete, organized and up-to-date manner at the job site.

SP-14 Salvage

All existing materials 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 designated 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 City. The cost of removing, disposing, delivering, and unloading as salvage items of pipe and appurtenances shall be included in the various Contract Items or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

SP-15 Sequence of Operations

The Contractor shall develop with the Engineer a complete schedule of the work which, in the opinion of the Engineer, will permit substantial completion of the work, in whole or in part, at the earliest possible date and will minimize disruption to the residents and business owners affected by the work.

Due to the characteristics of this project and/or the specific conditions within the neighborhood(s) where the work will be performed, the Contractor shall adhere to the following restrictions affecting the sequencing of the work:

- Work on a maximum of two adjacent City blocks at a time. The Contractor shall not move to the next block until the 1st block is fully restored. In addition, the Contractor shall work on one side of the block while keeping the other side open for traffic and pedestrians unless otherwise agreed to by the City. The Contractor shall not move to the other side until vehicular and pedestrian access on the initial side is fully restored.
- Other construction sequence options may be allowed that would achieve the goal of minimizing disturbance to the neighborhood.
- The sequence of the projects is listed in SP-1 Scope.

Acceptance or use by the City of any portion of the work prior to final acceptance shall not relieve the Contractor of any responsibilities for that work included in the Contract Documents.

SP-16 Project Sign

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 15 days of Notice to Proceed.

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 deemed included in the prices bid for the various Contract Items of this Contract, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

SP-17 Prevention, Control and Abatement of Erosion and Water Pollution

The Contractor shall be responsible for employing Best Management Practices (BMPs) for the prevention, control and abatement of erosion, siltation and water pollution resulting from construction of the project until final acceptance.

He shall provide, install, construct, and maintain any covering, mulching, sodding, sand bagging, berms, slope drains, sedimentation structures, silt and turbidity barriers and other BMPs necessary to meet City, County, State and Federal regulatory agency requirements.

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 and properly restore the area to pre-impacted conditions. 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-19 Demolition

The Contractor shall demolish, remove and dispose of at an offsite location all pipe, structures, pavement, sidewalks, driveways, curb, vegetation and other items shown on the Plans to be removed or otherwise necessary to construct the proposed improvements and/or as directed by the Engineer.

The Contractor shall fill or backfill excavations in accordance with the specifications.

The cost of this work, including all material, labor, equipment, etc., shall be included under the various Contract Items, or in the total Lump Sum Price, as applicable, and no additional payment shall be made therefor.

SP-20 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 therefor. Contractor shall apply for and obtain, at his cost, all Florida Department of Environmental Protection required permits associated with any proposed dewatering or wellpointing operation.

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. Wellpoint piping and discharge should not adversely affect citizens' access to their property. For construction areas within or adjacent to residential areas, day-night average sound levels from dewatering pumps shall be limited to 65dB(A) by the use of a noise abatement enclosure or other approved noise abatement system.

SP-21 Unauthorized Filling or Grading

The Contractor, under Sec. 21-27 (Permit Requirements) of the City of Tampa Code, is prohibited from filling or grading any area, public or private, (except where shown on the construction plans) anywhere within the City limits without a permit. Drainage patterns cannot be altered to the detriment of neighboring property owners or public rights-of-way. A copy of the permit shall be submitted to the Engineer by the Contractor prior to any filling or grading operation.

SP-22 Storage of Materials

Storage of materials shall be limited to the right-of-way area within the limits of the project or for phased projects, within the active construction phase. Within these limits, the Contractor may only use that portion of the right-of-way outside of existing or proposed pavement areas 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, right-of-way shall be returned to pre-construction conditions and meet City Standards. All other storage areas will be restored to a condition which meets or exceeds the pre-construction condition to the Owner's satisfaction. 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 therefor.

SP-23 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 and complies with the NPDES permit requirements, if applicable.

SP-24 Trench Maintenance

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

SP-25 Work Zone Cleanliness

The Contractor shall always keep the work zone free of trash and debris. If the City observes that trash within a work zone becomes excessive, the Contractor will be required to deploy trash barrels or other approved methods within work zones sufficient to keep the area free of trash. It is the Contractor's responsibility to keep the construction site neat and clean with trash and debris to be removed daily.

SP-26 Road and Lane Closures, Traffic Control Plans

The Contractor shall arrange his work in a manner that minimizes traffic disruption. As deemed necessary, roadway and lane closures shall occur during normal business hours or as required by the Right-of-Way Use permit and the Contract Administration Department, Construction Division.

At least seventy-two hours before starting any work in City streets, the Contractor shall obtain a City of Tampa Street or Lane Closure Permit for any traffic lane or street closure within the City. The permit will establish the requirements for closures related to the number of lanes and time of day lanes or streets may be closed. A detailed traffic control plan shall be prepared in accordance with MUTCD and the appropriate FDOT Traffic Control Drawings contained in the FDOT Standard Plans (100 Series Index), latest edition. The plan shall be submitted to the City of Tampa Smart Mobility Division with the application for the Street or Lane Closure Permit. The MOT plan shall include proposed detour routes and locations and descriptions of direction signs for the construction area and detour routes. A copy of the Street or Lane Closure Permit shall be submitted to the Engineer before starting any work in City streets. No changes to the MOT plan will be allowed without prior Smart Mobility Division approval.

The Contractor shall furnish and maintain all signs, barricades, lights and flagmen necessary to control traffic and provide for safety of the public, all in compliance with the approved traffic control plan with subsequent revisions and additions, and to the satisfaction of the Engineer.

The cost of maintaining traffic and of any additional earth excavation, selected fill, temporary wearing

surface, temporary bridges, barricades, barriers, warning and traffic lights, flagmen, and similar work required to implement the MOT plan shall be included under the various Contract Items, or in the total Lump Sum Price, as applicable, and no additional payment will be made therefor.

SP-27 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, the authorities having jurisdiction (AHJ) over streets and highways are the City of Tampa Mobility Department, Hillsborough County Public Works, and Florida 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 materials and equipment shall conform to the requirements of the respective AHJ and will be subject to the inspection and approval of the AHJ.

SP-28 Existing Public Facilities Restoration

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, 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 therefor.

SP-29 City Street Pavement Restoration

City street restoration shall be performed in accordance with the details on the plans, the Technical Specifications and the latest editions of the City of Tampa Pavement Restoration Standards, City of Tampa Pavement Design Standards and the City of Tampa Transportation Technical Manual all maintained and periodically by the Mobility Department, Transportation Engineering Division.

SP-30 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 appurtenant 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 various Contract Items, or in the total Lump Sum Price, as applicable, and no separate payment shall be made.

SP-31 Protection of Existing Utilities and/or Relocation

The Contractor shall protect all utilities and other facilities within and adjacent to the construction as covered in Section G-1.03, unless a utility firm has conclusively indicated, or such is shown on the Plans, that the

utility has been abandoned or certain adjustment, removal, reconstruction, or protection of the utility's facility will be performed by that respective utility.

The Contractor shall furnish, install, and remove sheeting and shoring, utilize trench boxes or other protective measures as may be necessary to satisfactorily accomplish the construction of the project. The cost of such measures shall be included in the unit prices as bid for the work being installed, and no separate payment shall be made therefor.

It will be the Contractor's responsibility to verify the location of all private utilities.

SP-32 Conflict Structures

Where a sanitary sewer line runs through a conflict structure, the portion of sanitary sewer spanning the structure shall be PVC encased in a steel sleeve. The annular space between the PVC pipe and the steel sleeve shall be sealed at each end as shown in the plans and contract documents. Payment shall be made under the appropriate conflict structure item. Unit bid price in this case shall reflect the PVC pipe, steel sleeve, etc., required to meet the above requirements and the standard details.

When a water main is carried through a conflict structure, the water line shall be encased in a steel sleeve. The diameter of the sleeve pipe shall be such as to allow about one inch (1") minimum clearance all around the existing water main (including bells). Payment shall be made under the appropriate conflict structure item. Bid price for such structures shall include all costs for furnishing and installing such steel sleeve.

SP-33 House Services

The Contractor shall maintain all utilities and house service connections on a continual basis. Any required work to municipal service lines (water and sewer) shall be performed in a manner that will minimize disruption of service to customers, the time of disruption will be subject to the approval of the Engineer. Any public or private utility services damaged by the Contractor will be repaired by the utility having jurisdiction and the cost of such repairs shall be borne by the Contractor.

The Contractor shall replace all existing vitrified clay (VCP) sanitary lateral services that crosses the proposed trench. Payment for the sewer lateral services will be made per each (EA) lateral services replaced. Each replacement of sewer lateral will include all necessary materials to install and remove the lateral in-place to the main if (VCP) or within trench if PVC. If there is a direct conflict with sewer and stormwater and no offset can be made, a conflict manhole will be required and included in a separate pay item.

SP-34 Short Tunnels

Sewers or force mains shall be constructed in short tunnels when determined necessary by the Engineer to protect trees, shrubs, and existing surface or subsurface utilities and structures. Short tunnels shall be constructed to the lengths specified and directed in writing by the Engineer. Separate payment for short tunnels will not be made but shall be included in the Contract Unit Price for which the short tunnel is incidental.

SP-35 Protection of Trees and Shrubs

All trees and shrubs, except where otherwise shown or ordered, shall be adequately protected by barricades, fences as indicated on the Plans, or otherwise carefully supported, as necessary, by the Contractor. Protective barricades shall be placed around all protected trees and grand trees and shall remain in place until all construction activities are completed. Refer to the tree permit issued by the City’s Natural Resources Division for inspections after tree protection devices have been installed and prior to construction. 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. Prior to mobilization, all exposed roots shall be covered with a two (2)-inch layer of mulch. The Contractor shall replace all trees or shrubs which are destroyed or damaged to such extent, in the opinion of the Engineer, to be considered destroyed. Replacement of damaged or destroyed trees or shrubs shall be made with new stock conforming to the requirements of the City's Tree Ordinance at the expense of the Contractor, and no separate payment will be made therefor.

Beneath trees within the limits of the excavation, and where possible, pipelines shall be built in short tunnels, except as otherwise shown or specified. 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 in short tunnel, as ordered in writing by the Engineer. The Contractor shall be responsible for all damage to trees and shrubs as a result of his operations, whether the pipeline is placed by trenching, tunneling, or other excavation.

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

The cost of protection of trees and shrubs, replacement or repair of trees or shrubs destroyed by the Contractor, short tunnels, and cutting or trimming of tree branches shall be included in the various Contract Items for pipelines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

SP-36 Lawn and Landscape Restoration

Where construction activities are conducted in existing grassed areas, the grassed areas shall be restored as specified or directed by sodding or grassing. Such restoration of grassed areas shall conform to the requirements of the Workmanship and Materials section headed "Lawn Replacement."

The Contractor shall replace or repair all ground surfaces damaged during construction. Areas shall be regraded in conformance with the plans or to pre-impacted conditions. Any bushes, flowers, gardens, patios, or other landscaping and irrigation systems disturbed by the construction project shall be repaired or replaced by the Contractor. The cost of such ground surface repair shall be included in the various Contract Items, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

SP-37 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.

SP-38 Existing Drainage Facilities

The Contractor shall protect all existing drainage facilities within the work zone. When approved by the Engineer, relocation or special maintenance of drainage facilities during construction will be permitted. Disruption of service shall be kept to a minimum.

Facilities which are damaged by the Contractor shall be replaced by the Contractor to such limits as directed by the Engineer. Replacement work shall conform to City Standards. Work done outside the City shall conform to the standards of the AHJ.

The cost of protecting, replacing, relocating and maintaining drainage facilities shall be included in the various Contract Items for pipelines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor, unless otherwise specified in other Contract Items.

SP-39 Inspection of Reinforced Concrete Pipe

All reinforced concrete pipes, reinforced concrete arch culverts, storm drain, and sewer pipe, and all reinforced concrete elliptical pipe shall be inspected and accepted by a testing laboratory approved by the Engineer. At the completion of the installation of the stormwater system and prior to roadway construction, all pipes and structure will be video inspected per details in SP - 92

Each pipe shall bear the stamp of acceptance of the testing laboratory and the Engineer shall be supplied with a copy of each inspection report, including a certification of "D-load," absorption test, conformance to the dimensional requirements, and all other designations of ASTM specifications. The cost of such inspection services shall be included in the unit prices for the respective pipe items.

Unless specified otherwise on the Plans, or directed by the Engineer, all storm sewer pipes shall be ASTM Class III, B wall thickness.

Prior to the manufacture of any reinforced concrete sewer pipe, details of the steel reinforcing and concrete strength together with proof of the adequacy of the pipe design for each size and class of pipe shall be submitted to the Engineer for approval.

As proof that the design of the pipe meets the 0.01-inch crack and ultimate load strength requirements for this class of pipe, the manufacturer shall submit the results of properly certified three-edge-bearing tests already witnessed and verified by an approved independent testing laboratory on identical pipe of identical design or, if such three-edge-bearing test results are not already available or are not acceptable, shall have one pipe, at least four feet in length, tested in three-edge-bearing and witnessed and verified by an approved independent testing laboratory and shall submit certified test results. All costs associated with proof-of-design tests shall be borne by the Contractor.

Concrete sewer pipe shall be tested in accordance with the applicable provisions of ASTM Des: C 497 as required by the ASTM Specification for the pipe.

The basis of acceptance for reinforced concrete pipe shall be in accordance with Section 5.1.1 of ASTM Des: C 76 (round pipe) or ASTM Des: C 507 (elliptical pipe). During manufacture, at least one pipe section shall be shop tested to destruction in three-edge-bearing in the presence of an approved independent testing laboratory for each 1,000 feet of pipe or fraction thereof made. The test pipe sections shall be a minimum of four feet in length. The manufacturer shall have a pipe casting form, of the same inside diameter as the pipe being manufactured, together with the proper reinforcing steel cages, available at all times during manufacture for the purpose of casting test pipes at the times designated by the Engineer. Test pipe sections

shall not be lined with plastic sheet. No pipe shall be tested at an age of less than 12 days, and no pipe shall be delivered to the job site until satisfactory completion of shop tests on representative pipe specimens for each 1,000-foot lot of pipe manufacturer. Proof-of-design tests performed on pipe manufactured for this Contract will be accepted by the City in lieu of shop tests for the first 1,000- foot lot of pipe of each size and class manufactured. This test must be within one (1) year of shipment for each size and class of pipe.

The basis for acceptance of nonreinforced concrete pipe shall be in accordance with Section 4.1 of ASTM Des: C 14.

The Contractor shall obtain, review and submit to the Engineer four (4) copies of certified test reports made by the City's inspection engineer. All costs associated with shop testing shall be borne by the Contractor.

SP-40A Elliptical Concrete Pipe and Round Concrete Pipe Joints

All joints in elliptical concrete pipe and round R.C.P. shall be provided with filter fabric or concrete jacket as per D.O.T Standard Index No. 280 and as directed by the Engineer. Filter fabric shall be provided at all joints, except the last two joints not supported by a structure; these joints shall be provided with a concrete collar.

The cost of the filter fabric jackets and concrete collars shall be included in the unit cost of pipe. No extra payment will be paid for such jackets or collars.

SP-40B Grouting 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 air-entraining admixture shall be permitted per Section 924. The grouting shall be installed by pumping.

This work shall be carried out after the replacement sewer is complete and functional.

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 plugs, stand pipes, grout injection tubes (or other approved measures), and any other necessary steps to provide for a complete item shall be included in the unit cost of the grout, and no additional payment shall be made therefor.

SP-41 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 five hundred (500) linear feet of road is inaccessible 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-42 Alignment Survey Gravity Storm Sewer Pipe or Force Main Pipe

For any of the several “Annual Contracts”, the Contractor shall employ the services of a Land Surveyor, registered in the State of Florida, to stake out the alignment of the new 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 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. 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 contract unit prices and no additional payment will be made therefor.

SP-43 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-44 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 Contract Items for pipelines, or in the total Lump Sum Price, as applicable, and no separate payment will be made therefor.

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-46 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-47 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. Subgrade and Base work
5. Paving
6. Final Restoration

SP-48 Contingent Items

Contract Items in the Proposal marked with an asterisk (*) are contingent. These items may or may not be used.

Contingent Contract Items that have an established unit price by the City or a unit bid price established by the Contractor will be the unit price the City will pay the Contractor should it become necessary to use more or less of the stated quantities.

SP-50 Water Service Connections

During the course of the work, some existing water service connections will be disrupted or designated to be reconstructed/relocated due to the construction. When the water main is designated to be replaced in the contract Plans, the reconnection of the existing service line to the new water main will be paid for at the contract unit price per each connection one time only. All connections shall be transferred/relocated as per current City of Tampa Water Department, Technical Standards.

Copper and polyethylene service lines which are in good condition may be continued in use at the same location as determined by the Engineer. At locations where the streets are to be reconstructed, water lines shall have a minimum of thirty-six (36) inch cover.

SP-51 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 therefor.

SP-52 Water Service Line Replacement

Any water service line that is not copper or polyethylene shall be replaced by the Contractor per Tampa Water Department (T.W.D.) Specifications from main to meter including curb stop. The Contractor shall be compensated for this work under the appropriate Contract Item.

All copper service lines, including those having a meter box which will remain in a driveway undisturbed by construction, shall remain in service and be protected in place by the Contractor.

If the Contractor desires to temporarily disconnect the service line due to construction methodology, he must submit a written request to the Engineer at least three (3) working days prior to the proposed disconnect. If approved, the service line shall be removed from main to meter including curb stop. The Contractor shall provide twenty-four (24) hour written notice to the consumer prior to the service interruption.

Some meter boxes may be designated to be relocated outside of a driveway if the driveway is disturbed by construction. If so, a new service line shall be installed per T.W.D. Specifications from main to meter including curb stop. Schedule 40 PVC pipe shall be used to reconnect the consumer at the existing point of connection. The PVC pipe shall be extended from the downstream side of the meter to the consumer's existing point of connection. The old service line shall be cut and plugged at the main.

Service lines falling within four (4) inches of the proposed base or subbase material shall be lowered in place.

Couplings shall not be used to achieve sufficient depth. If the required depth cannot be achieved without the use of couplings, a new service line shall be installed by the Contractor from main to meter as specified herein. The Contractor shall be compensated for this work under the appropriate Contract Item.

SP-53 Use of Site for Storage and Field Office

Space, on the site, for storage and field office for the Contractor shall be as directed by the Engineer. Any structures or facilities needed for storage or field office shall be constructed by the Contractor at his own expense and no separate payment will be made therefor. All security requirements for such facilities shall be provided and maintained by the Contractor.

Upon completion of the work, and as directed, the Contractor shall clean up the areas, remove any temporary facilities and finish grade as necessary, all as approved.

SP-54 Notice of Construction (Special Note for all FDOT Projects)

The Contractor shall provide a minimum of 48 hours notice to the Engineer prior to performing any work involving sanitary sewer facilities. In the event that the Contractor ceases operations for more than 3 consecutive working days, he shall again provide a minimum of 48 hours notice to the Engineer prior to performing any work involving sanitary sewer facilities.

SP-55 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.

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 therefor.

SP-56 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-57 Project Videotaping

Prior to commencing work, the Contractor shall submit to the Engineer for approval, a DVD containing a continuous color video recording including complete coverage of pre-construction conditions of all surface features within the construction's zone of influence, (including detour routes) simultaneously produced audio commentary and electronic display of time and date. The video recording shall be sufficient to fulfill the technical and forensic requirements of the project and provide continuous unedited coverage, establishing locations and viewer orientation with clear, bright, steady and sharp video images with accurate colors free of distortion or other imperfections. The DVD must be accompanied by a detailed log of its contents including date, locations, video counter numbers and features. No work shall be allowed until the completed DVD and log are approved by the Engineer.

At the conclusion of installation of the stormwater system and before the installation of the sidewalk and roadway, Contractor will conduct a video inspection of the stormwater system and provide a DVD and written log of the inspection for review and approval of the Engineer. Video inspection shall comply with FDOT specification section 430-4.8.1. No additional payment will be made for this work.

SP-59 Storm Structure Inlet Elevations

For structures installed to match existing conditions, Contractor shall consider manhole top, grate inlet top and curb inlet throat elevations approximate and either verify the elevations before ordering precast structures or order structures at least six (6) inches lower than the grate or throat elevations and cast in place the remaining height to attain required elevations to match existing conditions. No additional payment will be made for this work.

SP-60 Sanitary and Storm Sewer Manhole Adjustment

The Contractor shall adjust all existing sanitary or storm sewer ring and cover manholes within area of pavement restoration or mill and overlay and directed by the Engineer, to match the proposed new roadway surface. All manhole lids shall be flush with finished grade or not more than one-half inch below finished grade.

All costs associated with manhole adjustment ring shall be included in a payment line item.

SP-61 Mobility As-Built – (please refer to Wastewater & Water Department for their As-built Requirements)

All As-Built information shall be annotated by a Florida Registered Professional Surveyor and Mapper on a separate layer of each AutoCAD drawing file of the construction plans as provided by the City.

Annotation of the new drawing files shall be in accordance with City of Tampa Mobility Department drafting standards, as well as the Standards of Practice / Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. Settings shall be as follows: Color: CYAN, Line Type: CONTINUOUS, Font: ROMANS, Layer Name: AS-BUILT, AutoCAD Menu Name: ACAD.MNU, and File Format: AUTOCAD latest version.

All surveys shall be completed and certified by a Florida Registered Professional Surveyor and Mapper hired and/or employed by the Contractor, and shall be in accordance with the Standards of Practice / Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. Survey data shall be submitted as an electronic data file in AutoCAD latest version. The Contractor shall also include as supporting data the ASCII files of digital raw survey data, closure reports, adjustment reports, and/or copies of any hand written field notes or sketches.

"As-Built", or "Record", surveys, as may be required by contract, or agreement, shall consist of survey data collected on all constructed improvements, so they may be compared to and contrasted with the design plans and/or construction drawings. The annotated disk shall delineate all changes and deviations to the planned improvements within the project limits, to include, but not be limited to, pavement, curb & gutter, sidewalk, driveways, inlets, manholes, all piping, inverts, ditches, ponds, valves, hydrants, water meters, signalization, hand holes, signing & pavement marking, landscaping, and irrigation. All changes and deviations shall be delineated by Station-Offset and vertical alignment values (or in the same format as depicted on the construction plans) and shall be clearly shown on the drawing files.

The Contractor shall comply with the above requirements and shall submit two (2) check print sets of the plans at the same scale as the construction plans, and all the supporting survey data files, to the Engineer for review within three weeks of substantial completion of the project. Final payment for the project shall not be made until the As-Built information is received for review, any corrections are made, and approval granted by the Engineer. Upon approval, the Contractor shall provide the final As-Built drawings on the disk, at the same scale as the construction plans. These files shall be AutoCAD Drawings, a copy in Adobe PDF, and two (2) hard copies signed and sealed with the As-Built information in red.

The cost for this work shall be included in the contract price for Mobilization and no separate payment shall be made for meeting the above As-Built requirements.

SP-62 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 its 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 Contractor's work force does not relieve the Contractor of this responsibility.

All Contractors' employees and sub-contractors should be given a copy of SP-130.

The Contractor shall have a designated Safety Officer within its 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 its 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 its 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 specified in the Contract.

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 the daily report and report it to the Risk Management Division (274-5708).

C. Air-Borne Debris: All personnel in 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 who installed it or, if not available, by a City of Tampa AWTP team leader, except in an Emergency when 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. Explosives or Open Flames: No explosives or 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 its 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 therefor.

SP-104 Castings Identification

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

SP-116 Tree Removal and/or Replacement

The Contractor shall remove and replace trees as identified on the plans and as directed by the Engineer. All tree removal and replacement activities shall be in compliance with the City of Tampa Municipal Code,

Chapter 27-284, https://library.municode.com/fl/tampa/codes/code_of_ordinances?nodeId=COOR_CH27ZOLADE_ARTVISURE_DIV4NARETRLAWEUPHA and the "City of Tampa's Tree and Landscape Technical Manual" https://www.tampa.gov/document/tree-and-landscape-technical-manual-10981 as amended, latest edition.

The Contractor shall contact the City's Parks Department and the City's Construction Services Center to coordinate removal and replacement details and inspections. Substandard workmanship will be rejected. The Contractor shall pack, transport, and handle the replacement trees with care to ensure protection against injury. Upon arrival, the Contractor shall protect all trees from drying out by properly protecting the trees with soil, wet peat moss, or in a manner acceptable to the Engineer. No tree shall be bound with rope or wire in a manner that could cause damage.

Trees that are transported or planted improperly shall receive a special review established on a case-by-case basis.

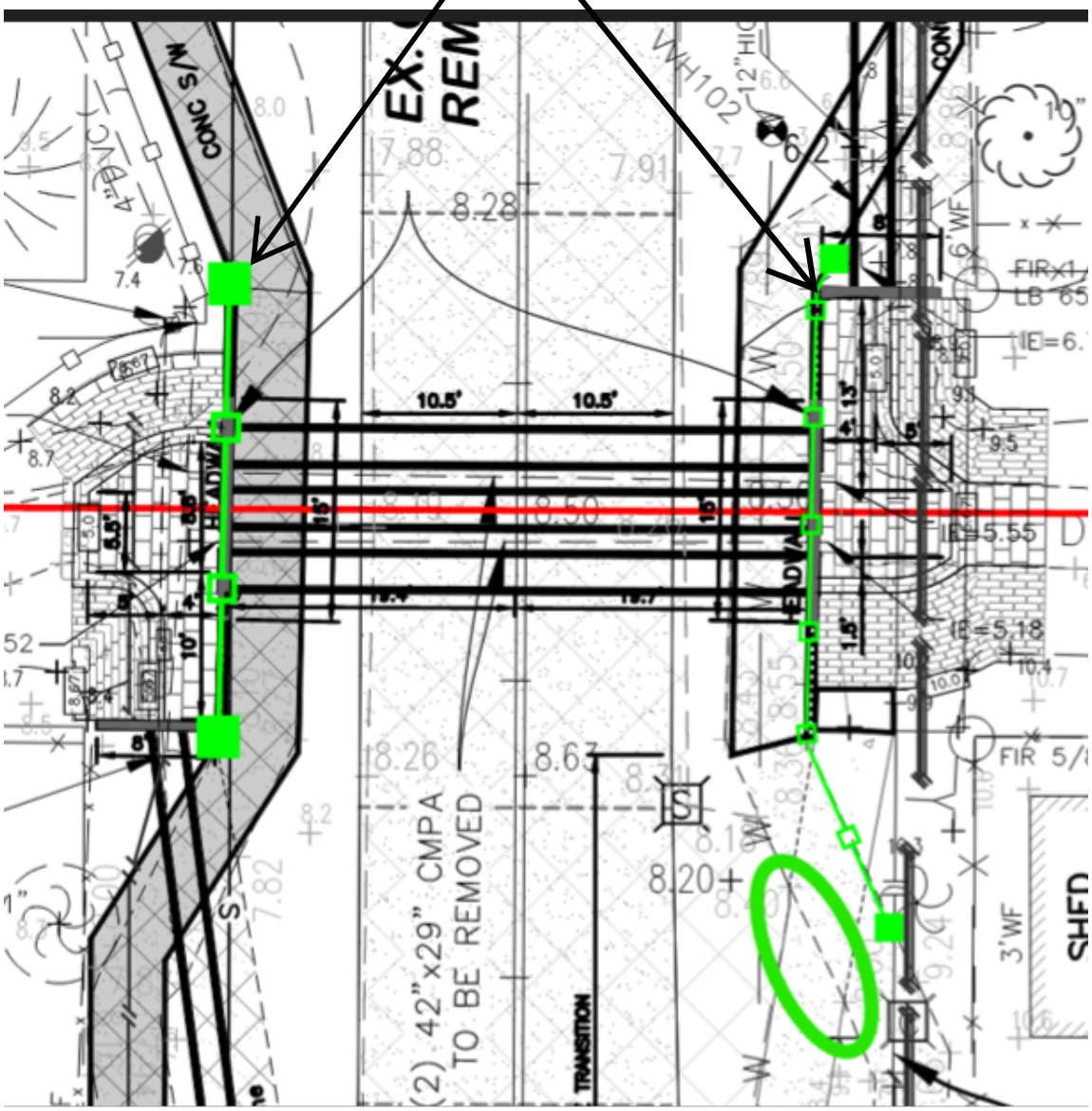
The Contractor shall be responsible for maintaining the trees in a vigorous, healthy condition for a period of 90 days after replacement of all trees has been approved by the Engineer. Tree maintenance shall include, but not necessarily be limited to, watering, fertilizing, pruning, staking, guying, and all measures necessary to successfully maintain the trees to the satisfaction of the Engineer.

* * *

SUPPLEMENTAL DRAWING

Install Aluminum Pedestrian/Bicycle Railing on Concrete Headwall or sidewalk per FDOT Standard Plans Index 515-062 (Type I) and FDOT Standard Specifications Section 515

NTS



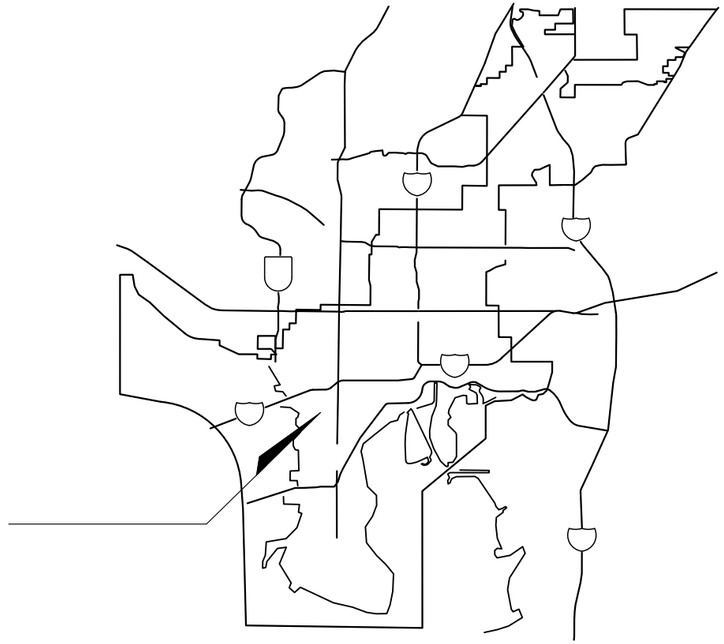
CITY of TAMPA

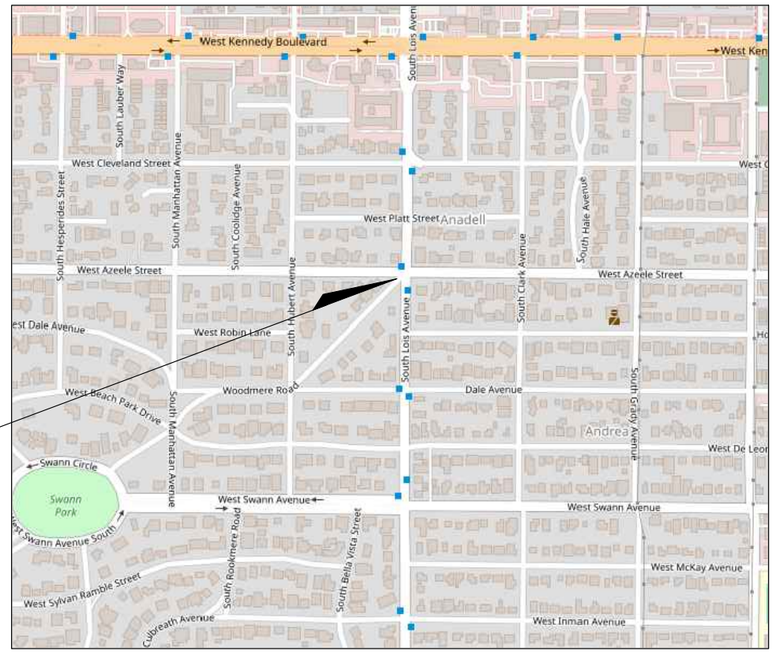
Mobility Department
Stormwater Engineering Division

CLARK & FAIROAKS DRAINAGE IMPROVEMENTS	REVISION TO SHEET NUMBER 2	SD–C1 DATE 01/15/26

CITY OF TAMPA
MOBILITY DEPARTMENT

ROADWAY PLANS





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Robert Cody Hatton, Professional Engineer, State of Florida, License No. 87480

This item has been digitally signed and sealed by Robert Cody Hatton, P.E. using a Digital Signature and date.

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

		SHEET NO.
		1

T:\04 TRANSPORTATION ENG\TRAFFIC STUDIES & SAFETY\Intersection Location File\Lois Av - Woodmere Av\2024 -10 Dead End with Stormwater\PLANRD01.dwg

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	QUANTITY
101-1	MOBILIZATION	LS	1
102-1	MAINTENANCE OF TRAFFIC	LS	1
110-1-1	CLEARING & GRUBBING	AC	0.36
110-4-10	REMOVAL OF EXISTING CONCRETE	SY	52.2
120-1	REGULAR EXCAVATION	CY	35
120-6	EMBANKMENT	CY	103
160-4	TYPE B STABILIZATION, 12" THICK AVG DEPTH	SY	128
285-7-06	OPTIONAL BASE, BASE GROUP 06, CRUSHED CONCRETE, 8" THICK AVG DEPTH	SY	108
327-70-6	MILLING EXISTING ASPHALT PAVEMENT, 1.5" AVG DEPTH	SY	741
327-70-4	MILLING EXISTING ASPHALT PAVEMENT, 3" AVG DEPTH	SY	339
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TN	146.6
425-5	MANHOLE, ADJUST	EA	5
425-6	VALVE BOXES, ADJUST	EA	1
520-1-8	DROP CURB	LF	69
520-2-4	CONCRETE CURB, TYPE D	LF	311
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	100
527-2	DETECTABLE WARNINGS	SF	22
570-1-2	PERFORMANCE TURF, SOD	SY	245
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	84
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	2
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	2
646-1-60	ALUMINUM SIGNALS POLE, REMOVE	EA	1
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	2
653-1-60	PEDESTRIAN SIGNAL, REMOVE PED SIGNAL- POLE/PEDESTAL TO REMAIN	AS	1
660-2-101	LOOP ASSEMBLY- F&I, TYPE A	AS	4
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	2
700-1-111	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	9
700-1-600	SINGLE POST SIGN, REMOVE	AS	7
700-3-101	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA	2
706-1-3	RETRO-REFLECTIVE PAVEMENT MARKERS YELLOW/YELLOW	EA	16
710-11-123	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	LF	207
710-11-125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE OR CROSSWALK, 24"	LF	172
710-11-201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	LF	256
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF	207
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE	LF	45.5
711-14-125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF	126.5
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	LF	256

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
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ROBERT CODY HATTON, P.E.
P.E. LICENSE NUMBER 87480
CITY OF TAMPA
306 E JACKSON ST
TAMPA, FL 33602
CERTIFICATE OF AUTHORIZATION N/A

CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

TABULATION OF QUANTITIES

SHEET NO. 2

GENERAL NOTES

1. CITY OF TAMPA STANDARD DRAWINGS ARE AVAILABLE AT THE CITY HALL ANNEX, 306 E. JACKSON STREET, 6TH FLOOR, EAST WING.
2. ALL DISTURBED LANDSCAPED AREAS ARE TO BE SODDED.
3. STREET SIGNS AND STREET MARKERS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. ANY LOST OR DAMAGED SIGNS OR MARKERS SHALL BE REPLACED.
4. SURVEY WAS DONE ON NOVEMBER 11, 2022 – JANUARY 6, 2023
5. THE PROFESSIONAL SURVEYOR AND MAPPER OF RECORD IS:

   MICHAEL J. CURLEY, P.S.M.
   PSM NO.: LS 6361
   GEORGE F. YOUNG, INC., LB21
   299 DR. MARTIN LUTHER KING JR STREET N
   ST PETERSBURG, FL 33701
6. UTILIZE A SAWCUT AROUND ALL EXISTING PAVED OR BRICK ROADWAYS TO REMOVE THE EXISTING MATERIALS TO PREPARE AREAS FOR NEW CURBS, WIDENING, BULB-OUTS, SIDEWALKS, RAMPS, ETC.
7. ALL RESURFACING PERFORMED ALONG THE FLOW LINE AND DRAINAGE STRUCTURES SHALL BE GRADED TO PROMOTE POSITIVE DRAINAGE AND PREVENT STANDING WATER.

TRAFFIC SIGNAL NOTES:

1. ANY TRAFFIC SIGNAL EQUIPMENT RELOCATION WILL BE COMPLETED BY A LICENSE SIGNAL CONTRACTOR. CONTACT KELVIN NEAL (813) 393-8436 (KELVIN.NEAL@TAMPAGOV.NET) TO COORDINATE ANY REQUIRED SIGNAL INSPECTIONS WITH A MINIMUM OF 10 DAY NOTICE.
2. DAMAGED LOOPS AND FEEDERS WILL BE REPLACED AS PART OF THIS PROJECT AT THE CONTRACTOR'S EXPENSE. BEFORE THE LOOPS ARE DAMAGED, NOTIFY TRAFFIC OPERATIONS, MAURICE FOWLER (813) 395-8426 (maurice.fowler@tampagov.net) SO THAT HE CAN ORGANIZE REPLACEMENT.
3. CONTACT MAURICE FOWLER (813) 395-8426 FOR ANY NEW INDUCTIVE LOOPS TO SCHEDULE TESTING AND TRIAL ACCEPTANCE 10 DAYS PRIOR TO NEED. TYPE A 6'X30' 2' IN FRONT OF STOP BAR THRU LANES, UNLESS OTHERWISE MENTIONED IN PLANS. TYPE F 6'X30' 2' IN FRONT OF STOP BAR FOR LEFT TURN LANES FOR REPLACEMENT OF ANY DAMAGED LOOPS AS A RESULT OF THIS PROJECT.
4. UNDERGROUND SIGNAL CABLE, FIBER OPTIC LINES AND CONDUIT EXIST AT SIGNALIZED INTERSECTIONS. ALL SIGNS WITHIN 50' OF A SIGNALIZED INTERSECTION MUST BE MARKED IN WHITE PRIOR TO CONTACTING SUNSHINE AND INSTALLATION.
5. STOP BAR DETECTION MUST BE MAINTAINED THROUGHOUT THE PROJECT DURATION. TEMPORARY DETECTION MAY BE REQUIRED AT THE CONTRACTORS EXPENSE.
6. ALUMINUM SIGNAL AND PEDESTRIAN STATION PEDESTALS MUST BE MOUNTED ON TRANSFORMER BASE AND MUST HAVE AN ALUMINUM DOOR, NOT PLASTIC.
7. ALL SPARE CONDUIT MUST HAVE MULE TAPE AND ALL CABLE IN PULL BOXES MUST BE LABELED WITH WEATHERPROOF TAGS.

TRAFFIC CONTROL NOTES:

1. MILLING AND RESURFACING ACTIVITY SHALL BE IN COMPLIANCE WITH FDOT STANDARD INDEX 102 SERIES.
2. SET UP WORK ZONE SIGNS IN ACCORDANCE WITH THE APPROPRIATE FDOT STANDARD INDEX 102 SERIES.
3. TRAFFIC FLOW SHALL BE MAINTAINED ALONG AFFECTED ROADWAYS AT ALL TIMES.
4. POSTED SPEED LIMITS SHALL BE MAINTAINED AT ALL TIMES.
5. ACCESS TO BUSINESSES AND/OR RESIDENTIAL PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
6. EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED AT ALL TIMES.
7. THE CONTRACTOR SHALL ADHERE TO FDOT STANDARD INDEX 102 WITH REGARDS TO DROP OFFS IN WORK ZONES.

SIGNING AND PAVEMENT MARKING GENERAL NOTES:

1. PAVEMENT MARKINGS SHALL BE PLACED AS SHOWN IN THE PLANS WITH THE APPROPRIATE FDOT DESIGN STANDARD INDEX AND MUTCD ADHERENCE. ALL PAVEMENT MARKINGS SHALL BE REINSTALLED ACCORDING TO EXISTING MARKINGS UNLESS OTHERWISE NOTED.
2. CAUTION SHOULD BE EXERCISED WHILE RELOCATING EXISTING SIGNS SO AS TO PREVENT DAMAGE TO THE SIGNS. IF THE SIGNS ARE DAMAGED BEYOND USE, AS DETERMINED BY THE ENGINEER, THEY SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
3. THE SIGN AND PAVEMENT MARKING LOCATIONS ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY THE ENGINEER.
4. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET AND METHOD OF INSTALLATION.
5. SPECIAL PAVEMENT MARKINGS ARE REQUIRED AROUND CURB INLETS OR AROUND DRAIN GRATES. SEE SIGNING AND PAVEMENT MARKING SPECIAL DETAIL SHEET, IF APPLICABLE.
6. IF REMOVAL OF EXISTING MARKINGS IS REQUIRED, IT SHALL BE DONE BY HYDRO-BLASTING OR MICRO-GRINDING IF APPROVED BY THE ENGINEER.
7. REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED IN ACCORDANCE WITH CURRENT FDOT STANDARD INDEX 706-001.
8. INSTALL PROPOSED SIGNS ACCORDING TO FDOT INDEX NO. 700-101 (TYPICAL SECTIONS FOR PLACEMENT OF SINGLE & MULTI-COLUMN SIGNS) UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER.
9. WHEN UPGRADING OR INSTALLING PEDESTRIAN CROSSWALKS, PED RAMPS SHALL BE MADE ADA COMPLIANT IF NEEDED.
10. ALL SPECIAL EMPHASIS CROSSWALK LONGITUDINAL BARS SHALL BE 24" WHITE PREFORMED THERMOPLASTIC.
11. ANY VEGETATION INTERFERING WITH THE VISIBILITY OF THE EXISTING AND/OR PROPOSED SIGNS SHALL BE TRIMMED OR REMOVED UNTIL FULL VISIBILITY IS RESTORED.

UTILITY NOTES

1. EXISTING UTILITIES ARE TO REMAIN IN PLACE UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY COORDINATION.
3. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ACCURACY. THE CITY OF TAMPA DOES NOT CERTIFY THE LOCATION OR EXISTENCE OF ANY UNDERGROUND UTILITIES, NOR AS TO THE SOIL OR GROUND CONDITIONS, AND ASSUMES NO LIABILITY FOR SUCH.
4. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES, ABOVEGROUND AND UNDERGROUND, PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR AGREES TO BE COMPLETELY RESPONSIBLE FOR ALL DAMAGES WHICH MIGHT OCCUR BY FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES.
5. WHEN IN CONFLICT, UTILITY POLES, GAS LINES, UNDERGROUND ELECTRIC AND TELEPHONE CABLES, AND OTHER UTILITIES WILL BE RELOCATED BY THE RESPECTIVE UTILITY OWNERS AT THEIR OWN EXPENSE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANIES DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED.
6. SPECIAL CARE MUST BE TAKEN TO PROTECT WATER LINES DURING CONSTRUCTION. PROVIDE SUPPORTS AS NECESSARY.
7. THE CONTRACTOR IS TO COORDINATE WITH TECO ENERGY FOR PROTECTION AND COVERAGE OF ELECTRIC FACILITIES WHEN WORKING IN OR AROUND AREAS OF OVERHEAD ELECTRICAL LINES AND UNDERGROUND UTILITIES.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CALL SUNSHINE 811 AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY WHICH MAY DISTURB UNDERGROUND UTILITIES. UTILITY OWNERS SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION SO THAT THE UTILITY OWNER CAN SPOT VERIFY AND/OR EXPOSE THEIR UTILITIES. SUBMIT TICKETS TO SUNSHINE 811 AT LEAST 2 FULL BUSINESS DAYS PRIOR TO STARTING CONSTRUCTION. WAIT AT LEAST 2 FULL DAYS FOR UTILITIES TO MARK THEIR FACILITIES. UTILITY AGENCIES/OWNERS MAY INCLUDE:

COMPANY NAME	CONTACT	TELEPHONE NUMBER
CITY OF TAMPA, SEWER	JACK FERRAS	(813) 274-8095
CITY OF TAMPA, TRANSPORTATION	ROBERT HATTON	(813) 274-1289
CITY OF TAMPA, WATER	JUAN ALVIRA	(813) 344-9298
FRONTIER COMMUNICATIONS	DANIEL LEILLO	(941) 504-9662
LUMEN	LUMEN CENTURYLINK	(877) 366-8344 X2
MCI	INVESTIGATIONS TEAM	(800) 624-9675 X2
TAMPA ELECTRIC COMPANY	ENGINEERING GROUP	(813) 275-3037
TECO PEOPLE'S GAS	CHEYENNE THOMPSON	(813) 743-7164

9. ALL EXISTING VALVES, MANHOLES, LIDS, ETC. SHALL BE RAISED TO FINISH GRADE BY THE CONTRACTOR, AS NECESSARY. THE CONTRACTOR WILL BE REQUIRED TO LOCATE AND PROTECT THE STRUCTURES DURING CONSTRUCTION.
10. AFTER RESURFACING OPERATIONS HAVE BEEN COMPLETED, CONTRACTOR SHALL ENSURE THAT ALL WATER VALVE BOXES HAVE NOT BEEN OVERLAID DURING CONSTRUCTION ACTIVITIES.

REVISIONS			
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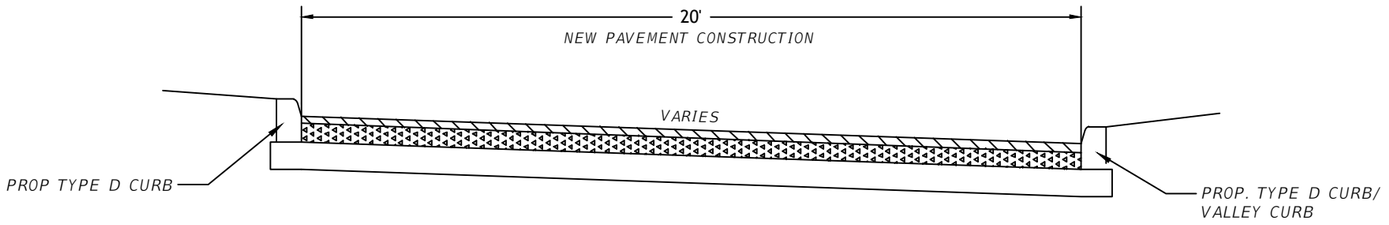
CERTIFICATE OF AUTHORIZATION N/A

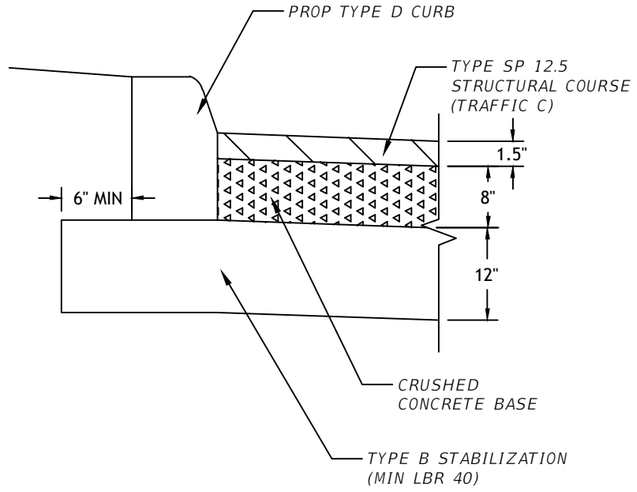
CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

GENERAL NOTES

SHEET NO. 3





WOODMERE TURNAROUND TYPICAL SECTION

N.T.S.

TYPE SP 12.5 STRUCTURAL COURSE (TRAFFIC C) 1.5"
CRUSHED CONCRETE BASE 8"
TYPE B STABILIZATION (MIN LBR 40) 12"

STA. 27+05.98 TO STA. 27+46.17

ADDITIONAL PAVEMENT SECTIONS:

W AZEELE ST (WEST OF S LOIS AVE)

MILL EXISTING ASPHALT PAVEMENT (3" DEPTH)
TYPE SP 12.5 STRUCTURAL COURSE (TRAFFIC C) 3"

STA. 28+24.77
OFFSET: 95.74 L TO 7.87 R

S LOIS AVE AND W AZEELE ST (EAST OF LOIS AVE)

MILL EXISTING ASPHALT PAVEMENT (1.5" DEPTH)
TYPE SP 12.5 STRUCTURAL COURSE (TRAFFIC C) 1.5"

STA. 27+45.00 TO STA. 28+93.29

W WOODMERE RD

MILL EXISTING ASPHALT PAVEMENT (1.5" DEPTH)
TYPE SP 12.5 STRUCTURAL COURSE (TRAFFIC C) 1.5"

STA. 26+95.26 TO STA. 27+86.15

REVISIONS			
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CITY OF TAMPA
MOBILITY DEPARTMENT

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WOODMERE RD	HILLSBOROUGH	----

TYPICAL SECTIONS AND PAVEMENT DETAILS

SHEET NO. 4

PROJECT CONTROL
DALE AVENUE AND LOIS AVENUE
SECTION 21, TOWNSHIP 29 SOUTH, RANGE 18 EAST
HILLSBOROUGH COUNTY, FLORIDA

PROJECT CONTROL							
CONTROL POINT	STATION	OFFSET	ALIGNMENT	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	11+54.74	386.26' LT	SRL1	1311409.43	489505.08	6.00	Set 1/2" Iron Rod GFY
102	12+12.29	9.03' LT	SRL1	1311031.60	489558.23	5.84	Set Nail & Disk GFY
103	16+42.75	24.37' LT	SRL1	1311041.90	489988.84	8.97	Set 1/2" Iron Rod GFY
104	21+33.75	1.39' LT	SRL2	131107.62	490168.63	13.85	Set 1/2" Iron Rod GFY
105	25+16.92	39.63' RT	SRL2	1311390.17	490215.01	13.76	Set 1/2" Iron Rod GFY
106	27+40.81	21.02' LT	SRL2	1311614.90	490157.51	10.88	Set 1/2" Iron Rod GFY
107	25+75.81	223.64' LT	SRL2	1311452.74	489952.60	7.95	Set Nail & Disk GFY
108	22+90.73	5.57' RT	SRL2	1311164.49	490177.79	13.74	Set 1/2" Iron Rod GFY
109	18+19.73	177.04' RT	SRL1	1310838.42	490163.46	15.05	Set 1/2" Iron Rod GFY
110	10+00.00	0.00' RT	SRL1	1311025.00	489345.85	N/A	Set 1/2" Iron Rod GFY
111	20+00.00	0.00' RT	SRL1	1311013.35	490345.78	N/A	Set 1/2" Iron Rod GFY
112	20+00.00	0.00' RT	SRL2	1310873.86	490168.14	N/A	Set 1/2" Iron Rod GFY
113	30+00.00	0.00' RT	SRL2	1311873.76	490182.16	N/A	Set 1/2" Iron Rod GFY

ALIGNMENT						
NAME	STREET	STATION	NORTHING	EASTING	BEARING	DISTANCE
SRL1	W. DALE AVE	10+00.00 20+00.00	1311025.00 1311013.35	489345.85 490345.78	S 89°19'55" E	1000.00'
SRL2	S. LOIS AVE	20+00.00 30+00.00	1310873.86 1311873.76	490168.14 490182.16	N 00°48'12" E	1000.00'

PROJECT CONTROL NOTE:

COORDINATES ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM OF 1983, 2011 ADJUSTMENT (NAD 83/11). ELEVATIONS ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD (HV -02 0072) ELEVATION = 13.855.

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TAMPA, FL 33602
CERTIFICATE OF AUTHORIZATION N/A

CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

PROJECT CONTROL

SHEET NO. 5

W AZEELE ST

W WOODMERE RD

S LOIS AVE

29+00

28+00

27+00

1" = 25'

CONCRETE SIDEWALK

CONCRETE DRIVEWAY

R/W LINE

TYPE D CURB

+36.54
95.74 L
MATCH EXIST.

+44.21
7.87 R

+93.29
9.24 R
MATCH EXIST.

+93.22
33.07 R
MATCH EXIST.

GAS VALVE / TO BE REMOVED
TECO PEOPLES GAS

3' CURB
TRANSITION

ADJUST MANHOLE TOPS

+36.31
86.17 R
MATCH EXIST.

+12.98
49.02 L

+13.16
16.91 L

+10.71
6.38 L

+09.29
3.74 L

+12.99
95.76 L
MATCH EXIST.

DETECTABLE
WARNINGS (TYP.)

FLUSH HEADER
CURB

+97.55
0.34 L

EXIST. 4" PE GM / TECO PGS

+15.73
86.47 R
MATCH EXIST.

5' SIDEWALK

+93.45
58.79 L

+98.41
67.85 L

+92.23
22.96 L

R25'

ADJUST WATER VALVE

+92.70
7.68 R

3' CURB TRANSITION

MATCH EXISTING

R5'

+93.33
39.93 L

+86.15
19.75 L

+89.67
8.07 R

+88.18
19.92 R
MATCH EXIST.

R/W LINE

+88.91
63.80 L

CONC. WALK

+88.19
8.12 R
MATCH EXIST.

REMOVE TYPE D CURB AND SIDEWALK AS NEEDED

+71.24
34.34 L
MATCH EXIST.

+62.60
9.99 L

+69.74
2.98 L

SEE GRADING INFO SHEET

TYPE D CURB

+54.26
15.41 L

ADJUST MANHOLE TOP

REMOVE TYPE D CURB AND SIDEWALK AS NEEDED

CONTROL POINT 106
ALIGNMENT=SLR2
EL.=10.88'
N=1311614.90
E=490157.51
SET 1/2" IRON ROD GFY

106

+49.51
19.82 R
MATCH EXIST.

+49.44
8.38 R
MATCH EXIST.

+45.00
31.27 R
MATCH EXIST.

+27.27
9.69 L

FOR RESURFACING DETAILS SOUTH OF THIS
POINT, REFER TO STORMWATER PLANS

+45.00
8.41 R
MATCH EXIST.

+25.13
8.55 R

+13.98
57.97 L
MATCH EXIST.

+11.63
92.95 L
MATCH EXIST.

+13.11
23.82 L

+20.24
2.55 L

R2'

+04.58
18.79 L

+18.47
50.72 L

+05.00
9.97 L

GAS VALVE / TO BE REMOVED
TECO PEOPLES GAS

+05.98
16.58 L

+95.26
76.41 L
MATCH EXIST.

R5'

EXIST. 2" PE GM / TECO PGS

+99.27
9.89 L

R/W LINE

LEGEND

- PROPOSED CONCRETE SIDEWALK
- PAVEMENT REMOVAL, EMBANKMENT & SODDING
- PROPOSED TURNAROUND (SEE DETAIL, SHEET 4)
- 1.5" MILLING AND 1.5" MIN. VARIABLE DEPTH RESURFACING
- VARIABLE MILL, 3" OVERLAY

REVISIONS			
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CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

ROADWAY PLAN

SHEET NO. 6

W AZEELE ST

SRL2

+13.16
16.91 L

+10.71
6.38 L

+09.29
3.74 L

+97.55
0.34 L
PE 11.25

+92.70
7.68 R

+90.49
8.00 R

LEVEL LANDING
2% MAX PER ADA

PE 11.21

PE 11.31

PE 11.35

28+00

+12.98
49.02 L
MATCH EXIST.

+98.51
67.93 L

+93.33
39.93 L
MATCH EXIST. (EX 10.55)

+92.23
22.96 L
PE 11.10

+89.02
63.81 L

+86.15
19.75 L
MATCH EXIST. (EX 10.48)

MATCH EXISTING

R/W LINE

CONCRETE SIDEWALK
4' MEF

CONC. WALK

4' MEF

+71.24
34.34 L
MATCH EXIST. (EX 10.55)

+78.31
11.74 L
PE 11.20

(EX 10.55)
PE 10.90

+69.74
2.98 L
MATCH EXIST.
(EX 11.04)

+69.99
2.73 R

0.33%

0.33%

N0° 48' 12"E

+65.63
8.27 R
(EX 11.34)
PE 11.42

+65.83
19.91 R
MATCH EXIST. (EX 11.88)

+62.60
9.99 L
MATCH EXIST.
(EX 10.85)

+54.26
15.41 L
PE 10.6

(EX 10.18)
PE 10.45

40" BANYON

W WOODMERE RD

4" CONCRETE CURB

MATCH EXIST.
(EX 10.29)

(EX 9.84)
PE 10.00

MATCH EXIST.
(EX 9.85)

+36.37
33.07 L
PE 10.01

+27.27
9.69 L
PE 11.20

+45.03
2.90 R
PE 12.10

+49.44
8.38 R
MATCH EXIST. (EX 11.47)

+49.43
19.89 R
MATCH EXIST. (EX 12.01)

+88.19
8.12 R
MATCH EXIST. (EX 11.34)

+88.18
19.92 R
MATCH EXIST. (EX 11.69)

2' CURB AND GUTTER

70'(P)

CONCRETE DRIVEWAY

R/W LINE

CLUSTER

V-11

44"

(EX 9.51)
PE 9.70

+13.98
57.97 L
MATCH EXIST. (EX 9.48)

+11.63
92.95 L
MATCH EXIST. (EX 9.13)

27" BIRCH

(EX 9.19)
PE 9.40

MATCH EXIST
(EX 9.14)

+95.26
76.41 L
MATCH EXIST. (EX 9.12)

CONCRETE DRIVEWAY

CONCRETE DRIVEWAY

4.81%

℄ TURNOUT

+18.47
50.72 L
PE 9.61

+13.19
23.90 L
PE 11.06

+20.24
2.55 L
PE 11.60

+13.11
9.57 L
PE 11.60

5' SIDEWALK

+25.13
8.55 R
MATCH EXIST. (EX 11.76)

CONCRETE SIDEWALK

4" CONCRETE CURB

S LOIS AVE

27+00

+05.98
16.58 L
PE 11.60

+99.27
9.89 L

MATCH EXISTING

24"

32"

106

VAULT

PULLBOX

V-12

V-13

RCW

LEGEND

(EX XX.XX) EXISTING ELEVATION

PE XX.XX 6" PVCF PROPOSED ELEVATION

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GRADING INFO

SHEET NO. 7

W AZEELE ST

W WOODMERE RD

S LOIS AVE

29+00

28+00

27+00

1" = 25'

R/W LINE

24" WHITE

6" DOUBLE YELLOW
W Y/Y RPM'S @ 20'

MATCH EXIST.

24" WHITE (TYP.)

8' (TYP.)

REMOVE EXIST (3) TRAFFIC
SEPARATOR CURBS

CONCRETE SIDEWALK

4" CONCRETE CURB

4" CONCRETE CURB AND GUTTER

2' CURB AND GUTTER

CONCRETE DRIVEWAY

CONC. WALK

4" PVCP

6" PVCP

VAULT

PULLBOX

CLUSTER

STOP

ONLY

DO NOT
ENTER

SPEED
LIMIT
30

REMOVE EXIST SIGN
R1-1
36"X36"
1 EA 700-1-600

REMOVE EXIST SIGN
R3-5R
30"X36"
1 EA 700-1-600

OM4-1
18"X18" at 5' O/C
3 EA 700-1-111

OM4-1
18"X18" at 5' O/C
700-1-111 3 EA

REMOVE EXIST SIGN
R3-1
24"X24"
700-1-600 1 EA

REMOVE EXIST SIGN
R5-1
30"X30"
700-1-600 1 EA

R10-6
24"X36"
700-1-111 1 EA

REMOVE EXIST SIGN
R5-1
30"X30"
700-1-600 1 EA

REMOVE EXIST
SUPPORT
700-1-600 1 EA

REMOVE AND REPLACE EXIST SIGN
R2-1
24"X30"
700-1-111 1 EA
AND
700-1-600 1 EA

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
----	----		

ROBERT CODY HATTON, P.E.
P.E. LICENSE NUMBER 87480
CITY OF TAMPA
306 E JACKSON ST
TAMPA, FL 33602
CERTIFICATE OF AUTHORIZATION N/A

CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

SIGNING AND PAVEMENT MARKING PLAN 1

SHEET NO. 8

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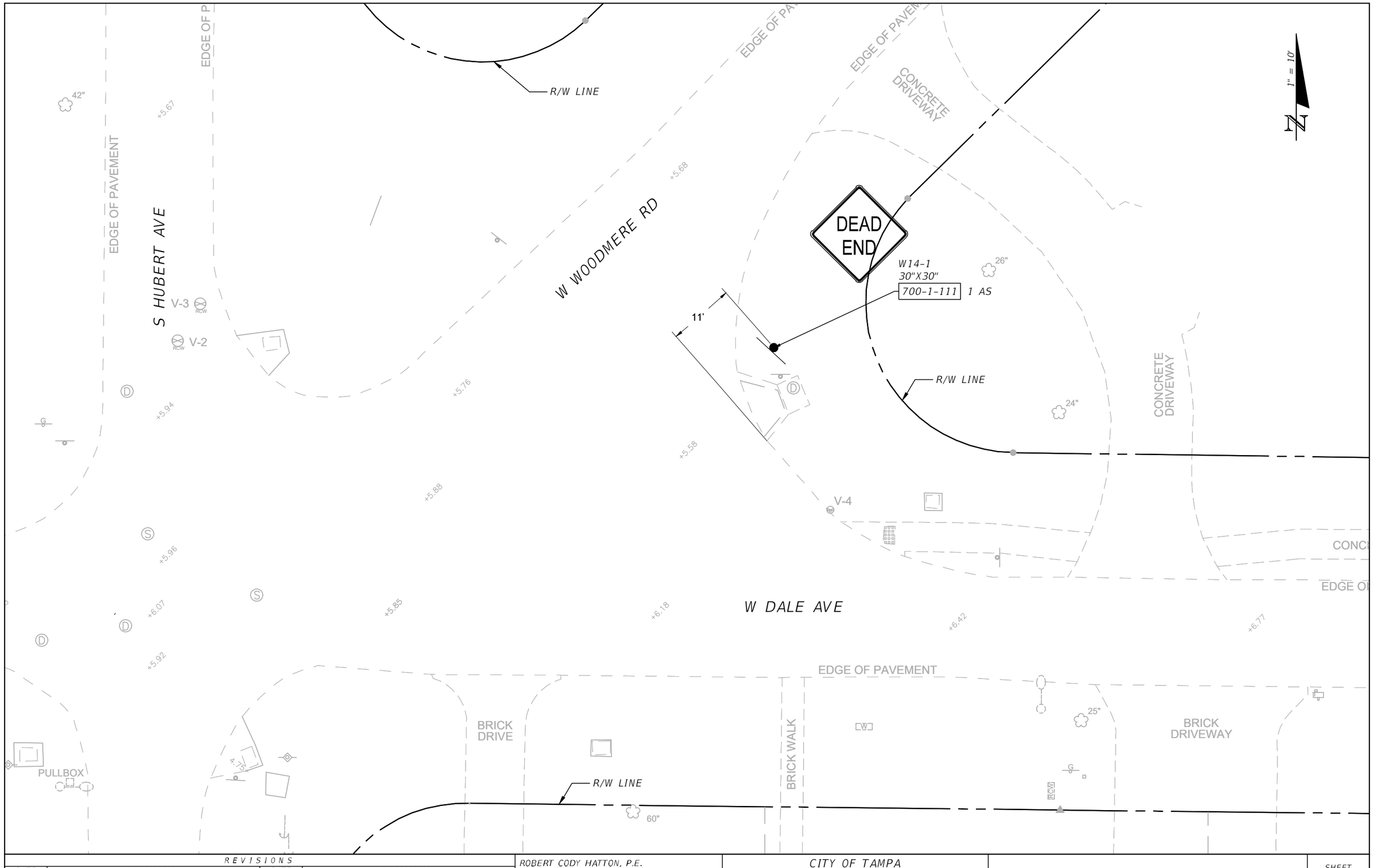


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
----	----		

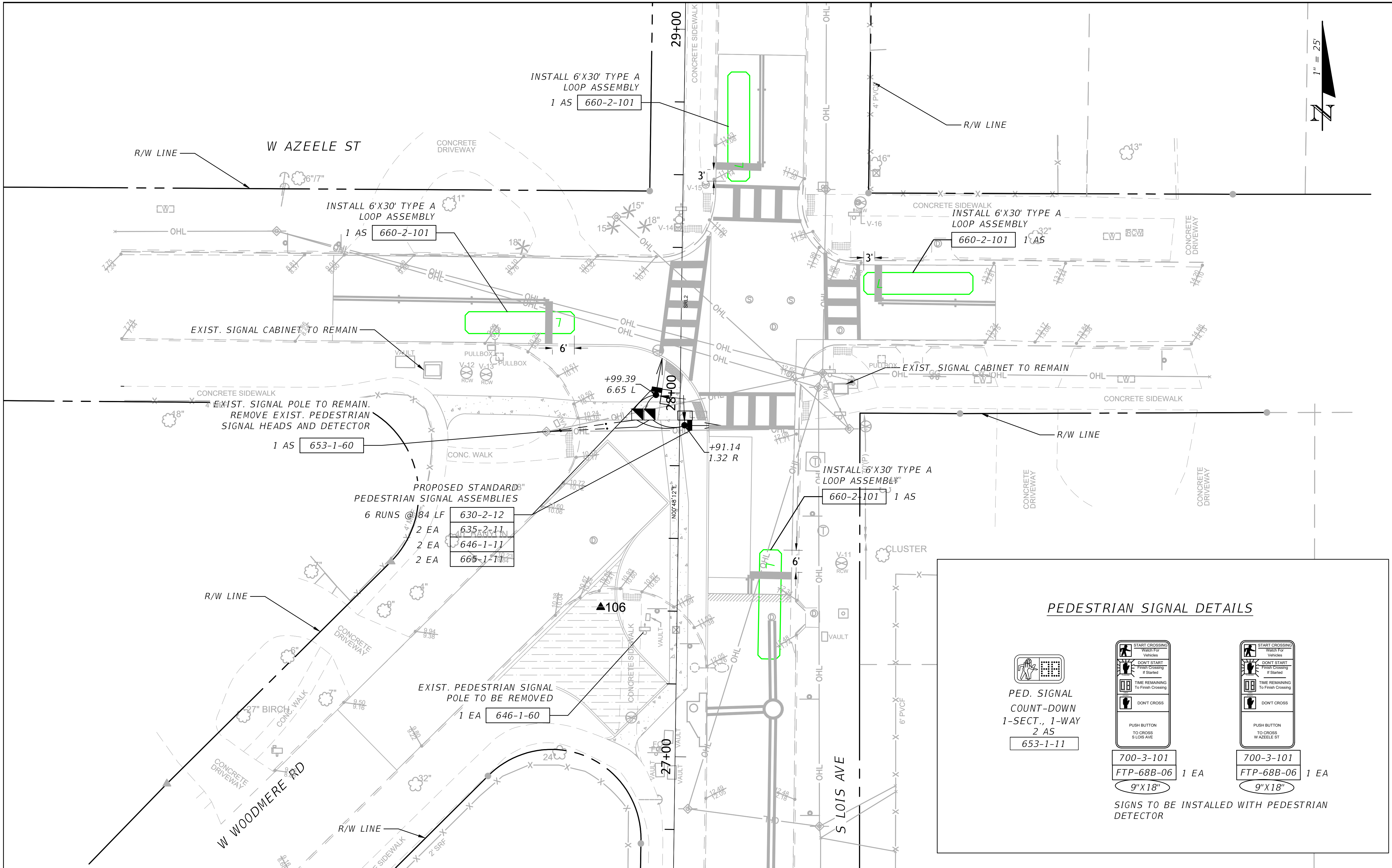
ROBERT CODY HATTON, P.E.
P.E. LICENSE NUMBER 87480
CITY OF TAMPA
306 E JACKSON ST
TAMPA, FL 33602
CERTIFICATE OF AUTHORIZATION N/A

CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

SIGNING AND PAVEMENT MARKING PLAN 2

SHEET NO. 9


1" = 25'
N
W AZEELE ST
R/W LINE
INSTALL 6'X30' TYPE A LOOP ASSEMBLY
1 AS 660-2-101
INSTALL 6'X30' TYPE A LOOP ASSEMBLY
1 AS 660-2-101
R/W LINE
INSTALL 6'X30' TYPE A LOOP ASSEMBLY
660-2-101 1 AS
EXIST. SIGNAL CABINET TO REMAIN
EXIST. SIGNAL CABINET TO REMAIN
+99.39
6.65 L
EXIST. SIGNAL POLE TO REMAIN.
REMOVE EXIST. PEDESTRIAN SIGNAL HEADS AND DETECTOR
1 AS 653-1-60
+91.14
1.32 R
R/W LINE
INSTALL 6'X30' TYPE A LOOP ASSEMBLY
660-2-101 1 AS
PROPOSED STANDARD PEDESTRIAN SIGNAL ASSEMBLIES
6 RUNS @ 84 LF 630-2-12
2 EA 635-2-11
2 EA 646-1-11
2 EA 665-1-11
R/W LINE
EXIST. PEDESTRIAN SIGNAL POLE TO BE REMOVED
1 EA 646-1-60
R/W LINE
W WOODMERE RD
S LOIS AVE
29+00
28+00
27+00
CONCRETE SIDEWALK
CONCRETE DRIVEWAY
CONC. WALK
OHL
CLUSTER
PEDESTRIAN SIGNAL DETAILS
PED. SIGNAL
COUNT-DOWN
1-SECT., 1-WAY
2 AS
653-1-11
700-3-101
FTP-68B-06 1 EA
9"X18"
700-3-101
FTP-68B-06 1 EA
9"X18"
SIGNS TO BE INSTALLED WITH PEDESTRIAN DETECTOR

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
----	----		

ROBERT CODY HATTON, P.E.
P.E. LICENSE NUMBER 87480
CITY OF TAMPA
306 E JACKSON ST
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CITY OF TAMPA
MOBILITY DEPARTMENT

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
WOODMERE RD	HILLSBOROUGH	----

SIGNALIZATION PLAN

SHEET NO.
10

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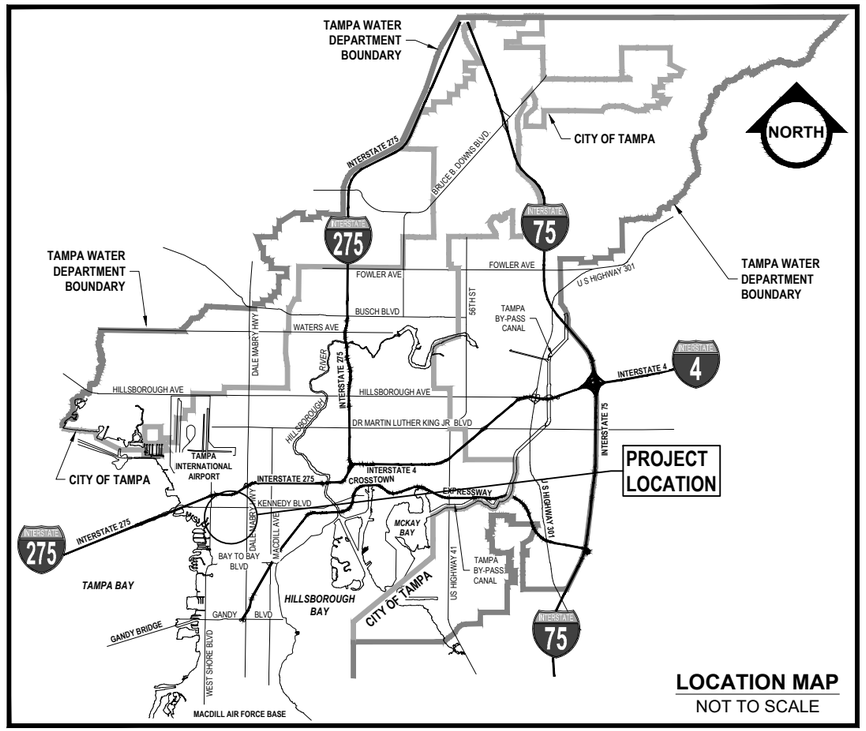

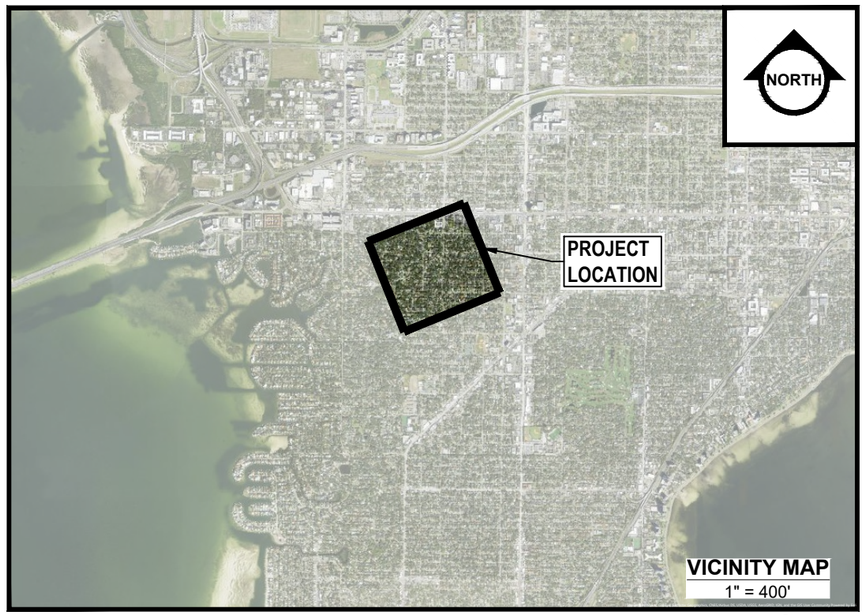

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City of Tampa Florida

Water Department

PLANS FOR:

WOODMERE ROAD & LOIS AVENUE

TAMPA WATER DEPARTMENT
WORK ORDER NO. :

WUR-25-0024

INDEX

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PERMITS

CITY	COUNTY	STATE	DEP
☒	☐	☐	☐

CONTRACTOR: ####

ANDRÉ J. BIEN-AIMÉ LICENSE No. 84160 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

REV NO.	DATE	DESCRIPTION	BY
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DESIGNED	AL
DRAWN	SLS
CHECKED	ABA
DATE	04/29/25

WOODMERE ROAD & LOIS AVENUE

COVER SHEET

City of Tampa Florida Water Department

100% PLANS

WORK ORDER NO.	WUR-25-0024
RECORD DWG. NO.	
ATLAS PAGE	I-9
SHEET	01 OF 13

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CITY OF TAMPA NOTES

GENERAL

1. ALL WATER WORK FOR THE CITY OF TAMPA (CITY) SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT'S TECHNICAL SPECIFICATIONS, CONSTRUCTION DETAILS, AND THE TAMPA WATER DEPARTMENT TECHNICAL MANUAL (LATEST EDITION). IN THE EVENT OF A DISCREPANCY, THE MOST STRINGENT CRITERIA SHALL APPLY.
2. THE CONTRACTOR SHALL NOT TAP ANY WATER MAIN WITHOUT A CITY INSPECTOR PRESENT. THE CONTRACTOR SHALL PROVIDE NOTICE TO THE CITY INSPECTOR AT A MINIMUM OF 5 WORKING DAYS PRIOR TO NECESSARY WORK AND COORDINATE PERFORMANCE OF TAP WITH THE CITY INSPECTOR.
3. NORMAL WORKING HOURS SHALL BE WEEKDAYS FROM 7:30 AM TO 4:00 PM UNLESS OTHERWISE APPROVED BY THE ENGINEER/INSPECTOR.
4. ELEVATION INFORMATION SHOWN ON THESE PLANS IS REFERENCED TO N.A.V.D. 1988 UNLESS OTHERWISE STATED.
5. CONSTRUCTION OF WATER FACILITIES SHALL BE COORDINATED WITH THE WATER DEPARTMENT PRIOR TO THE START OF THE CONSTRUCTION. CONTRACTOR TO CONTACT CITY OF TAMPA CONTRACT ADMINISTRATION DEPARTMENT @ 813-635-3432 TO COORDINATE/SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY FOR REVIEW OF INSTALLATION TECHNIQUES AND PROCEDURES A MINIMUM OF 10 WORKING DAYS PRIOR TO THE PLANNED CONSTRUCTION.
6. EXISTING UTILITIES, BUILDINGS, GROUND ELEVATIONS, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. ALL CONDITIONS, DIMENSIONS, AND QUANTITIES AFFECTING REQUIRED WORK SHALL BE VERIFIED BY CONTRACTOR BEFORE BEGINNING WORK OR ORDERING MATERIALS.
7. VALVES ON EXISTING PUBLIC WATER MAINS TO BE OPERATED BY CITY PERSONNEL ONLY.
8. ALL PROPOSED WATER LINES SHALL BE MANUFACTURED AND INSTALLED PER THE STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA) AS PRESCRIBED BY FAC-62-555.320.
9. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE CITY FOR ALL PROPOSED ITEMS. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE HIGH QUALITY PDF DOCUMENTS.
10. THE CONTRACTOR IS RESPONSIBLE FOR RESTRAINING ALL EXISTING PIPE NECESSARY TO MAINTAIN A SAFE CONSTRUCTION AREA AND PERFORM THE WORK SHOWN IN THE PLANS. EXISTING PIPE REQUIRING RESTRAINTS SHALL UTILIZE EXTERIOR BELL RESTRAINTS.
11. THE CONTRACTOR SHALL DEWATER ANY EXCAVATION OR TRENCH TO MAINTAIN A SAFE WORK ENVIRONMENT AND TO ABIDE BY AWWA INSTALLATION STANDARDS. DEWATERING IS AT THE EXPENSE OF THE CONTRACTOR.

PERMITS

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHT-OF-WAY PERMITS AND ROADWAY CLOSURES ASSOCIATED WITH THE WORK SHOWN IN THE PLANS.
2. IN ORDER TO OBTAIN ROADWAY CLOSURES OR RIGHT-OF-WAY PERMITS, AT MINIMUM, THE CONTRACTOR MUST SUBMIT DETAILED MAINTENANCE OF TRAFFIC (MOT) PLANS ALONG WITH APPLICATIONS TO THE APPROPRIATE AGENCY. THE MOT(S) SHALL CONFORM TO APPLICABLE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) DRAWINGS (MOST CURRENT EDITION). THE GOVERNING AGENCIES MAY REQUIRE ADDITIONAL INFORMATION AND DICTATE SPECIFIC WORK TIME DURING NON-PEAK TRAFFIC HOURS.

PIPE CLEARANCES

1. ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES AND SHALL MAINTAIN A MINIMUM OF THREE (3) FEET HORIZONTAL SEPARATION FROM OTHER UTILITIES, EXCEPT STORM, SANITARY, AND GAS, WHICH SHALL MAINTAIN TEN (10) FEET HORIZONTAL SEPARATION, UNLESS OTHERWISE NOTED.
2. WATER MAIN SHALL CROSS ABOVE OTHER PIPES. WHEN WATER MUST BE BELOW, PROVIDE 12" MINIMUM VERTICAL SEPARATION UNLESS OTHERWISE NOTED.
3. CENTER ONE FULL JOINT OF PIPE UNDER/OVER ALL SANITARY, STORM, OR RECLAIMED PIPE CROSSINGS.

MATERIAL

1. ALL VALVES SHALL BE RIGHT HAND OPEN.
2. POLYWRAP ALL DUCTILE IRON PIPE (D.I.P) FITTINGS AND APPURTENANCES.
3. ALL HARDWARE SHALL BE 304 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
4. ALL BELOW GROUND BENDS SHALL BE MECHANICAL JOINT (MJ).
5. RESTRAIN ALL JOINTS AND FITTINGS.
6. CONCRETE THRUST BLOCKS SHALL NOT BE USED TO PROVIDE THRUST RESTRAINT. RESTRAINT OF PUSH-ON DIP (OTHER THAN FOR FITTINGS & VALVES) SHALL BE WITH APPROVED PUSH-ON "GRIPPER-TYPE" RESTRAINTS. FITTINGS AND VALVES SHALL BE CONNECTED TO PIPE WITH MEGALUGS, OR APPROVED EQUAL.
7. ALL POTABLE WATER SERVICE LATERAL, AIR RELEASE VALVES, AND TEMPORARY SAMPLE POINTS SHALL BE CONSTRUCTED OF BLUE SDR-9 HIGH DENSITY POLYETHYLENE (HDPE) TUBING. ALL HDPE TUBING SHALL BE INSTALLED WITHIN A CASING AS DEFINED IN THE SPECIFICATIONS AND DETAILS.

TESTING

1. ALL COMPONENTS OF THE WATER SYSTEM, INCLUDING FITTINGS, HYDRANTS, CONNECTIONS, AND VALVES SHALL BE PROPERLY PRESSURE TESTED, WITNESSED AND ACCEPTED BY THE CITY. PRESSURE TESTS TO BE PERFORMED IN ACCORDANCE WITH WATER DEPARTMENT SPECIFICATIONS. CONTRACTOR TO NOTIFY THE ASSIGNED CITY INSPECTOR A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE OF PERFORMING TESTS. CONTRACTOR SHALL PRESSURE TEST WATER MAINS AT A MINIMUM OF 150 PSI FOR A PERIOD OF 2 HOURS IN ACCORDANCE WITH AWWA C600-87 STANDARDS. THE CONTRACTOR SHALL MAKE ALL NECESSARY APPLICATIONS AND ARRANGEMENTS.
2. ALL SAMPLE, PRESSURE TEST, AND CHLORINATION POINT PIPING SHALL BE COMPLETELY REMOVED PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CLOSED AND PLUGGED AT THE MAIN.
3. CONTRACTOR SHALL PERFORM CHLORINATION AND HIRE INDEPENDENT FIRMS TO CONDUCT BACTERIOLOGICAL TESTING AS DEFINED IN F.A.C. 62-555.340. CONTRACTOR TO SUPPLY THE CITY WITH AS-BUILTS AND SAMPLE RESULTS NECESSARY TO OBTAIN DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) CLEARANCES.

RESTORATION

1. ROADWAY RESTORATION SHALL BE IN CONFORMANCE WITH CORRESPONDING JURISDICTION'S LATEST STANDARDS. TRENCH RESTORATION SHALL BE IN ACCORDANCE WITH COT WATER DEPARTMENT TRENCH RESTORATION LATEST STANDARDS.
2. DISTURBANCE TO ANY PROPERTY, PUBLIC OR PRIVATE, SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

KEY MAP
1" = 400'

PROJECT SPECIFIC NOTES

1. WITHIN THE SCOPE OF THE PROPOSED WORK, ALL AFFECTED WATER SERVICE LINES ON THE EXISTING MAIN WILL BE TRANSFERRED TO THE NEW WATER MAIN. AFFECTED RECLAIM SERVICES SHOULD BE TRANSFERRED TO EITHER AN EXISTING RECLAIM PIPE OR NEW RECLAIM PIPE, NOT TO BE CONNECTED TO POTABLE WATER MAIN.
2. RESTORATION OF S. LOIS ROADWAY WILL BE COMPLETED BY THE CITY OF TAMPA MOBILITY DEPARTMENT; ONLY TEMPORARY PATCHING IS REQUIRED.
3. WITH THE EXCEPTION OF CASINGS, USE BLUE COLOR OR PAINT FOR ALL POTABLE FACILITIES, AND USE PURPLE COLOR AND PAINT FOR ALL RECLAIM FACILITIES. REFER TO PLANS AND STANDARD DETAILS FOR ALL REQUIRED FACILITIES.
4. RESTRAIN ALL JOINTS.
5. ALL PROPOSED STORM WATER IMPROVEMENTS ARE TO BE DONE BY OTHERS.
6. ALL EXISTING HYDRANTS AND HYDRANT VALVES WITHIN THE PROJECT AREA ARE TO REMAIN IN-PLACE AND SHOULD BE PROTECTED AS NEEDED.

LEGEND

EXISTING | PROPOSED

- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVERS
- BASE LINE (SURVEY LINE) — 10
- CENTER LINE
- R/W LINE
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- BENCHMARK & NUMBER — B.M.-25
- TEMPORARY BENCHMARK & NUMBER — T.B.M.-15
- EASEMENT LINE
- GAS MAIN — G
- STORM SEWER
- SANITARY SEWER — S
- SANITARY FORCE MAIN — FM
- ELECTRIC CABLE — E
- TELEPHONE CABLE — T
- TELEVISION CABLE — C
- WATER MAIN — W
- RECLAIMED WATER MAIN — RWL
- FIRE HYDRANT ASSEMBLY (INCL. VALVE & TEE) — F
- WATER VALVE
- DETECTOR CHECK VALVE
- DOUBLE DETECTOR CHECK VALVE - IN VAULT
- DOUBLE DETECTOR CHECK VALVE - ABOVE GROUND
- VAULT
- CASING PIPE (JACK & BORE)
- WATER METER — SINGLE, DUAL
- RECLAIMED WATER METER — SINGLE, DUAL
- METER TO BE TRANSFERRED
- BACK FLOW PREVENTER
- WET TAP
- SLEEVE, BEND, TEE, CROSS, PLUG, REDUCER, BLOW-OFF
- SAMPLE TAP LOCATION
- CHLORINE INJECTION POINT
- ELECTRIC MANHOLE OR PULL BOX, POLE
- TELEPHONE MANHOLE OR UTILITY BOX, POLE
- MANHOLE - SANITARY, STORM
- VALVE
- SANITARY LATERAL WITH DEPTH AT R/W LINE
- STORM GRATE, CURB INLET
- STORM PIPE CULVERT WITH HEADWALL, MITERED END SECTION
- GUY POLE, GUY POLE AND WIRE
- COMBINATION POLE, LIGHT POLE
- MAILBOX
- SIGN
- PINE, TREE, PALM, OAK
- ROOT PRUNE
- SHRUB, HEDGE
- WOODS/HEAVY BRUSH
- SPOT ELEVATIONS — 4.30

ANDRÉ J. BIEN-AIMÉ, P.E. CITY OF TAMPA WATER DEPT. 711 E. HENDERSON AVE. TAMPA, FLA. 33602 P.E. #84160	REV NO.	DATE	DESCRIPTION	BY
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

GENERAL NOTES-LEGEND

City of Tampa Florida Water Department

100% PLANS
WORK ORDER NO. WUR-25-0024
RECORD DWG. NO.
ATLAS PAGE I-9 | SHEET 02 OF 13

K:\Projects\WUR\FY25\WUR-25-0024\ - [COT - Woodmere Road and Lois Avenue]\02-Design\Drawings\01-Dwg\02-Sheets\WUR-25-0024_Cover-Gen Notes-PP.dwg Dec 12, 2025 - 12:04pm

STA.20+88, 3" RT
P.O.C.
PROPOSED:
6" GATE VALVE W/BOX
6" 45° BEND (ROLLED)

CUT & CAP EXISTING 6" WM

EXIST. 2" GATE VALVE (NOT FOUND)

STA. 21+74, 32' LT
PROPOSED:
2" LINE STOP

±83 LF OF 6" CAS WM TO BE GROUTED & ABANDONED (2 LOCATIONS)

STA. 21+45, 17' RT
PROPOSED:
6" 11.25° BEND

STA. 21+74, 8' LT
P.O.C.
PROPOSED:
2" COUPLING

STA.21+76, 2' RT
PROPOSED:
2" CORP STOP
±11 LF OF 2" HDPE WM
(DEFLECT AS NECESSARY)

STA. 20+72, 3' RT
PROPOSED:
6" LINE STOP
DEADMAN RESTRAINT

CLOSE VALVE & REMOVE BOX

±388 LF OF 6" DIP WM

±300 LF OF 6" CAS WM TO BE ABANDONED

CUT & CAP EXISTING 6"WM

STA. 21+7, 17' RT
PROPOSED:
6" 45° BEND (ROLLED)

PROP. 12"X18" ERCP

PROP. 18" RCP

PROP. 14"X23" ERCP

STA. 21+33, 12' RT
PROPOSED:
6"X6" ANCHOR TEE
6" GATE VALVE W/BOX
6" 90° BEND (ROLLED)
±13 LF OF 6" DIP WM
8"X6" REDUCER
±5 LF OF 8" DIP WM

STA. 21+45, 22' RT
P.O.C.
PROPOSED:
8" 45° BEND (ROLLED)
(CONNECT TO EXISTING 8" DIP WM)

STA. 21+71, 12' RT
PROPOSED:
6" 11.25° BEND

STA. 21+60, 63' RT
PROPOSED:
8" GATE VALVE W/BOX
(CUT-IN TO EX. 8" DIP WM)

STA.21+ 76, 12' RT
PROPOSED:
6"X6" ANCHOR TEE
6" GATE VALVE W/BOX
±10 LF OF 6" DIP WM
6" TAPPED CAP (FOR 2" HDPE CONNECTION)

STA. 21+60, 71' RT
PROPOSED:
8" LINE STOP

W DALE AVENUE

S LOIS AVENUE

R/W LINE

CAUTION

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10

MATCHLINE - STA. 24+70
SEE SHEET 04

NORTH

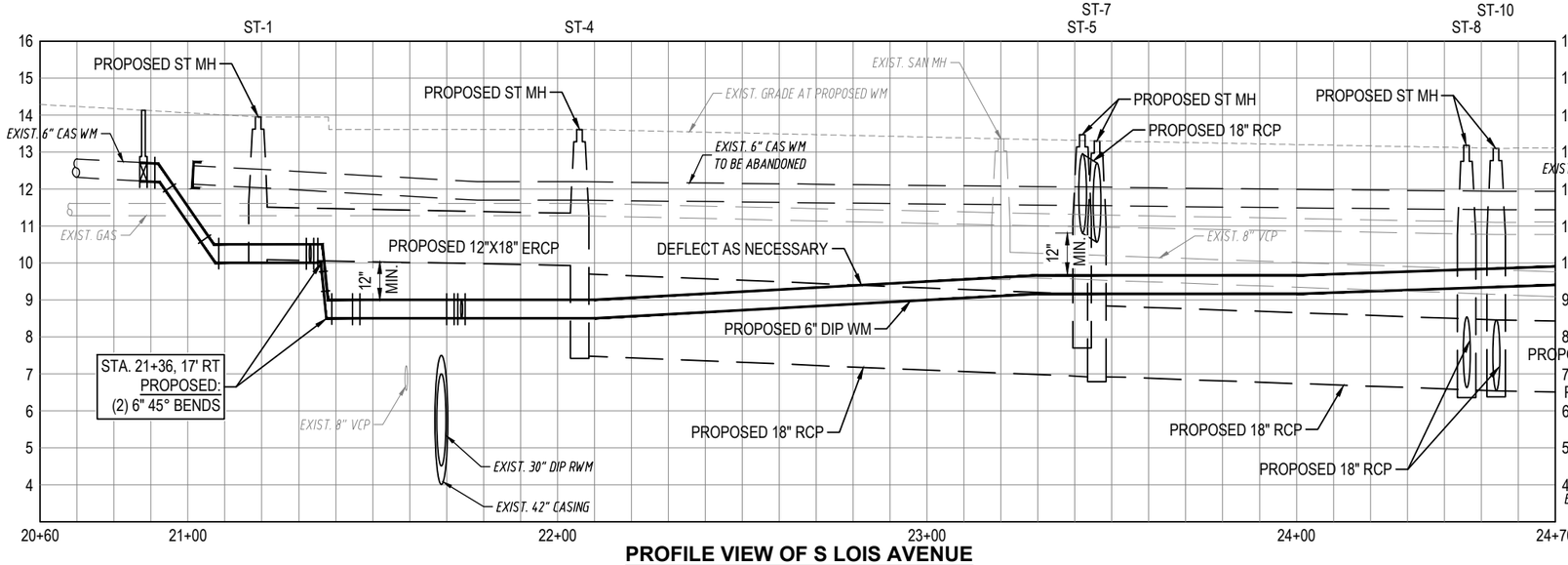
S00-T00S-R00E

0 20' 40'
SCALE - HORIZONTAL

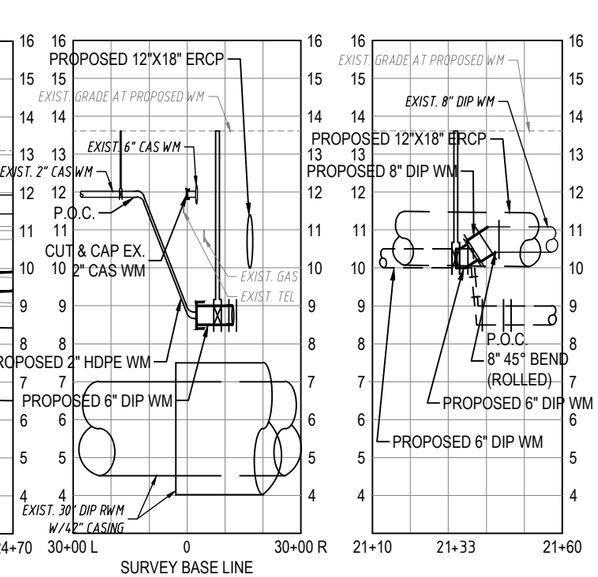
0 2' 4'
SCALE - VERTICAL

** SEE SHEET 5 FOR DETAILS REGARDING PROPOSED RECLAIM WATER MAIN RELOCATIONS

** ALL PROPOSED STORM WATER IMPROVEMENTS ARE TO BE DONE BY OTHERS.



PROFILE VIEW OF S LOIS AVENUE
POTABLE WM



CROSS SECTION "B-B"
STA. 21+74

CROSS SECTION "A-A"
STA. 21+33

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

REV NO.	DATE	DESCRIPTION	BY
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

PLAN & PROFILE SHEET 1 (POTABLE)

City of Tampa Florida
Water Department

100% PLANS

WORK ORDER NO. WUR-25-0024
RECORD DWG. NO.
ATLAS PAGE I-9 SHEET 03 OF 13

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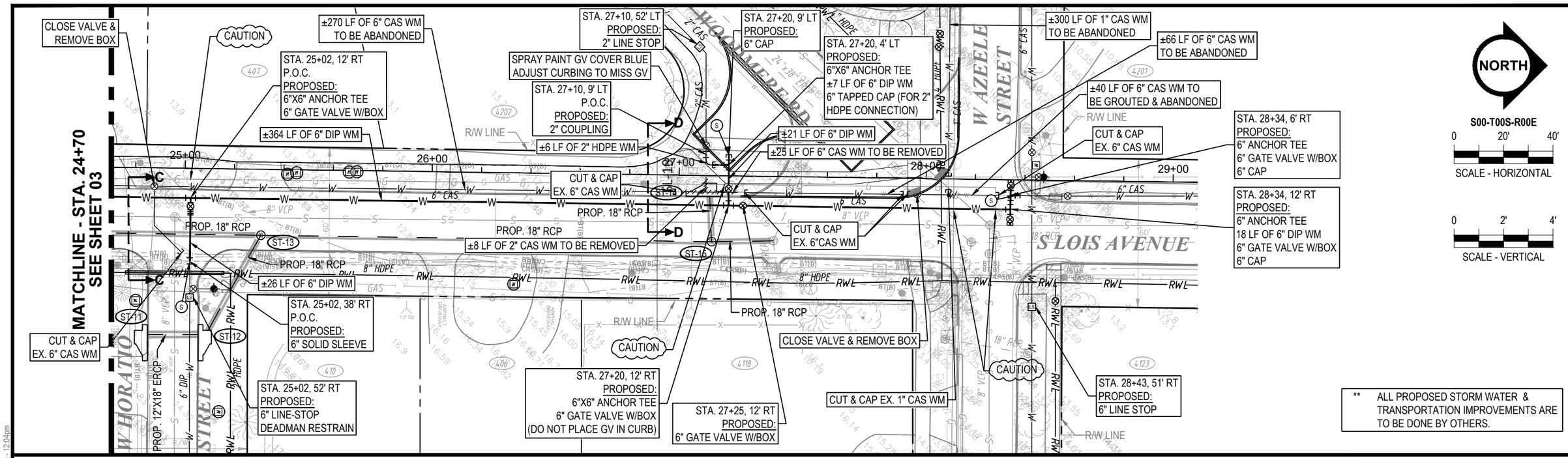

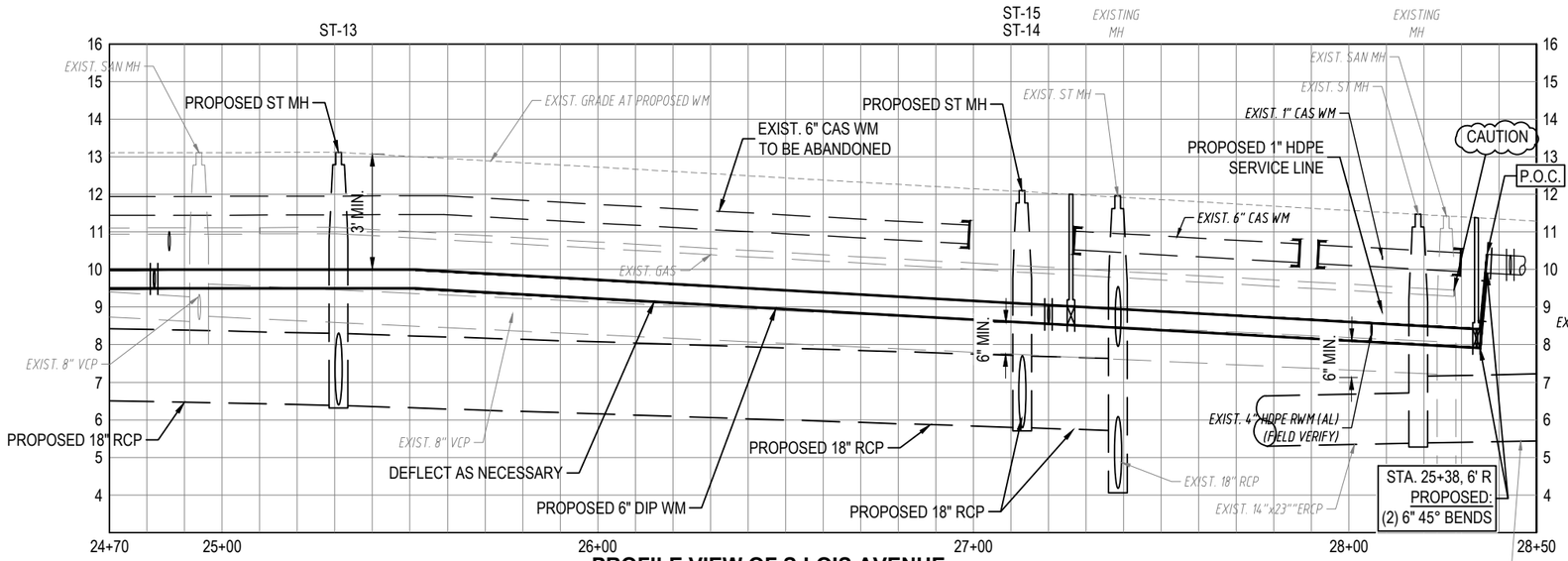

PROFILE VIEW OF S LOIS AVENUE
POTABLE WM

CROSS SECTION "D-D"
STA. 27+20

CROSS SECTION "C-C"
STA. 25+02

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

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CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

PLAN & PROFILE SHEET 2 (POTABLE)

City of Tampa Florida
Water Department

100% PLANS

WORK ORDER NO. WUR-25-0024
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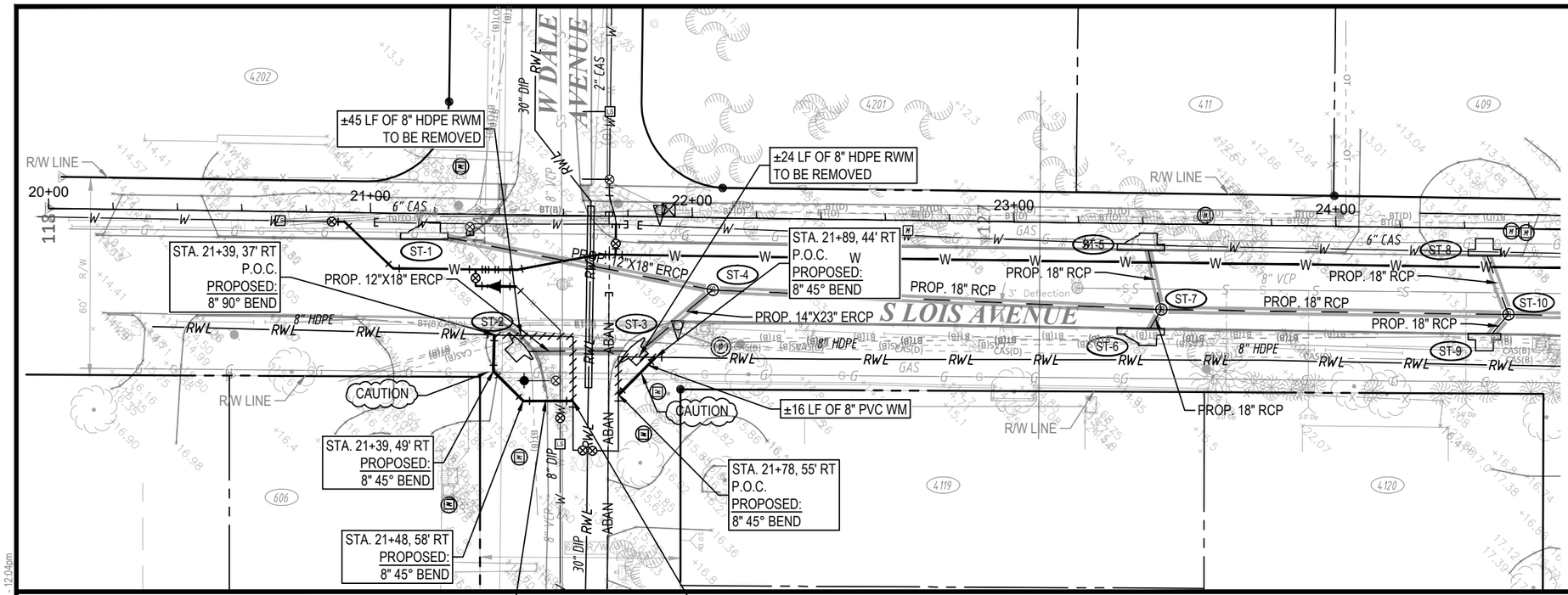

NORTH

S00-T00S-R00E

0 20' 40'

SCALE - HORIZONTAL

0 2' 4'

SCALE - VERTICAL

** SEE SHEET 3 FOR DETAILS REGARDING PROPOSED POTABLE WATER MAIN RELOCATIONS

** ALL PROPOSED STORM WATER IMPROVEMENTS ARE TO BE DONE BY OTHERS.

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CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

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DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

PLAN & PROFILE SHEET 3 (RECLAIM)

City of Tampa Florida
Water Department

100% PLANS

WORK ORDER NO. WUR-25-0024
RECORD DWG. NO.
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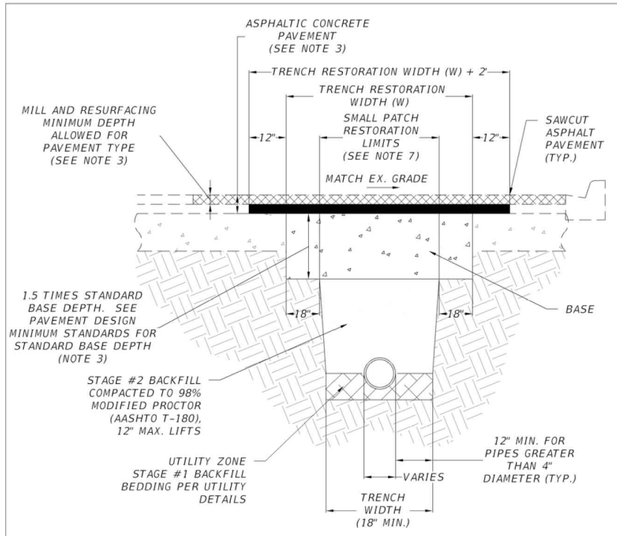


NOTES:
1. ALL WORK, MATERIALS, AND TESTING PER CITY OF TAMPA PAVEMENT AND RIGHT OF WAY RESTORATION REQUIREMENTS.
2. SEE CITY OF TAMPA FLEXIBLE PAVEMENT RESTORATION LIMITS DETAIL (PVT-2) FOR REQUIRED LIMITS OF MILLING & RESURFACING. IF EXISTING ASPHALTIC CONCRETE PAVEMENT LAYER DEPTH EXCEEDS MINIMUM STANDARD, MATCH EXISTING ASPHALT THICKNESS.
3. MATERIAL, TYPE AND THICKNESS OF ASPHALTIC CONCRETE PAVEMENT AND BASE PER CITY OF TAMPA PAVEMENT DESIGN STANDARDS. SEE PAVEMENT DESIGN MINIMUM STANDARDS (SHEET 2 OF 2).
4. ANY ROADWAY RESTORATION OUTSIDE THE LIMITS OF TRENCH RESTORATION SHALL MEET THE MINIMUM MATERIAL AND THICKNESS REQUIREMENTS WITHIN THE CITY OF TAMPA PAVEMENT DESIGN STANDARDS. SEE PAVEMENT DESIGN MININUM STANDARDS (SHEET 2 OF 2).
5. CONTRACTOR SHALL REVIEW ROADWAY LONGITUDINAL ROADWAY GRADES PRIOR TO PAVEMENT RESTORATION WORK TO ENSURE THAT ROADWAY MEETS MINIMUM SLOPE PER THE FLORIDA MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE (FLORIDA GREENBOOK).
6. FOR BRICK PAVER SECTIONS, SEE CITY OF TAMPA MISCELLANEOUS RESTORATION DETAILS, PVT-3. FOR RIGID PAVEMENT, SEE FLORIDA DEPT. OF TRANSPORTATION (FDOT) STANDARD PLANS.
7. THE 18" WIDE BASE EXTENSIONS AND 12" ASPHALT RESTORATION EXTENSION (IE, "TRENCH RESTORATION WIDTH (W) + 2") ON EITHER SIDE OF THE TRENCH ARE NOT REQUIRED FOR SMALL PATCH RESTORATIONS. PAVEMENT AND BASE THICKNESS AND BACKFILL REQUIREMENTS SHALL BE PER THIS DETAIL.
8. TEMPORARY RESTORATION SHALL BE LIMITED TO A TIME PERIOD OF NO LONGER THAN 30 DAYS, UNLESS SPECIFICALLY APPROVED BY THE CITY'S ENGINEER.
9. ALL THERMOPLASTIC STRIPING SHALL BE REPLACED IN KIND. STRIPING SHALL BE PAINTED UNTIL THERMOPLASTIC CAN BE PLACED.

REVISION DATE	DESCRIPTION	DETAIL NO.
AUGUST 2022	TRENCH RESTORATION	PVT-1 SHEET 1 OF 2

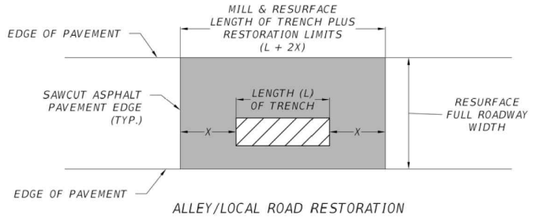
PAVEMENT DESIGN MINIMUM STANDARDS

ROADWAY CLASSIFICATION	BASE MATERIAL	RIGID PAVEMENT	ASPHALTIC CONCRETE
ALLEY	6"	6"	1"
LOCAL	8"	6"	2"
NEIGHBORHOOD COLLECTOR	8"	6"	3"
COLLECTOR/ ARTERIAL	12"*	8"	4"*

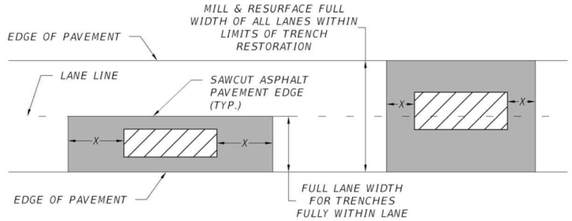
* MINIMUM PAVEMENT SECTIONS CAN BE MODIFIED WITH AN APPROVED PAVEMENT DESIGN SUBMITTED TO THE CITY OF TAMPA MOBILITY DEPT., TRANSPORTATION ENGINEERING DIVISION.

NOTES:
1. ALL WORK, MATERIALS, AND TESTING PER CITY OF TAMPA PAVEMENT AND RIGHT OF WAY RESTORATION REQUIREMENTS.
2. MATERIAL, TYPE AND THICKNESS OF ASPHALTIC CONCRETE PAVEMENT AND BASE PER CITY OF TAMPA PAVEMENT DESIGN STANDARDS.
3. ASPHALTIC CONCRETE SHALL BE TYPES SP-9.5 (TRAFFIC LEVEL C) OR SP-12.5 (TRAFFIC LEVEL C), ONLY. ARTERIALS SHALL USE SP-12.5, ONLY.
4. OPTIONAL BASE GROUP, INCLUDING ASPHALT BASE, PER FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION MAY BE USED IN LIEU OF STANDARD DEPTH. USE CORRESPONDING LR BASE THICKNESSES TO DETERMINE REQUIRED DEPTH.

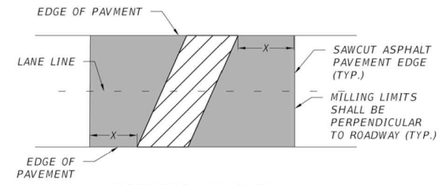
REVISION DATE	DESCRIPTION	DETAIL NO.
AUGUST 2022	PAVEMENT DESIGN	PVT-1 SHEET 2 OF 2



ALLEY/LOCAL ROAD RESTORATION



ALL OTHER CLASSIFICATION ROAD RESTORATION



TRANSVERSE TRENCHES

TRENCH RESTORATION LIMITS
(N.T.S.)

RESURFACING LIMITS	
ROADWAY CLASSIFICATION	LENGTH, X (LF)
ALLEY/LOCAL	5
ALL OTHER CLASSIFICATIONS	10

LEGEND
- LIMITS OF TRENCH RESTORATION
- LIMITS OF MILL AND RESURFACE

REVISION DATE	DESCRIPTION	DETAIL NO.
AUGUST 2022	FLEXIBLE PAVEMENT RESTORATION LIMITS	PVT-2 SHEET 1 OF 2

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

REV NO.	DATE	DESCRIPTION	BY
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

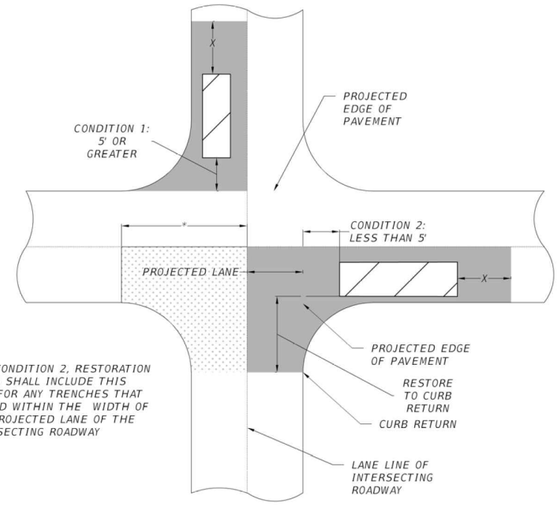
WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 1

City of Tampa Florida
Water Department

100% PLANS

WORK ORDER NO. **WUR-25-0024**
RECORD DWG. NO.
ATLAS PAGE **I-9** SHEET **06** OF **13**



TRENCHES AT INTERSECTIONS

NOTES:
1. RESURFACING LIMITS "X" ACCORDING TO TRENCH RESTORATION LIMITS DETAIL, PVT-2 (SHEET 1 OF 2).

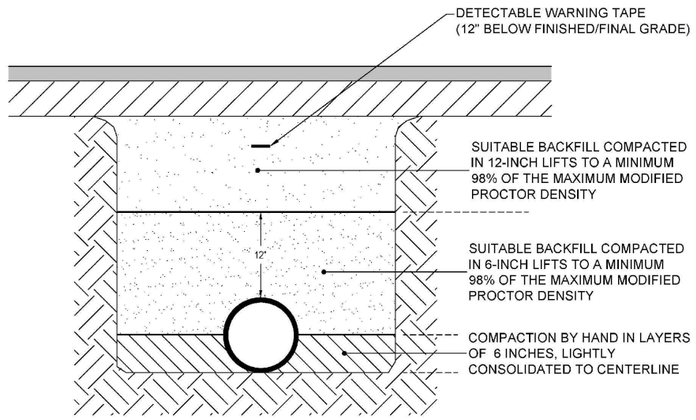
RESTORATION WORK AT INTERSECTIONS
(N.T.S.)

LEGEND

LIMITS OF TRENCH RESTORATION

LIMITS OF MILL AND RESURFACE

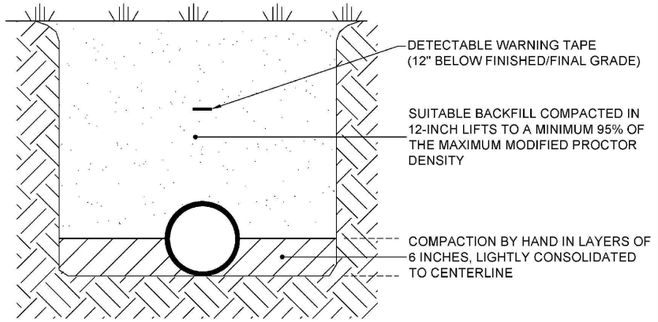
REVISION DATE	DESCRIPTION	DETAIL NO.
AUGUST 2022	FLEXIBLE PAVEMENT RESTORATION LIMITS	PVT-2 SHEET 2 OF 2



NOTES:

1. TRENCH IS DEFINED AS A FLAT-BOTTOM TRENCH. LIGHTLY CONSOLIDATE BACKFILL TO CENTERLINE OF PIPE.
2. THIS STANDARD SHALL BE UTILIZED IN THE ABSENCE OF SPECIFIC STANDARDS. THE STANDARD OF THE AGENCY CONTROLLING THE RIGHT-OF-WAY SHALL GOVERN UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
3. SUITABLE BACKFILL SHALL BE DEFINED AS MATERIAL FREE FROM CINDERS, ASHES, REFUSE, CLAY, ORGANIC MATTER, BOULDERS, ROCKS OR STONES, OR OTHER MATERIAL THAT IN THE OPINION OF THE CITY ENGINEER IS UNSUITABLE.
4. NON-PERVIOUS AREAS SHALL MEAN ANY CONCRETE OR ASPHALT CURB, SIDEWALK, TRAIL, DRIVEWAY, OR ROADWAY.

City of Tampa Florida Water Department	LAST REVISION	TRENCHING, BEDDING AND BACKFILL DETAIL FOR NON-PERVIOUS (PAVED) AREAS	2.01A
	MAY 2021		



NOTES:

1. TRENCH IS DEFINED AS A FLAT-BOTTOM TRENCH. LIGHTLY CONSOLIDATE BACKFILL TO CENTERLINE OF PIPE.
2. THIS STANDARD SHALL BE UTILIZED IN THE ABSENCE OF SPECIFIC STANDARDS. THE STANDARD OF THE AGENCY CONTROLLING THE RIGHT-OF-WAY SHALL GOVERN UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
3. SUITABLE BACKFILL SHALL BE DEFINED AS MATERIAL FREE FROM CINDERS, ASHES, REFUSE, CLAY, ORGANIC MATTER, BOULDERS, ROCKS OR STONES, OR OTHER MATERIAL THAT IN THE OPINION OF THE CITY ENGINEER IS UNSUITABLE.
4. NON-PAVED AREA IS A PERVIOUS AREA. IF ANY PART OF THE TRENCH IS WITHIN A CONCRETE OR ASPHALT CURB, SIDEWALK, DRIVEWAY, OR ROADWAY, THEN STANDARD DETAIL 2.01 APPLIES.

City of Tampa Florida Water Department	LAST REVISION	TRENCHING, BEDDING, AND BACKFILL DETAIL FOR PERVIOUS (NON-PAVED) AREAS	2.02
	MAY 2021		

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711 E. HENDERSON AVE.
TAMPA, FLA. 33602
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

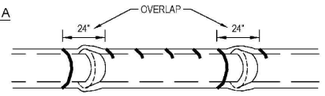
DETAIL SHEET 2

City of Tampa Florida Water Department

100% PLANS

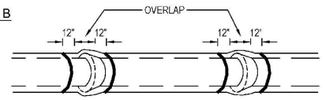
WORK ORDER NO. **WUR-25-0024**
RECORD DWG. NO.
ATLAS PAGE **I-9** SHEET **07** OF **13**

METHOD A



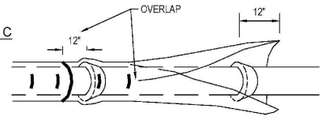
POLYETHYLENE TUBE IS CUT INTO LENGTHS APPROXIMATELY TWO FEET LONGER THAN THE PIPE SECTION AND PLACED AROUND IT. AFTER THE PIPE JOINT IS ASSEMBLED, THE POLYETHYLENE TUBE IS MADE TO OVERLAP THE JOINT AND THE OVERLAP SECURED IN PLACE. SINCE THE TUBE IS CONSIDERABLY LARGER THAN THE BARREL OF PIPE, IT IS MADE TO FIT SNUGLY BY FOLDING OVER AT THE TOP AND SECURING WITH TAPE EVERY 24" ALONG THE PIPE SECTION.

METHOD B



POLYETHYLENE TUBE IS CUT ONE FOOT SHORTER THAN THE LENGTH OF THE PIPE SECTION. AFTER PLACEMENT OF THE PIPE, IT IS FOLDED AND SECURED SNUGLY OVERALL. A THREE FOOT LENGTH OF POLYETHYLENE TUBE PLACED OVER THE END OF THE PRECEEDING SECTION IS THEN PULLED IN PLACE OVER THE JOINT AFTER ASSEMBLY AND SECURED.

METHOD C

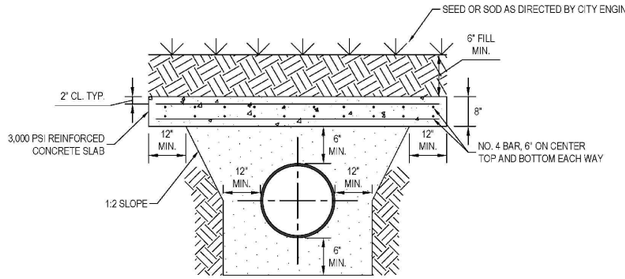


POLYETHYLENE SHEET IS CUT TO A LENGTH TWO FEET LONGER THAN THE PIPE SECTION. THE SHEET IS WRAPPED AROUND THE PIPE SO THAT IT OVERLAPS CIRCUMFERENTIALLY OVER THE TOP QUADRANT OF THE PIPE, THEN SECURED. AFTER JOINT ASSEMBLY, THE SURPLUS LENGTH OF POLYETHYLENE FILM IS SECURED AROUND THE JOINT, PROVIDING AN OVERLAP OF EACH JOINT. TAPE AT EACH JOINT AND AT 3' INTERVALS IN BETWEEN.

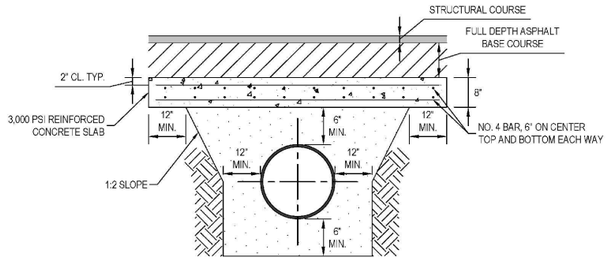
NOTES:

1. USE BLUE POLYETHYLENE FILM AND TAPE ONLY.
2. POLYETHYLENE FILM SHALL BE A MINIMUM OF 8 MIL. THICKNESS.
3. SPIRAL WRAP NOT REQUIRED WITH POLYWRAP.

Water Department	LAST REVISION		
	MAY 2021	POLYETHYLENE ENCASEMENT INSTALLATION DETAIL	2.05



GRASSED SECTION

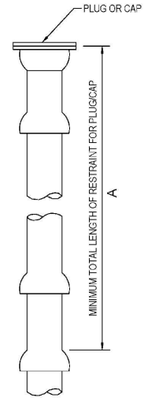


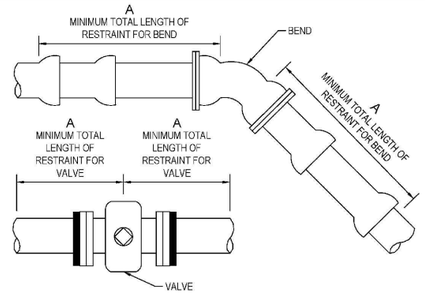
ROADWAY SECTION

NOTES:

1. STRUCTURAL COURSE AND BASE COURSE REQUIREMENT SHALL BE ESTABLISHED BY THE AGENCY HAVING JURISDICTION.
2. SHOCK PADS FOR MAINS TOO SHALLOW FOR THE ABOVE CONFIGURATION SHALL BE DESIGNED ON A CASE-BY-CASE BASIS.

Water Department	LAST REVISION		
	MAY 2021	REINFORCED CONCRETE SHOCK PAD (FOR COVER LESS THAN 2.5')	2.06





RESTRAIN "A" (LF)									
FITTING / PIPE	4"	6"	8"	12"	16"	20"	24"	30"	36"
11-1/4°	4	5	8	10	11	13	15	19	21
22-1/2°	8	11	15	20	21	26	31	38	44
45°/OFFSET	16	23	30	43	45	55	65	78	91
90°	39	55	73	103	109	133	156	189	220
PLUG/CAP/VALVE*	69	98	128	179	179	218	255	306	356
A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED									
* = FOR IN-LINE VALVE, RESTRAINT LENGTH "A" REQUIRED BOTH WAYS FROM VALVE									

NOTES:

1. THIS TABLE IS BASED ON:
   a. MAXIMUM TEST PRESSURE OF 190 PSI
   b. LAYING CONDITION TYPE 2 (SEE DETAILS 2.01 AND 2.02)
   c. POOR SOIL CONDITIONS
   d. USING D.I.P.
   e. 3 FEET OF COVER FOR 12" AND SMALLER MAINS; 4 FEET OF COVER FOR 16" AND LARGER MAINS
   f. HORIZONTAL BENDS ONLY - ENGINEER TO SUBMIT CALCULATIONS FOR VERTICAL RESTRAINTS
2. "RESTRAINED" PIPE SHALL BE MANUFACTURED RESTRAINED JOINT PIPE, PUSH-ON JOINT PIPE RESTRAINED W/GASKET-TYPE "GRIPPER RESTRAINTS", OR MECHANICAL JOINT PIPE RESTRAINED BY MEGALUG (OR APPROVED EQUIVALENT).
3. ANY ADDITIONAL FITTINGS WITHIN THE RESTRAINED SECTION SHALL BE RESTRAINED ACCORDINGLY.

Water Department	LAST REVISION		
	MAY 2021	RESTRAINED JOINT STANDARD FOR BENDS, PLUGS, CAPS, AND VALVES	2.11

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CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
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REV NO.	DATE	DESCRIPTION	BY
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CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 3

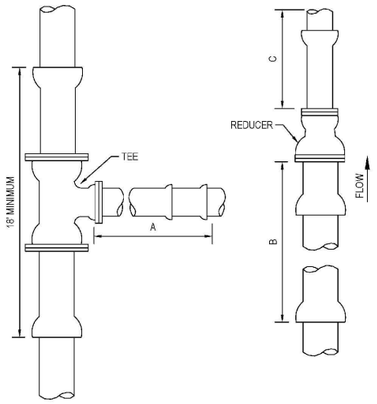
Water Department

100% PLANS

WORK ORDER NO. **WUR-25-0024**

RECORD DWG. NO.

ATLAS PAGE **I-9** SHEET **08** OF **13**



FITTING SIZE	RESTRAIN (LF)		UNRESTRAINED STRAIGHT RUN (LF)
	TEE "A"	REDUCER "B"	REDUCER "C"
4x4	31	*	*
6x4	14	50	74
6x6	60	*	*
8x4	A.T.	91	178
8x6	48	54	70
8x8	90	*	*
12x4	A.T.	155	455
12x6	24	130	260
12x8	71	95	144
12x12	143	*	*
16x6	A.T.	151	401
16x8	34	130	265
16x12	96	76	103
16x16	148	*	*
20x6	A.T.	195	659
20x8	18	180	461
20x12	65	136	233
20x16	139	76	96
20x20	186	*	*
24x6	A.T.	236	971
24x8	A.T.	224	700
24x12	74	188	391
24x16	130	139	215
24x20	180	76	93
24x24	224	*	*
30x6	A.T.	293	1534
30x8	A.T.	283	1130
30x12	56	255	678
30x16	118	216	426
30x20	169	168	260
30x24	215	108	138
30x30	275	*	*
36x6	A.T.	345	2230
36x8	A.T.	336	1660
36x12	38	314	1030
36x16	104	283	689
36x20	159	244	466
36x24	206	195	306
36x30	269	108	133
36x36	326	*	*

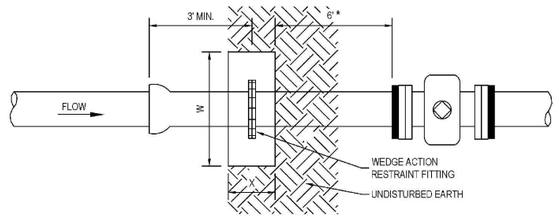
A.T. = RESTRAINT REQUIRED AT TEE ONLY. * = NOT APPLICABLE

NOTES:

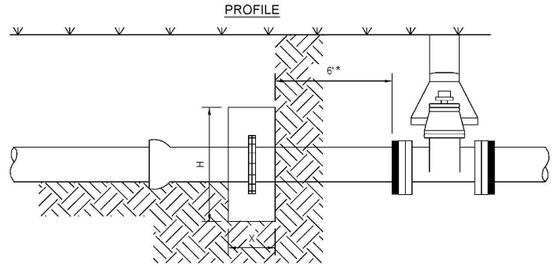
1. THIS TABLE IS BASED ON:
   a. MAXIMUM TEST PRESSURE OF 190 PSI
   b. LAYING CONDITION TYPE 2 (SEE DETAILS 2.01 AND 2.02)
   c. POOR SOIL CONDITIONS
   d. USING D.I.P.
   e. 3 FEET OF COVER FOR 12" AND SMALLER MAINS; 4 FEET OF COVER FOR 16" AND LARGER MAINS
   f. HORIZONTAL BENDS ONLY - ENGINEER TO SUBMIT CALCULATIONS FOR VERTICAL RESTRAINTS
2. RESTRAINT FOR REDUCERS: IF "C" STRAIGHT RUN OF PIPE DOWNSTREAM OF REDUCER NOT AVAILABLE, THE RESTRAIN "B" UPSTREAM OF REDUCER.
3. "RESTRAINED" PIPE SHALL BE MANUFACTURED RESTRAINED JOINT PIPE, PUSH-ON JOINT PIPE RESTRAINED W/GASKET-TYPE "GRIPPER RESTRAINTS", OR MECHANICAL JOINT PIPE RESTRAINED BY MEGALUG (OR APPROVED EQUIVALENT).
4. ANY ADDITIONAL FITTINGS WITHIN THE RESTRAINED SECTION SHALL BE RESTRAINED ACCORDINGLY.

Water Department	LAST REVISION		
	MAY 2021	RESTRAINED JOINT STANDARD FOR TEES AND REDUCERS	2.12A

PLAN VIEW



PROFILE



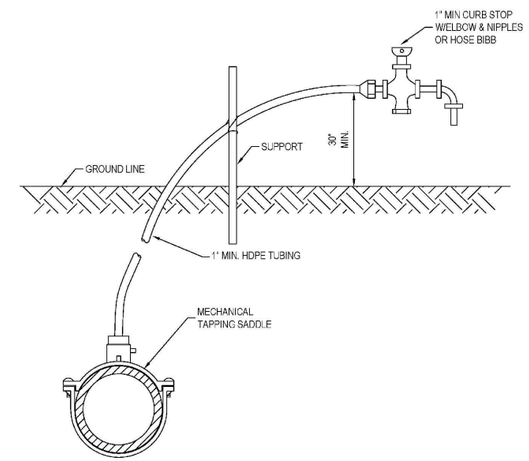
SIZE (D)	4"	6"	8"	12"	16"	20"	24"
THRUST (LBS.)	3,439	7,104	12,223	26,002	45,180	69,624	99,330
BEARING AREA ($FT.^2$)	2.58	5.33	9.17	19.50	33.89	52.22	74.50
CONCRETE ($YDS.^3$)	0.15	0.31	0.71	1.51	3.29	5.07	7.23
H (FT.)	1.6	2.4	3.1	4.5	6.0	7.4	8.8
W (FT.)	1.6	2.4	3.1	4.5	6.0	7.4	8.8
X (FT.)	1.5 MIN.	1.5 MIN.	2.0 MIN.	2.0 MIN.	2.5 MIN.	2.5 MIN.	2.5 MIN.

NOTES:

1. CONCRETE SHALL BE KEPT AT SUFFICIENT DISTANCE FROM JOINT FOR REMOVAL OF ALL JOINT ACCESSORIES INCLUDING BOLTS.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL.
3. THIS TABLE SHOWS THE MINIMUM SIZE THRUST BLOCKS FOR SOIL BEARING PRESSURE OF 2000 PSF AND AN INTERNAL PRESSURE OF 190 PSI. COVER TO T.O.P. IS 3 FEET FOR 12" AND SMALLER MAINS; 4 FEET FOR 16" AND LARGER MAINS.
4. POOR AND WET SOIL (SILTY SOILS, CLAY, MUCK AND PEAT) WILL REQUIRE LARGER THRUST BLOCKS, AS DIRECTED BY CITY ENGINEER.
5. FITTINGS SHALL BE COMPLETELY POLYWRAPPED PRIOR TO POURING THRUST BLOCKS.

* CLOSEST DISTANCE TO VALVE FOR DEADMAN TO REMAIN EFFECTIVE.

Water Department	LAST REVISION		
	MAY 2021	DEADMAN THRUST BLOCK	2.12B



NOTES:

1. WATER OUTLET SHALL BE HELD UP OFF THE GROUND SO AS NOT TO INTERFERE WITH THE SAMPLING PROCESS.
2. CORPORATION STOP TO BE REMOVED AND BRASS PLUG INSTALLED IN TAPPED MAIN AFTER OPERATION.

Water Department	LAST REVISION		
	MAY 2021	TEMPORARY SAMPLE TAP INSTALLATION W/DI, CI, OR PVC PIPE	2.18A

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CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

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DRAWN SLS
CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 4

Water Department

100% PLANS

WORK ORDER NO. **WUR-25-0024**

RECORD DWG. NO.

ATLAS PAGE **I-9** SHEET **09** OF **13**

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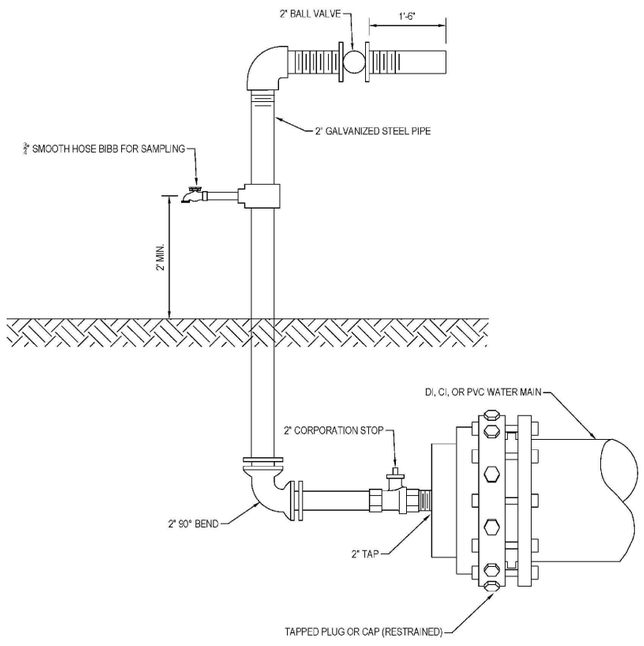
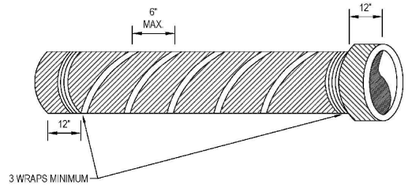


NOTES:

1. FOR DEAD-END MAINS, SAMPLE TAP TO BE INSTALLED ON A 2" TAPPED CAP/PLUG.
2. FLUSHING/SAMPLING ARRANGEMENT TO BE REMOVED AFTER DISINFECTION OF MAIN LINE.
3. AFTER OPERATION COMPLETE, INSTALL BRASS PLUG AT CORPORATION STOP.

City of Tampa Florida Water Department	LAST REVISION MAY 2021	TEMPORARY SAMPLE TAP INSTALLATION FOR END OF LINE W/DI, CI, OR PVC PIPE	2.19A

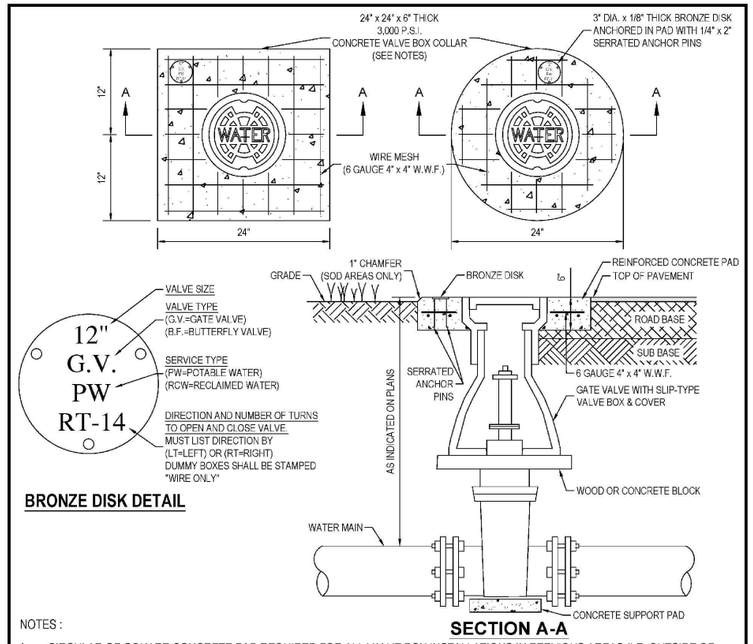


SPIRAL WRAP

NOTES:

1. TO ENSURE PROPER ADHESION, EACH PIPE RUN SHALL BE WRAPPED WITH A CONTINUOUS RUN OF TAPE.
2. ALL TAPE SHALL BE MIN. 2" BLUE VINYL TAPE FOR POTABLE WATER.

City of Tampa Florida Water Department	LAST REVISION MAY 2021	DUCTILE IRON PIPE IDENTIFICATION DETAIL	2.20



BRONZE DISK DETAIL

SECTION A-A

NOTES :

1. CIRCULAR OR SQUARE CONCRETE PAD REQUIRED FOR ALL VALVE BOX INSTALLATIONS IN PERVIOUS AREAS (I.E. OUTSIDE OF ROADWAY PAVEMENT, OUTSIDE OF CONCRETE/ASPHALT DRIVEWAYS, ETC.)
2. CAST IRON VALVE BOXES SHALL BE FIRMLY SUPPORTED AND CENTERED AND PLUMB OVER THE OPERATING NUT OF THE VALVE. VALVE BOX COVER SHALL BE FLUSH WITH THE SURFACE OF THE FINISHED PAVEMENT, OR GRADE OR AT SUCH OTHER LEVEL AS MAY BE DIRECTED BY THE DEPARTMENT.
3. "BLUE" WATER VALVE LOCATE MARKERS REQUIRED FOR ALL VALVE INSTALLATIONS.
4. EMBED BRONZE VALVE INFO DISK INTO CONCRETE VALVE BOX COLLAR.
5. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST T.W.D. APPROVED MATERIAL SPECIFICATIONS.
6. IF VALVE IS LOCATED WITHIN A SIDEWALK CONCRETE COLLAR MAY BE ELIMINATED AND DISK SET FLUSH DIRECTLY IN SIDEWALK.
7. BRONZE DISK REQUIRED FOR ALL VALVES AND DUMMY BOXES.

City of Tampa Florida Water Department	LAST REVISION MAY 2021	VALVE INSTALLATION W/VALVE BOX & PAD FOR DI OR CI PIPE	3.01

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

REV NO.	DATE	DESCRIPTION	BY
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

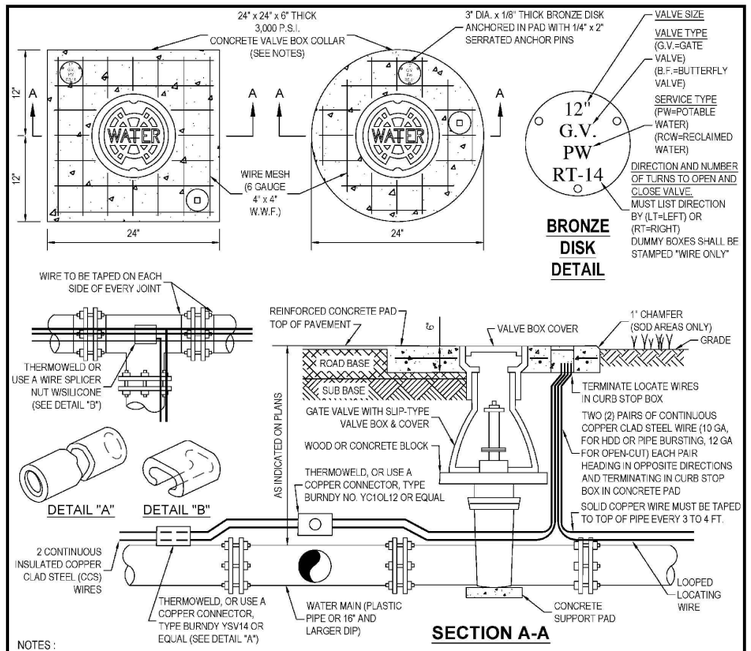
WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 5

City of Tampa Florida Water Department

100% PLANS

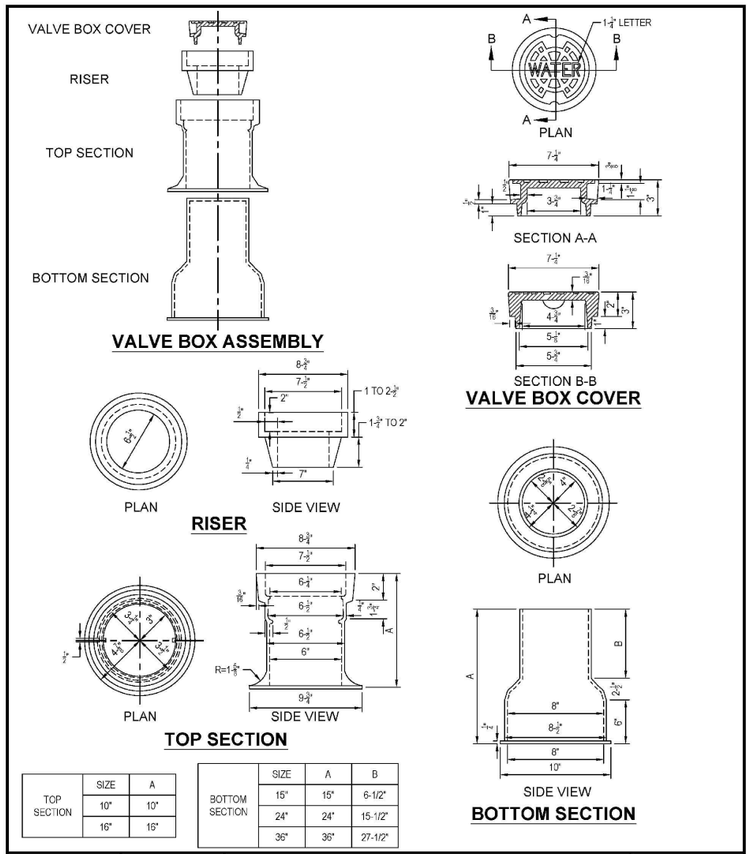
WORK ORDER NO. **WUR-25-0024**
RECORD DWG. NO.
ATLAS PAGE **I-9** SHEET **10** OF **13**



NOTES :

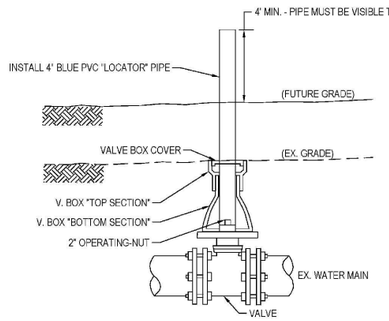
1. CIRCULAR OR SQUARE CONCRETE PAD REQUIRED FOR ALL VALVE BOX INSTALLATIONS IN PERVIOUS AREAS (I.E. OUTSIDE OF ROADWAY PAVEMENT, OUTSIDE OF CONCRETE/ASPHALT DRIVEWAYS, ETC.)
2. CAST IRON VALVE BOXES SHALL BE FIRMLY SUPPORTED AND CENTERED AND PLUMB OVER THE OPERATING NUT OF THE VALVE. VALVE BOX COVER SHALL BE FLUSH WITH THE SURFACE OF THE FINISHED PAVEMENT, OR GRADE OR AT SUCH OTHER LEVEL AS MAY BE DIRECTED BY THE DEPARTMENT.
3. "BLUE" WATER VALVE LOCATE MARKERS REQUIRED FOR ALL VALVE INSTALLATIONS.
4. EMBED BRONZE VALVE INFO DISK INTO CONCRETE VALVE BOX COLLAR.
5. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST T.W.D. APPROVED MATERIAL SPECIFICATIONS.
6. IF VALVE IS LOCATED WITHIN A SIDEWALK CONCRETE COLLAR MAY BE ELIMINATED AND DISK SET FLUSH DIRECTLY IN SIDEWALK.
7. BRONZE DISK REQUIRED FOR ALL VALVES AND DUMMY BOXES.
8. ALL CONNECTIONS SHALL BE SEALED WITH A BITUMINOUS COATING FOR CORROSION PROTECTION.

City of Tampa Florida Water Department	LAST REVISION MAY 2021	VALVE INSTALLATION W/VALVE BOX & PAD FOR PLASTIC PIPE WITH DOUBLE COPPER TRACER WIRE ON PIPE	3.02



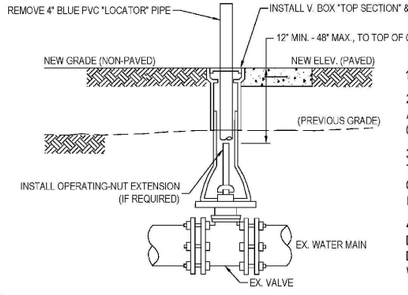
City of Tampa Florida Water Department	LAST REVISION MAY 2021	VALVE BOX, SLIP TYPE	3.04

TO PROTECT VALVE BOX LOCATION DURING CLEARING & GRUBBING



1. REMOVE (OR DO NOT INSTALL) V. BOX COVER & "TOP SECTION".
2. INSTALL 4" BLUE PVC PIPE INTO V. BOX "BOTTOM SECTION", OVER 2" OPERATING- NUT, & TO 4' MIN. ABOVE FUTURE GRADE.
3. PACK ANNULAR SPACE TO PREVENT BACKFILL SOILS ENTERING V. BOX "BOTTOM SECTION".

TO ADJUST HEIGHT OF VALVE BOX FOR CHANGED GRADE



1. REMOVE PVC LOCATOR PIPE.
2. INSTALL APPROVED V. BOX "TOP SECTION" AND/OR RISER & COVER, SUCH THAT TOP OF COVER MATCHES NEW GRADE ELEVATION.
3. INSTALL STD CI OPERATING-NUT EXTENSION IF TOP OF OPERATING-NUT (T.O.N.) > 4' BELOW GRADE.
FINAL T.O.N. TO BE ≤ 4' DEEP.
4. IN NON-PAVED AREAS, CONSTRUCT 2'X2' (OR 2' DIA.) REINFORCED CONCRETE PAD, PER STD. DETAIL 3.01 (3000 P.S.I. CONCRETE, 6-GAUGE 4"X4" W.W.F.)

NOTES:

1. MATERIALS FOR & INSTALLATION OF VALVE BOXES & PADS SHALL CONFORM TO TAMPA WATER DEPT. SPECIFICATIONS & STD. CONSTRUCTION DETAILS (DETAILS 3.01 & 3.03)

City of Tampa Florida Water Department	LAST REVISION MAY 2021	VALVE BOX (V. BOX) ADJUSTMENTS FOR GRADE CHANGE	3.05

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CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

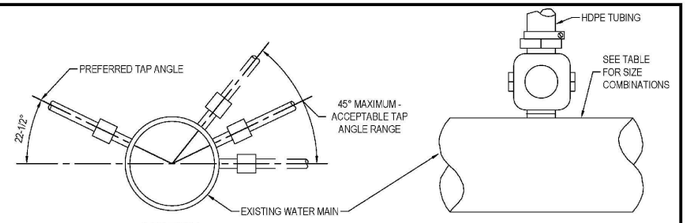
WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 6

City of Tampa Florida Water Department

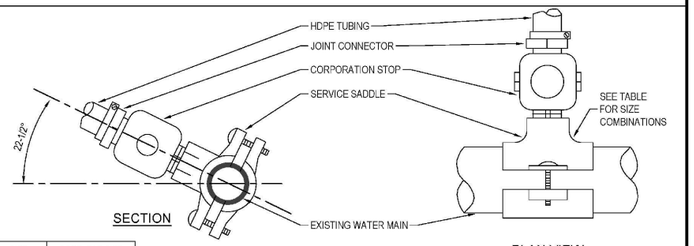
100% PLANS

WORK ORDER NO. WUR-25-0024
RECORD DWG. NO.
ATLAS PAGE I-9 SHEET 11 OF 13



DIRECT TAP DETAIL

FOR APPROVED VARIANCES ONLY

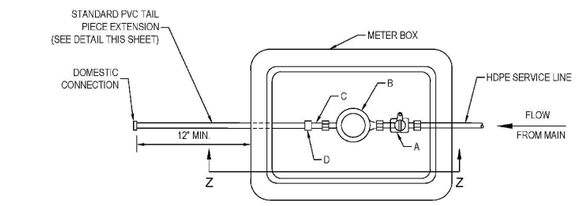


SADDLE TAP DETAIL

PIPE	SIZE	CORP. TAP SIZE	
		1"	2"
DI/CI	12"	DT	DT
	8"	DT	SS
	6"	DT	SS
	4"	SS	SS
PVC	2", 2-1/2"	SS	NA
	8", C-900	SS	SS
	6", C-900	SS	SS
	2"-SDR21	SS	NA
OTHER*	12"	SS	SS
	10"	SS	SS
	8"	SS	SS
	6"	SS	SS
	4"	SS	NA
	3"	SS	NA
	2", 2-1/2"	SS	NA

LEGEND
DT- DIRECT TAP CAN BE ALLOWED (FOR APPROVED VARIANCES ONLY)
SS- SERVICE SADDLE IS REQUIRED
NA- NOT ALLOWED
*ASBESTOS CEMENT, STEEL, GALVANIZED IRON PIPE, NON STD PVC, ETC.

City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	TAPPING DETAIL FOR 3/4", 1", 1-1/2" & 2" W/DI, CI, OR PVC PIPE	5.01A

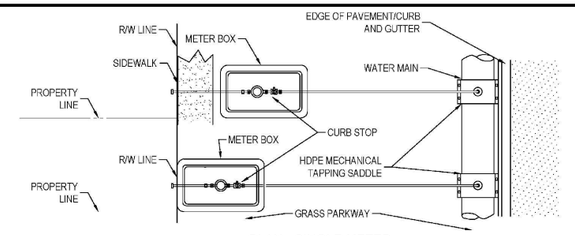


METER INSTALLATION PARTS LIST	
ITEM	DESCRIPTION
A	HDPE CJ X METER, SWIVEL NUT (CURB STOP)
B	METER
C	BRASS METER COUPLING
D	*PVC PIP X WELD COUPLING

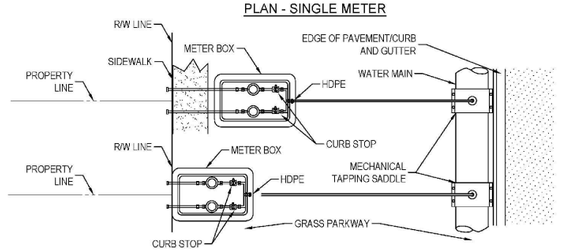
* ALL PVC PIPE AND FITTINGS SHALL BE SCH 80 EXCEPT FOR STANDARD TAIL PIECE SECTION WHICH WILL BE SCH 40.

NOTE: PARTS LIST IS FOR STANDARD INSTALLATION: ACTUAL PARTS REQUIRED MAY VARY AS DIRECTED BY THE ENGINEER.

City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	SINGLE METER SET DETAIL 3/4", 1", 1-1/2", 2"	5.02

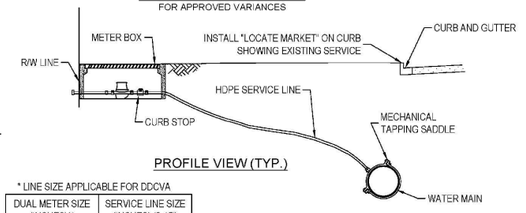


PLAN - SINGLE METER



PLAN VIEW - DUAL METER

FOR APPROVED VARIANCES



PROFILE VIEW (TYP.)

DO NOT INSTALL METER WITHIN SIDEWALK. WHEN SIDEWALK EXISTS, INSTALL METER ON STREET SIDE OF SIDEWALK OR WHERE DIRECTED BY CITY ENGINEER.

* LINE SIZE APPLICABLE FOR DDCVA

SINGLE METER SIZE (INCHES)	SERVICE LINE SIZE (INCHES) (0-15')
3/4	1
1	1
1 1/2	2
2"	2

DUAL METER SIZE (INCHES)**	SERVICE LINE SIZE (INCHES) (0-15')
3/4	2
1	2
1 1/2	N/A
2"	N/A

** FOR APPROVED VARIANCES ONLY

(FEET REFER TO DISTANCE FROM WATER MAIN TO METER)

City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	SINGLE & DUAL METERED SERVICE - SHORT SIDE 3/4", 1", 1-1/2" & 2"	5.04A

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

REV NO.	DATE	DESCRIPTION	BY
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DESIGNED AL
DRAWN SLS
CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 7

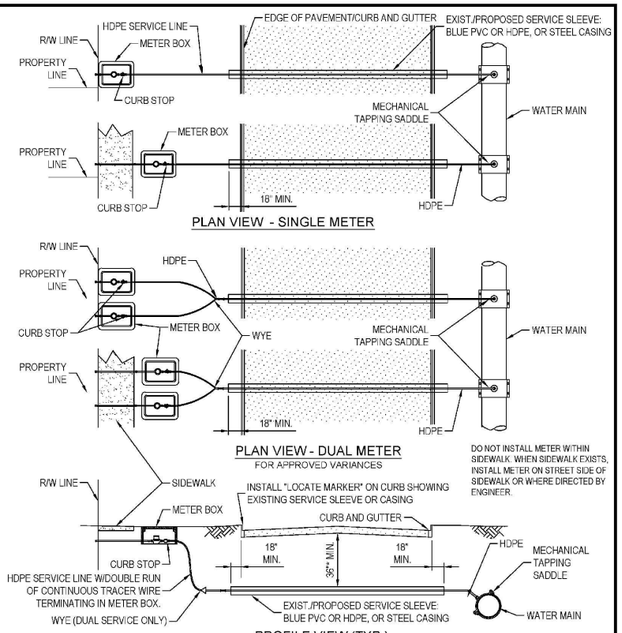
City of Tampa Florida Water Department

100% PLANS

WORK ORDER NO. **WUR-25-0024**

RECORD DWG. NO.

ATLAS PAGE **I-9** SHEET **12** OF **13**



CASING SPECIFICATION:

1. IF PUSHED-SCH 40 STEEL PIPE (MIN.)
2. IF LAYED IN OPEN TRENCH-SCH 40 STEEL PIPE OR SCH 80 PVC SOLVENT WELD PIPE.
3. IF USING HDPE TUBING (UP TO 2")-SDR-9 200 PSI, TYPE III, COLOR AND UV CODE E, CLASS C, PE 4710, AWWA C-901, NSF-61, MIN. CELL CLASSIFICATION OF PE 454474 E
4. IF USING HDPE PIPE (4" OR LARGER)-DR-11 160 PSI, PE 4710, AWWA C-906, NSF-61, MIN. CELL CLASSIFICATION OF PE 454474 C. EXTERIOR COLOR TO BE SOLID BLUE OR BLACK W/BLUE STRIPES (90 OR 120 DEGREES APART)

SINGLE METER SIZE (INCHES)	SERVICE LINE SIZE (INCHES)		CASING SIZE (INCHES)
	(15'-80')	(80'-150')	
3/4	1	2	2 / 4
1	2	2	4
1 1/2	2	2	4
2**	4" D.I.P.	4" D.I.P.	12

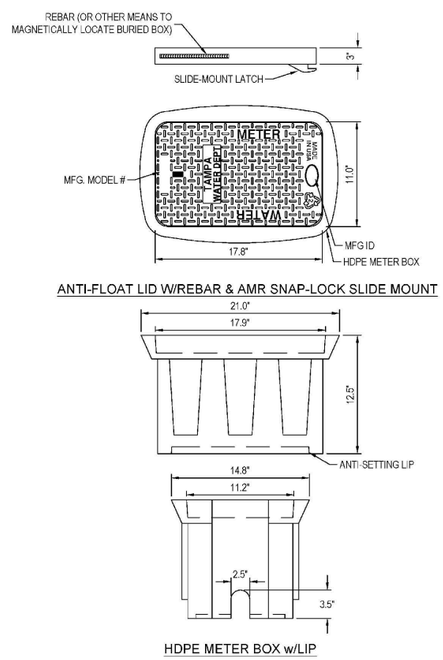
(FEET REFER TO DISTANCE FROM WATER MAIN TO METER)

* OR GREATER, IF REQUIRED BY ROW CONTROLLING AGENCY
** LINE SIZES APPLICABLE FOR 2" DDCV

DUAL METER SIZE (INCHES)***	SERVICE LINE SIZE (INCHES)		CASING SIZE (INCHES)
	(15'-80')	(80'-150')	
3/4	2	2	4
1	2	4" D.I.P.	4 / 12
1 1/2	N/A	N/A	N/A
2"	N/A	N/A	N/A

*** FOR APPROVED VARIANCES ONLY

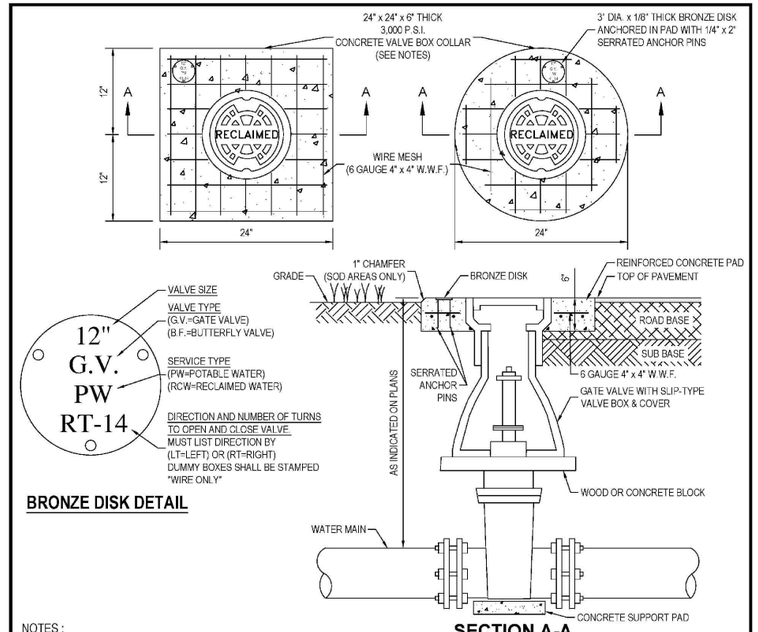
City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	SINGLE & DUAL METERED SERVICE - LONG SIDE 3/4", 1", 1-1/2" & 2"	5.05A



#37 HDPE METER BOX W/COVER

N.T.S.

City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	3/4" OR 1" SINGLE SERVICE HDPE METER BOX	5.10



NOTES :

1. CIRCULAR OR SQUARE CONCRETE PAD REQUIRED FOR ALL VALVE BOX INSTALLATIONS IN PERVIOUS AREAS (I.E. OUTSIDE OF ROADWAY PAVEMENT, OUTSIDE OF CONCRETE/ASPHALT DRIVEWAYS, ETC.)
2. CAST IRON VALVE BOXES SHALL BE FIRMLY SUPPORTED AND CENTERED AND PLUMB OVER THE OPERATING NUT OF THE VALVE. VALVE BOX COVER SHALL BE FLUSH WITH THE SURFACE OF THE FINISHED PAVEMENT, OR GRADE OR AT SUCH OTHER LEVEL AS MAY BE DIRECTED BY THE DEPARTMENT.
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6. IF VALVE IS LOCATED WITHIN A SIDEWALK CONCRETE COLLAR MAY BE ELIMINATED AND DISK SET FLUSH DIRECTLY IN SIDEWALK.
7. BRONZE DISK REQUIRED FOR ALL VALVES AND DUMMY BOXES.

City of Tampa Florida Water Department	LAST REVISION		
	MAY 2021	VALVE INSTALLATION W/VALVE BOX & PAD FOR DI OR CI PIPE - RECLAIMED	7.01R

ANDRÉ J. BIEN-AIMÉ, P.E.
CITY OF TAMPA WATER DEPT.
711 E. HENDERSON AVE.
TAMPA, FLA. 33602
P.E. #84160

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DESIGNED AL
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CHECKED ABA
DATE 04/29/25

WOODMERE ROAD & LOIS AVENUE

DETAIL SHEET 8

City of Tampa Florida Water Department

100% PLANS

WORK ORDER NO. **WUR-25-0024**

RECORD DWG. NO.

ATLAS PAGE **I-9** SHEET **13** OF **13**

SPECIFICATIONS

WORKMANSHIP AND MATERIALS

SECTION 1 - EXCAVATION - EARTH AND ROCK

W-1.01 General

Opencut 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 opencut 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, 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 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 1 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 or compacted fill 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 up around the pipe 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 12 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.

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SECTION 11 - PVC PIPE GRAVITY

W-11.01 General

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

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

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

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

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

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

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

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

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

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

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

PRIOR TO SHIPMENT of the pipe and fittings to the project site, the Contractor shall submit to the Engineer

certifications as described below duly certified by the manufacturer's testing facility or an independent certified testing laboratory demonstrating full compliance with the applicable ASTM specifications described above. Certification from the supplier is **not** acceptable.

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

1. The name, address, and phone number of the pipe and fittings manufacturer and the location of the plant at which they will be manufactured.

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

W-11.06 Bedding Requirements

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

W-11.07 Post-installation Tests

SCOPE:

Prior to final acceptance of the project all PVC pipelines shall be leakage tested, deflection tested, and T.V inspected, 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:

A deflection test shall be performed on all new gravity sewers to ensure that the pipe is not out of round, contains deflected or off-sets joints, or other defects. The Contractor shall have the option of testing for 5% deflection after the base has been compacted and sealed for a minimum of 7 days; or for 7½% deflection after the base has been compacted and sealed for a minimum of 30 days. The maximum installed deflection shall not exceed 5% or 7-1/2% of the base inside diameter of the pipe as listed in the following table:

INCHES

SDR-35

Nominal Size	Base Inside Diameter	5% Deflection after 7 days Mandrel	7-1/2% Deflection after 30 days Mandrel
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

TYPE T-1

18	16.976	16.13	15.70
21	20.004	19.01	18.50
24	22.480	21.36	20.79
27	25.327	24.06	23.43

SDR-26

Nominal Size	Base Inside Diameter	5% Deflection after 7 days Mandrel	7-1/2% Deflection after 30 days Mandrel
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

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.

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.

TV Inspection

All completed gravity sewers shall be subject to two TV inspections. The first TV inspection shall be performed after the new gravity sewer has passed both the leakage test and the deflection test. An additional TV inspection shall be performed eleven (11) months from the date the City has accepted the wastewater facilities. The inspection shall be used to identify deficiencies such as cracked pipe, leaking joints, damaged connections, and depressions or dip in the pipe alignment (see below for allowable dips). Any deficiencies identified by the inspections shall be repaired by the Contractor at no cost to the City.

The TV inspections shall be completed by the Contractor or a private company that specializes in TV inspection. The TV inspected shall be completed by means of a closed-circuit color television. Prior to the inspection of newly constructed collection systems, water shall be run through the pipeline so that depressions or dips can be identified during the inspection. TV inspections shall be completed in accordance with Section W-72 TV Inspection.

If the TV inspection identifies standing water in the pipe revealing a depression or dip in the pipe alignment, the magnitude of the depression shall be approximated by a means approved by the City. Approved methods include attaching a cylinder, disc, or ball of distinct size in front of the camera during the inspection. For example, if a 1" diameter disc is utilized and is totally submerged during the inspection, the depression is approximated to be greater than 1-inch. Listed below is the allowable depth of depression for the various pipe sizes. Depressions exceeded the allowable limits shall be repaired by the Contractor at no cost to the City.

Pipe Diameter	Minimum Dip for Failure
8" – 10"	**1.0"**
12" – 16"	**1.5"**
18" – 24"	**2.0"**

W-11.08 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. Couplings shall include stainless steel shear rings and stainless steel compression bands. Such couplings shall meet the requirements of ASTM Des: C 425, ASTM C1173 and shall be Series No. 1002 flexible polyvinyl chloride couplings with stainless steel compression bands and shear rings as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Band-Seal couplings as manufactured by Mission Clay Products Corp., Whittier, California; or equal. Installation of flexible couplings shall be done in accordance with the manufacturer's instructions.

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

W-11.11 Joining PVC Pipe to Ductile Iron Pipe

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

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

W-11.12 Connection to Manholes

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

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

W-11.13 Storage of PVC Pipe

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

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

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

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

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

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

W-11.14 Handling of PVC Pipe - Standard Procedures

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

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

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

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

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

TABLE I

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

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

TABLE II

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

Pipe Diameter (in)	Minimum Time (min:sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.483 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23

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 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, and except that Sections 330 and 331 shall be modified as shown in this Section. 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 limerock 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 limerock 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 limerock 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.

Limerock base 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 limerock 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 Limerock for Pavement Base

The Contractor shall furnish notarized certifications from all suppliers of limerock stating that all limerock 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 inplace 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 sublot 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 sublot test determinations.

For the standard lot (500 linear feet), five density determinations - one for each sublot - 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 sublot 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

Percent of Control Strip Density	Percent of Payment
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

Percent of Control Strip Density	Percent of Payment
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 sublot; 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 sublot. (The bituminous mixture will be sampled at the site in accordance with FM 1-T168.) 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)

Characteristics	Factor	Deviation of the Arithmetic Average of the Lot Acceptance Tests from Job Mix Formula: One Test	Two Tests	
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 27 - DEMOLITION

W-27.01 General

Demolition includes all work necessary for the removal and disposal of masonry, steel, reinforced concrete, sheet metal fencing/retaining wall, riprap retaining wall, granite curb retaining wall, plain concrete, wastewater equipment, piping, electrical facilities, and any other material or equipment shown or specified to be removed. Dust control shall be provided and provision made for safety.

Demolition shall be carried out in such a manner that adjacent structures, which are to remain, shall not be endangered. The work shall be scheduled so as not to interfere with the day to day operation of the existing facilities, all in accordance with the Sequence of Operations specified in the Specific Provisions. Doorways or passageways in existing facilities shall not be blocked.

Care shall be taken to assure that concrete shall be broken and removed in reasonably small masses. Where only parts of a structure are to be removed, the concrete shall be cut along limiting lines with a specially designed saw so that damage to the remaining structure is held to a minimum.

Where appropriate, the existing granite curb retaining wall, riprap retaining wall, and any and all other concrete structures and/or materials within the existing project area should be demolished, retained on site, crushed on site, and used as material for the stone within the Gabion Basket Retaining Walls and Reno Mats lining the ditch bottom.

W-27.02 Requirements Prior to Demolition

The Contractor shall visit the site and inspect all existing structures. Special care shall be taken to observe and record any defects, which may exist in buildings or structures adjacent to but not directly affected by the demolition work. Prior to commencing the demolition, the Contractor shall provide the Engineer with a copy of this inspection.

Drawings of existing structures and equipment will be available for inspection by the Contractor at the office of the Engineer and Owner.

Warning signs, protection barriers and red warning lights shall be provided as necessary adjacent to the work as approved by the Engineer and shall be maintained during the demolition period.

Demolition work shall not be undertaken until all mechanical and electrical services affected by the work have been properly disconnected. Interconnecting piping or electrical services that are to remain in service either permanently or temporarily shall be capped, rerouted or reconnected in a manner that will not interfere with the operation of the remaining facilities.

Where the presence of hazardous chemicals, gases, flammable materials or other dangerous substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated

before demolition is started.

W-27.03 Requirements During Demolition

The use of explosives will not be permitted.

All mechanical and electrical equipment shall be carefully protected against dust and debris.

All debris shall be removed from the structures during demolition and not allowed to accumulate in piles.

Safe access to and egress from all working areas shall be provided at all times with adequate protection from falling material.

Adequate scaffolding, shoring, bracing and protective covering shall be provided during demolition to protect personnel and equipment against injury or damage. Floor openings not used for material drops shall be covered with material substantial enough to support any loads placed on it. The covers shall be properly secured to prevent accidental movement.

Adequate lighting shall be provided at all times during demolition.

Areas below demolition work shall be closed to workmen while removal is in progress.

No material shall be dropped to any point lying outside the exterior walls of the structure unless the area is effectively protected.

No workmen shall stand on any wall to remove material except when adequate staging or scaffold protection is provided at a distance not exceeding 12 feet below the top of such walls and other reasonable precautions are taken. Whenever a workman is required to work at a height of more than 12 feet above a floor, platform, scaffold or the ground, he shall be equipped with a safety belt with a life line attached.

W-27.04 Disposal of Materials

All debris, rubbish, scrap pieces, equipment, and materials resulting from the demolition shall become the property of the Contractor and shall be removed from the site, except for the items designated by the Engineer to be salvaged.

SECTION 30 - MISCELLANEOUS PIPE AND FITTINGS

W-30.01 General

Miscellaneous pipe and fittings include polyvinyl chloride (PVC) pipe, copper pipe, steel pipe, and plastic tubing.

W-30.02 Polyvinyl Chloride Pipe

Polyvinyl chloride (PVC) pipe shall be Schedule 80 minimum meeting the requirements of ASTM Des: D 1785, 1254B. All joints and fittings shall be threaded except where flanged joints are shown or required for connection to other piping. Threaded PVC fittings shall be socket welding type, 150-pound class, conforming to ASTM Des: D 2467 and D 2657.

W-30.03 Copper Pipe

Copper pipe shall be Type K or L hard-drawn copper tubing and shall meet the requirements of ASTM Des: B 88.

Fittings shall be of the streamlined, solder joint type, and shall meet the requirements of ANSI Specifications B16.22.

W-30.04 Steel Pipe

Steel pipe shall be galvanized, meet the requirements of ASTM Des: A 53 and shall not be less than Schedule 40. Dimensions of steel pipe shall conform to ANSI B36.10.

Fittings for steel pipe shall be galvanized and shall be made to standard dimensions or as shown. Fittings used in pipelines 2□ inches in diameter or smaller shall be of the screwed pattern and shall be of malleable iron meeting the requirements of ASTM Des: A 197. The fittings shall conform to ANSI B 16.3. Where galvanized fittings are shown or specified, galvanizing shall meet the requirements of ASTM Des: A 120. Steel flange fittings shall meet the requirements of ANSI B 16.5 for 150-pound standard, except that the flanges shall be plain faced.

All flanges for steel pipe, except blind flanges, shall be of the slip-on welding type with hubs meeting the requirements of AWWA C207 Class B, D, or E suitable for the size of pipe and test pressures specified, and conforming to the requirements of ASTM Des: A 181, Class 1. The flanges shall be attached to the barrel of the pipe with two continuous fillet welds. The flanges shall be attached to the barrel of the pipe with two continuous fillet welds. Blind flanges shall be plain faced and shall conform to ANSI B 16.5, Class 150. All flanges shall be covered and protected during delivery and storage.

Flanged joints shall be made with bolts or bolt studs with a nut on each end. Bolts, stud bolts, and nuts shall meet the requirements of ASTM Des: A 307, Grade B and ANSI B 16.1 unless noted otherwise on the Plans.

Gaskets for flanged joints shall be of rubber with cloth insertion of the full face type meeting the requirements of ANSI B 16.21 and shall be those made by the Garlock Packing Company, Crane Company, U.S. Rubber Company, or equal. Gaskets shall be 1/16 inch thick.

Zinc for galvanizing, zinc coating, and plating shall meet the requirements of ASTM Des: B 6 and shall be at least equal to the grade designated as "Prime Western."

Wrought metals and castings shall be sandblasted or ground smooth. When a smooth coat is required, castings shall be tumbled and all high spots ground flush. Castings shall be normalized to prevent cracking.

Base metal shall be thoroughly cleaned, using only approved solvents and wire brushes, after which it shall be pickled.

Products to be galvanized shall be safeguarded against embrittlement in accordance with ASTM Des: A 143 and against warpage and distortion in accordance with ASTM Des: A 384.

Galvanizing shall be done by the hot-dip process after fabrication, unless otherwise specified in conformance with the appropriate ASTM and American Hot Dip Galvanizers Association, Inc. specifications. The dipping shall not come in contact with or rest upon the dross during the operation.

Galvanizing and coating shall be done in a plant having sufficient facilities to produce the quality of coatings herein specified and ample capacity for the volume of work required. Galvanized material shall be shipped and handled in a manner which will avoid damage to the zinc coating.

Galvanizing shall meet the requirements of ASTM Des: A 120.

W-30.05 Plastic Tubing

Plastic tubing for the air supply line shall be clear vinyl instrument grade tubing with an inside diameter of 3/8 inch and a minimum wall thickness of 0.062 inch. The tubing shall be FAST & TIGHT, Formula PV-2 as manufactured by Parker Hannifin, Kent, Ohio, or equal.

W-30.06 Workmanship

Working drawings, delivery, erection, testing, insulation, and disinfection of miscellaneous pipe and fittings shall meet the applicable portions of similar requirements for ductile iron pipe specified under the respective sections of Workmanship and Materials.

* * *

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. Root pruning shall not occur within 6 feet of the base of the tree without guidance

from Parks Department staff,
and no excavation shall occur inside the circumference of the root-pruned area.

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SECTION 108

DEWATERING

108.1 General.

108.1.1 Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

1. Delegated Design: Design dewatering system, including comprehensive engineering analysis by a qualified, Florida-licensed professional engineer, using performance requirements and design criteria indicated.
2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
3. Prevent surface water from entering excavations by grading, dikes, or other means.
4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
5. Remove dewatering system when no longer required for construction.

108.1.2 Submittals:

108.1.2.1 Shop Drawings (for dewatering system): Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.

1. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
2. Include a written plan for dewatering operations including control procedures to be adopted if dewatering problems arise.

108.1.2.2 Delegated-Design Submittal: For dewatering system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

108.1.2.3 Qualification Data: For qualified installer and professional engineer.

108.1.2.4 Field Quality-Control Reports

108.1.2.5 Videotape: Show existing conditions (prior to, during, and after construction) of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

108.1.3 Quality Assurance:

108.1.3.1 Installer Qualifications: An experienced installer that has specialized in dewatering work.

108.1.3.2 Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.

108.1.3.3 Preinstallation Conference: Conduct conference at the project site. Review methods and procedures related to dewatering including, but not limited to, the following:

1. Inspection and discussion of condition of site to be dewatered including coordination with temporary erosion control measures and temporary controls and protections.
2. Geotechnical report.
3. Proposed site clearing and excavations.
4. Existing utilities and subsurface conditions.
5. Coordination for interruption, shutoff, capping, and continuation of utility services.
6. Construction schedule. Verify availability of installer's personnel, equipment, and facilities needed to make progress and avoid delays.
7. Testing and monitoring of dewatering system.

108.1.4 Project Conditions:

108.1.4.1 Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by the City or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:

1. Notify the City and the utility owner no fewer than two (2) days in advance of proposed interruption of utility.
2. Do not proceed with interruption of utility without City's and utility owner's written permission.

108.1.4.2 Project Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of the geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by the geotechnical engineer. The City will not be responsible for interpretations or conclusions drawn from this data. Make additional test borings and conduct other exploratory operations necessary for dewatering.

108.1.4.3 Survey Work: Engage a qualified, Florida-licensed land surveyor to survey adjacent existing buildings, structures, and site improvements, establishing exact

elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify City if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

108.2 Execution.

108.2.1 Preparation:

108.2.1.1 Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.

1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

108.2.1.2 Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the City and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

108.2.1.3 Provide temporary grading to facilitate dewatering and control of surface water.

108.2.1.4 Monitor dewatering system continuously.

108.2.1.5 Promptly repair damages to adjacent facilities caused by dewatering.

108.2.1.6 Protect and maintain temporary erosion and sedimentation controls during dewatering operations.

108.2.2 Installation:

108.2.2.1 Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal and surface water controls. Space well points or wells at intervals required to provide sufficient dewatering. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.

108.2.2.2 Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.

108.2.2.3 Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom off foundations, drains, sewers, and other excavations. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

108.2.2.4 Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations. Maintain piezometric water level a minimum of 24 inches below surface of excavation.

108.2.2.5 Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction of completed. Dispose of water and sediment in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.

108.2.2.6 Provide standby equipment on site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to the City. Remove dewatering system from project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

108.2.2.7 Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

108.2.3 Field Quality Control

108.2.3.1 Observation Wells: Provide, take measurements, and maintain at least the minimum number of observation wells or piezometers indicated in the dewatering plan; additional observation wells may be required by authorities having jurisdiction.

1. Observe and record daily elevations of ground water and piezometric water levels in observation wells.
2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until reliable observations can be made. Add or remove water from observation well risers to demonstrate that observation wells are functioning properly.
3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.

108.2.3.2 Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

SECTION 113 – DISPOAL OF DEBRIS

W-113.01 General

The Contractor shall furnish all labor, materials and equipment required to transport and dispose of debris removed from all pipelines and structures to an approved facility at the Contractor's expense. Any permits required for the hauling and disposing of materials shall be obtained by the Contractor at their expense.

W-113.02 Scope of Work

The Contractor will have the following responsibilities:

a. Be solely responsible to handle, transport, test, permit and dispose of debris in accordance with all applicable regulatory requirements.

b. For transportation between project site and disposal site.

c. To apply for, pay fees and obtain all required environmental or transportation permits prior to handling debris. Permitting agencies include, but are not limited to, EPA, DER, DOT, Hillsborough County, City of Tampa and Expressway Authority.

d. To perform all necessary tests as required by permit and all applicable regulatory requirements.

e. To select a dispoal site and acquire approval from the disposal site owner for disposal of debris. The Contractor is responsible to pay all applicable disposal fees.

SECTION 110

CLEARING AND GRUBBING

110.1 Description.

Clear and grub within the areas of the roadway right-of-way and of borrow pits, sand-clay base material, milled asphalt beyond trench for pipe installation, lateral ditches, and any other areas shown in the plans to be cleared and grubbed. Remove and dispose of all trees, stumps, roots and other such protruding objects, buildings, structures, appurtenances, existing flexible asphalt pavement, existing concrete pavement, and other facilities necessary to prepare the area for the proposed construction. Remove and dispose of all product and debris not required to be salvaged or not required to complete the construction.

Also, perform certain miscellaneous work the Engineer considers necessary for the complete preparation of the overall project site, as follows:

(a) Level the terrain outside the limits of construction for purposes of facilitating maintenance and other post-construction operations in accordance with 110.10.3.
(b) Trim trees and shrubs within the project right-of-way that are identified in the Contract Documents.

Meet the requirements for such miscellaneous work as specified in 110.10.

110.2 Standard Clearing and Grubbing.

110.2.1 Work Included: Completely remove and dispose of all buildings, base and asphalt beyond pipe trench, timber, brush, stumps, roots, rubbish, debris, and all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas, and all other structures and obstructions necessary to be removed and for which other items of the Contract do not specify the removal thereof, including septic tanks, building foundations, and pipes.

Perform Standard Clearing and Grubbing within the following areas:

(a) All areas where excavation is to be done, including borrow pits, lateral ditches, right-of-way ditches, etc.
(b) All areas where roadway embankments will be constructed.
(c) All areas where structures will be constructed, including pipe culverts and other pipe lines.

110.2.2 Depths of Removal of Roots, Stumps, and Other Debris: In all areas where excavation is to be performed, or roadway embankments are to be constructed, remove roots and other debris to a depth of 12 inches below the ground surface. Remove roots and other debris from all excavated material to be used in the construction of roadway embankment or roadway base. Plow the surface to a depth of at least 6 inches, and remove all roots thereby exposed to a depth of at least 12 inches. Completely remove and dispose of all stumps within the roadway right-of-way.

Remove all roots, etc., protruding through or appearing on the surface of the completed excavation within the roadway area and for structures, to a depth of at least 12 inches below the finished excavation surface.

Remove or cut off all stumps, roots, etc., below the surface of the completed excavation in borrow pits, material pits, and lateral ditches.

Within all areas where standard clearing and grubbing is to be performed, remove roots and other debris projecting through or appearing on the surface of the original ground to a depth of 12 inches below the surface, but do not plow or harrow these areas.

110.2.3 Trees to Remain: As an exception to the above provisions, where so directed by the Engineer, trim, protect, and leave standing desirable trees within the roadway area. Trim branches of trees extending over the area occupied by the roadway as directed, to give a clear height of 16 feet above the roadway.

110.2.4 Boulders: Remove any boulders encountered in the roadway excavation or found on the surface of the ground. When approved by the Engineer, place boulders in neat piles inside the right of way. The Contractor may stockpile boulders encountered in City-furnished borrow areas which are not suitable for use in the embankment construction within the borrow area.

110.3 Selective Clearing and Grubbing.

The Contractor shall remove and dispose of all vegetation, obstructions, etc., as provided above except that, where so elected, the Contractor may cut roots, etc., flush with the ground surface. Completely remove and dispose of stumps. Entirely remove undergrowth except in specific areas designated by the Engineer to remain for aesthetic purposes. Trim, protect, and leave standing desirable trees, with the exception of such trees as the Engineer may designate to be removed in order to facilitate right-of-way maintenance. Remove undesirable or damaged trees as so designated by the Engineer. Perform Selective Clearing and Grubbing only in areas so designated in the plans.

110.4 Protection of Property Remaining in Place.

Protect and do not displace property obstructions which are to remain in place, such as buildings, sewers, drains, water or gas pipes, conduits, poles, walls, posts, bridges, etc.

110.5 Removal of Buildings.

110.5.1 Parts to be Removed: Completely remove all parts of the buildings, including utilities, plumbing, foundations, floors, basements, steps, connecting concrete sidewalks or other pavement, septic tanks, and any other appurtenances, by any practical manner which is not detrimental to other property and improvements. Remove utilities to the point of connection to the utility owner's cut-in. After removing the sewer connections to the point of cut-in, construct a concrete plug at the cut-in point, as directed by the Engineer, except where the utility owners may elect to perform their own plugging. Contact the appropriate utility companies prior to removal of any part of the building to ensure disconnection of services.

110.5.2 Removal by Others: Where buildings within the area to be cleared and grubbed are so specified to be removed by others, remove and dispose of any foundations, curtain walls, concrete floors, basements or other foundation parts which might be left in place after such removal of buildings by others.

110.6 Removal of Existing Structures.

110.6.1 Structures to be Removed: Remove and dispose of the materials from existing structures. Remove the following: (1) those structures, or portions of structures, shown in the plans to be removed; (2)

those structures, or portions of structures, found within the limits of the area to be cleared and grubbed, and directed by the Engineer to be removed; (3) those structures, or portion of structures, which are necessary to be removed in order to construct new structures; and (4) other appurtenances or obstructions which may be designated in the Contract Documents as to be included in an item of payment for the work under this Article.

Notify the Florida Department of Environmental Protection (DEP) using DEP Form 62-257.900(1) "Notice of Asbestos Renovation or Demolition" at least 10 working days prior to the demolition or renovation of any structures, even if asbestos is not found on the project. Provide a copy of this Notice to the Engineer.

110.6.2 Method of Removal:

110-6.2.1 General: Remove the structures in such a way so as to leave no obstructions to any proposed new structures or to any waterways. Pull, cut off, or break off pilings to the requirements of the permit or other Contract Documents, or if not specified, not less than 2 feet below the finish ground line. In the event that the plans indicate channel excavation to be done by others, consider the finish ground line as the limits of such excavation. For materials which are to remain the property of the City or are to be salvaged for use in temporary structures, avoid damage to such materials, and entirely remove all bolts, nails, etc. from timbers to be so salvaged. Mark structural steel members for identification as directed.

110.6.2.2 Removal of Steel Members With Hazardous Coatings: Provide to the Engineer for approval a copy of the "Contractor's Lead in Construction Compliance Program" from the firm actually removing and disposing of these steel members before any members are disturbed.

Vacuum power tool clean any coated steel member to bare metal as defined by SSPC-SP11 a minimum of 4 inches either side of any area to be heated (torch cutting, sawing, grinding, etc.) in accordance with 29 CFR 1926.354. Abrasive blasting is prohibited.

Provide air-supplied respirators in accordance with 29 CFR 1926.62 and 29 CFR 1910.134.

110.6.3 Partial Removal of Bridges: On concrete bridges to be partially removed and widened, remove concrete by manually or mechanically operated pavement breakers, by concrete saws, by chipping hammers, or by hydro-demolition methods. Do not use explosives. Where concrete is to be removed to neat lines, use concrete saws or hydro-demolition methods capable of providing a reasonably uniform cleavage face. If the equipment used will not provide a uniform cut without surface spalling, first score the outlines of the work with small trenches or grooves. For all demolition methods, submit for review and approval of the Engineer, a demolition plan that describes the method of removal, equipment to be used, types of rebar splices or couplers, and method of straightening or cutting rebars. In addition, for hydro-demolition, describe the method for control of water or slurry runoff and measures for safe containment of concrete fragments that are thrown out by the hydro-demolition machine.

110.6.4 Authority of U.S. Coast Guard: For structures in navigable waters, when constructing the project under authority of a U.S. Coast Guard permit, the U.S. Coast Guard may inspect and approve the work to remove any existing structures involved therein, prior to acceptance by the City.

110.6.5 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer.

Make every effort to minimize the disturbance of the ACM. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Provisions shall meet all applicable laws, rules or regulations covering hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

The Engineer will notify the Engineer who will coordinate with the City for assessment and/or remediation. The Contractor shall provide access to the potential contamination area. Preliminary investigation by the City will determine the course of action necessary for site security and the steps necessary to resolve the contamination issue.

The City or its designee will delineate the contamination area(s), any staging or holding area required. The Contractor shall coordinate with the City or its designee and the Engineer to develop a work plan that will provide the City's or its designee's operations schedule with projected completion dates for the final resolution of the contamination issue.

The City or its designee will maintain jurisdiction over activities inside any outlined contaminated areas and any associated staging holding areas. The City or its designee will be responsible for the health and safety of workers within the delineated areas. Provide continuous access to these areas for the Asbestos/CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

The Contractor and the City or its designee will use the schedule as a basis for planning the completion of both work efforts. The Engineer may grant Contract Time extensions according to the provisions of the Contract Documents.

The Contractor will cooperate with the City or its designee to expedite integration of the remediation operations into the construction project. The Contractor is not expected to engage in routine construction activities involving asbestos-containing materials. Adjustments to quantities or to contract unit prices will be made according to work additions or reductions on the part of the Contractor in accordance with the Contract Documents.

The Engineer will direct the Contractor when operations may resume in the affected area.

110.7 Removal of Existing Pavement.

Remove and dispose of existing flexible asphalt pavement, rigid Portland Cement Concrete pavement, sidewalk, slope pavement, ditch pavement, curb, and curb and gutter etc., where shown in the plans or ordered by the Engineer to be removed or where required because of the construction operations. Retaining walls, drainage structures and flexible asphalt pavement are not included in the work under this Article.

110.8 Ownership of Materials.

Except as may be otherwise specified in the Contract Documents, the Contractor shall take ownership of all buildings, structures, appurtenances, and other materials removed by him and shall dispose of them in accordance with Section 110.9.

110.9 Disposal of Materials.

110.9.1 General: Either stack materials designated to remain the property of the City in neat piles within the right-of-way or, if approved by the City, load onto the City's vehicles.

Dispose of timber, stumps, brush, roots, rubbish, and other objectionable material resulting from clearing and grubbing in areas and by methods meeting the applicable requirements of all Local, State and Federal regulations. Do not block waterways by the disposal of debris.

110.9.2 Burning Debris: Where burning of such materials is permitted, perform all such burning in accordance with the applicable laws, ordinances, and regulations. Perform all burning at locations where trees and shrubs adjacent to the cleared area will not be harmed.

110.9.3 Timber and Crops: The Contractor may sell any merchantable timber, fruit trees, and crops that are cleared under the operations of clearing and grubbing for his own benefit, subject to the provisions of the Contract Documents, which may require that the timber, fruit trees, or crops be burned at or near the site of their removal, as directed by the Engineer. The Contractor is liable for any claims which may arise pursuant to the provisions of this Subarticle.

110.9.4 Disposal of Treated Wood: Treated wood, including that which comes from bridge channel fender systems, must be handled and disposed of properly during removal. Treated wood should not be cut or otherwise mechanically altered in a manner that would generate dust or particles without proper respiratory and dermal protection. The treated wood must be disposed of in at least a lined solid waste facility or through recycling/reuse. Treated wood shall not be disposed by burning or placement in a construction and demolition (C&D) debris landfill. All compensation for the cost of removal and disposal of treated wood will be included in the Cost of Clearing and Grubbing.

110.9.5 Hazardous Materials/Waste: Handle, transport and dispose of hazardous materials in accordance with all Local, State and Federal requirements including the following:

a. SSPC Guide 7
b. Federal Water Pollution Control Act, and
c. Resource Conservation and Recovery Act (RCRA).

The Contractor shall accept responsibility for the collection, sampling, classification, packaging, labeling, accumulation time, storage, manifesting, transportation, treatment and disposal of hazardous waste, both solid and liquid. Separate all solid and liquid waste and collect all liquids used at hygiene stations and handle as hazardous materials/waste. Obtain written approval from the Engineer for all hazardous materials/waste stabilization methods before implementation.

The Contractor shall obtain an EPA/FDEP Hazardous Waste Identification Number (EPA/FDEP ID Number) before transporting and/or disposal of any hazardous materials/waste, listing the City as the generator of all hazardous materials/waste.

Submit the following for the Engineer's approval before transporting, treatment or disposal of any hazardous materials/waste:

a. Name, address and qualifications of the transporter,
b. Name, address and qualifications of the treatment facility, and

c. Proposed treatment and/or disposal of all Hazardous Materials/Waste.

The Contractor shall transport all hazardous materials/waste in accordance with applicable 40 CFR 263 Standards and provide a copy of all completed Hazardous Materials/Waste manifest/bills of lading to the Engineer within 21 days of each shipment.

110.9.5.1 Steel Members With Hazardous Coating: Dispose of steel members with hazardous coating in one of the following manners:

(a) Deliver the steel members and other hazardous waste to a licensed recycling or treatment facility capable of processing steel members with hazardous coating.
(b) Deliver the steel members with hazardous coating to a site designated by the Engineer for use as an offshore artificial reef. Deliver any other hazardous materials/waste to a licensed hazardous materials/waste recycling treatment facility.

Dismantle and/or cut steel members to meet the required dimensions of the recycling facility, treatment facility, or offshore artificial reef agency.

All compensation for the cost of removal and disposal of hazardous materials/waste will be included in the Cost of Clearing and Grubbing.

110.9.5.2 Certification of Compliance: Furnish two copies of Certification of Compliance from the firm actually removing and disposing of the hazardous materials/waste stipulating, the hazardous materials/waste has been handled, transported and disposed of in accordance with this Specification. The Certification of Compliance shall be attested to by a person having legal authority to bind the company.

The Contractor shall maintain all records required by this Specification and ensure these records are available to the City upon request.

110.10 Miscellaneous Operations.

110.10.1 Water Wells Required to be Plugged: Fill or plug all water wells within the right-of-way, including areas of borrow pits and lateral ditches, that are not to remain in service, in accordance with applicable Water Management District rules or the Department of Environmental Protection regulations.

Cut off the casing of cased wells at least 12 inches below the ground line or 12 inches below the elevation of the finished excavation surface, whichever is lower. Water wells, as referred to herein, are defined either as artesian or non-artesian, as follows:

(a) An artesian well is an artificial hole in the ground from which water supplies may be obtained and which penetrates any water-bearing rock, the water in which is raised to the surface by natural flow or which rises to an elevation above the top of the water-bearing bed. Artesian wells are further defined to include all holes drilled as a source of water that penetrate any water-bearing beds that are a part of the artesian water system of Florida, as determined by representatives of the applicable Water Management District.

(b) A non-artesian (water-table) well is a well in which the source of water is an unconfined aquifer. The water in a non-artesian well does not rise above the source bed.

When the plans do not indicate whether a non-flowing well is artesian or non-artesian, obtain this information from the Engineer.

110.10.2 Landscape Areas: When certain areas of the right-of-way, outside of the limits of construction, are shown in the plans or designated by the Engineer to be landscaped, either under the construction Contract or at a later time, remove undesirable trees, stumps, undergrowth, and vegetation, as directed, and preserve and trim natural growth and trees as directed by the Engineer.

110.10.3 Leveling Terrain: Within the areas between the limits of construction and the outer limits of clearing and grubbing, fill all holes and other depressions, and cut down all mounds and ridges. Make the area of a sufficient uniform contour so that the City's subsequent mowing and cutting operations are not hindered by irregularity of terrain. Perform this work regardless of whether the irregularities were the result of construction operations or existed originally.

110.10.4 Mailboxes: When the Contract Documents require furnishing and installing mailboxes, permit each owner to remove the existing mailbox. Work with the Local Postmaster to develop a method of temporary mail service for the period between removal and installation of the new mailboxes. Install the mailboxes in accordance with the FDOT Design Standards.

110.11 Method of Measurement and Payment.

110.11.1 Clearing and Grubbing: When direct payment is provided in the Contract, the quantity to be paid for will be the lump sum quantity to include clearing and grubbing, removal of existing pavement, plugging water wells, mailbox replacements, delivery of salvageable material to the City,

Price and payment will be full compensation for all clearing and grubbing required for the roadway right-of-way and for lateral ditches, channel changes, or other outfall areas, and any other clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc., as specified herein, except for any areas designated to be paid for separately or to be specifically included in the costs of other work under the Contract. Where construction easements are specified in the plans and the limits of clearing and grubbing for such easements are dependent upon the final construction requirements, no adjustment will be made in the lump sum price and payment, either over or under, for variations from the limits of the easement defined on the plans.

110.11.2 General: In each case, except as provided below, where no item of separate payment for such work is included in the proposal, all costs of such work will be included in the various scheduled items in the Contract, or under specific items as specified herein below or elsewhere in the Contract.

END OF SECTION 110

SECTION 425 - STORMWATER INLETS, MANHOLES AND JUNCTION BOXES

W-425.01 General

The work specified in this section consists of the construction of inlets, manholes, junction boxes, shoulder gutter inlets, and yard drains. These structures shall be of reinforced concrete, or may be of brick masonry if circular and constructed in place, and shall include the necessary metal frames and gratings. The work under this section shall also include the adjustment of those structures shown in the plans to be adjusted or which are required to be adjusted for the satisfactory completion of the work. The new structures shall be constructed in conformity with the plans and in accordance with these specifications and the latest City of Tampa Stormwater Standard Details.

W-425.02 Composition and Proportioning

Concrete: Unless otherwise shown in the plans, all concrete for these structures shall be Class II as specified in the latest FDOT Standard Specifications Section 346 – Portland Cement Concrete and Section 347 – Portland Cement Concrete – NS.

Mortar: The mortar for brick masonry shall be of portland cement and sand, mixed in the proportions of one part cement to two parts of sand. Miami Oolitic rock screenings may be substituted for the sand upon prior approval of the Engineer. All the materials shall pass the No. 8 Sieve, and be uniformly graded from coarse to fine. At the option of the Contractor, hydrated lime, in an amount not to exceed ten percent of the amount of cement used, may be added to the mortar.

As an alternate to the above, masonry cement may be used in lieu of the above-specified mortar provided that it is delivered in packages properly identified by brand name of manufacturer, net weight of package, and whether it is Type 1 or Type 2, and further provided that it has not been in storage for a period greater than six months. Hydrated lime shall not be used with masonry cement.

The sand and cement shall be thoroughly mixed dry in proper boxes or mortar mixers and such quantity of clean fresh water added as will provide a stiff mortar of the proper consistency. The whole mass shall be thoroughly mixed until used. Any mortar that has set shall not be retempered in any way, and no mortar shall be used more than one and one-half (1-1/2) hours after mixing.

W-425.03 Gratings

Gratings and frames fabricated from structural steel shall be Zinc (hot-dip galvanized) Coatings on Iron and Steel Products, in accordance with the requirements of ASTM A123 These requirements do not apply when A-588 steel is used.

When Alternate "G" grates are specified, the chain, bolt, nuts, and cold shuts shall be galvanized after fabrication in accordance with the requirements of ASTM A 153.

W-425.04 Forms

Forms shall be of wood or metal, so designed and constructed that they may be removed without injury to the concrete. They shall be built true to line and grade and braced in a substantial and unyielding manner, and shall be approved by the Engineer before being filled with concrete.

W-425.05 Precast Inlets, Manholes, and Junction Boxes

Careful attention shall be given to the proper construction or reconstruction of the pavement adjacent to the gutters and at street intersections to obtain satisfactory drainage to the inlets from the intersecting streets.

The Contractor may request to substitute precast inlets, manholes, and junction boxes in lieu of cast-in-place units unless otherwise shown in the plans or directed by the Engineer. At locations not so restricted, the Contractor shall carefully examine the plan details at each structure to determine if use of a precast unit is feasible. The design and fabrication of precast units shall be in accordance with the standard index drawings, which may allow use of designs other than those detailed in the standard index drawings.

Smooth welded wire fabric may be substituted for deformed re-bar or welded deformed wire reinforcement in non-circular precast drainage structures provided the following requirements are met:

1. The smooth welded wire fabric shall comply with ASTM A-185.

2. Substitution of equal areas of smooth wire fabric for the reinforcing steel and provided the width and length of the unit is four times the width of the spacing of the cross wires.

3. Wire shall be continuous around the box and spliced at a quarter point of one side with an overlap of not less than the spacing of the cross wires plus two inches.

W-425.06 Construction Methods

Excavation: Excavation shall comply with the requirements specified in Section 1.

Placing and Curing Concrete: The concrete shall be placed in the forms, to the depth shown in the plans and thoroughly vibrated. After the concrete has hardened sufficiently, it shall be covered with suitable material approved by the Engineer, and kept moist for a period of three days.

Setting Manhole Castings: After the concrete has been cured as specified above, the frame of the casting shall be set in a full mortar bed composed of one part portland cement to two parts of fine aggregate.

Reinforcing Steel: The construction methods for the steel reinforcement shall be

as specified in Section 6.

Laying Brick: All brick shall be saturated with water before being laid. The brick shall be laid by the shovejoint method so as to bond them thoroughly into the mortar. Headers and stretchers shall be so arranged as to bond the mass thoroughly. Joints shall be finished properly as the work progresses and shall be not less than 1/4 inch or more than 3/4 inch in thickness. No spalls or bats shall be used except for shaping around irregular openings or when unavoidable at corners.

The inside of the brick masonry walls shall be plastered uniformly with cement mortar one-half (1/2) inch in thickness mixed in proportions of one part of cement and two parts of clean, sharp sand.

Placing Pipe: Inlet and outlet pipes shall be of the same size and kind as the connecting pipe shown in the plans. They shall extend through the walls for a distance beyond the outside surface sufficient for the intended connections, and the concrete shall be constructed around them neatly so as to prevent leakage along their outer surface. The inlet and outlet pipes shall be flush with the inside of the wall.

Backfilling: Backfilling shall conform with the requirements specified in Section 2.

Adjusting Existing Structures: Existing manholes, catch basins, inlets, valve boxes, monument boxes, etc., within the limits of the proposed work, that do not conform to the finished grade of the proposed pavement, or to the finished grade designated on the plans for such structures, shall be cut down or extended, and made to conform to the grade of the new pavement, or to the designated grade of the structure if outside of the proposed pavement area. The materials and construction methods for this work shall conform to the requirements specified above.

Where manholes are to be raised, the adjustment may, at the Contractor's option, be made by the use of adjustable extension rings of the type which do not require the removal of the existing manhole frame. The extension device shall provide positive locking action and shall permit adjustment in height as well as diameter. The particular type of device used shall meet the approval of the Engineer.

Adjusting Structures: When an item of payment for adjusting manholes, valve boxes, inlets, or monument boxes is provided in the proposal, the number of such structures designated to be paid for under separate items, and which are satisfactorily adjusted, shall be paid for at the contract units prices each for Adjusting Inlets, Adjusting Manholes, Adjusting Valve Boxes, and Adjusting Monument Boxes.

For any of such types of these structures required to be adjusted but for which no separate item of payment is shown in the proposal for the specific type, payment shall be made under the item of Adjusting Miscellaneous Structures.

W-425.07 Drainage Structures

1. All inlets, manholes, and junction boxes shall, unless otherwise directed by the

Engineer, be constructed as per design plans and applicable design standards. All manholes shall be Traffic Bearing type. It shall be the responsibility of the Contractor to assure that the designated sizes of the drainage structures meet the following criteria:

a. The minimum distance from the top of the opening for the highest pipe to the bottom of the top slab shall be ten inches (10"); 12 inches from top of pipe to bottom of top slab, before "stack" is used.

b. The minimum diameter for stack heights shall be thirty-six (36) inches.

c. The minimum distance between pipe openings shall be nine (9) inches.

d. For four-sided structures having openings in more than one corner, individual shop drawings must be submitted for prior approval.

2. If warranted by field conditions and directed by the Engineer, the Contractor shall, at such locations, construct brick drainage structures (in place of concrete drainage structures), according to the standards specified below:

Brick construction shall be as follows:

a. Wall thickness minimum eight inches (8") up to eight feet (8') height, unless specified otherwise.

b. Wall thickness minimum twelve inches (12") up to twelve feet (12') height, unless specified otherwise.

c. Brick shall be laid in 1:2 (Portland cement-sand) mortar.

d. Before laying the bricks in mortar, the bricks shall be thoroughly sprinkled with clean water (not to saturation extent).

e. Brick for manhole and inlet structures shall be laid in stretcher courses, with every sixth course a header course.

f. All brick structures shall be plastered smooth inside also with 1/2-inch thick, 1:2 (Portland cement-sand) mortar.

g. No "unsound" brick shall be used. As a test, if a light hammer blow, with the brick held lightly in hand, does not produce a uniform crisp ringing sound, the brick shall be construed to have crack(s), or otherwise unsound and shall be rejected.

h. All bricks shall be solid.

3. No additional compensation shall be paid for brick structures. Brick and concrete shall not be used simultaneously in drainage structure walls. Walls of round

structures shall be constructed of concrete only.

4. For all types of manholes, the top and bottom slab shall be as per applicable D.O.T. standards, even if brick is allowed to be used in the manhole walls. The following criteria shall apply to slab thicknesses and steel reinforcements:

   a. Top and bottom slabs shall have same thicknesses and reinforcements in any manhole structure.

   b. The minimum slab thickness and reinforcement shall be 8 inches thick and #6 bars at 6-inch centers both ways.

   c. 4-foot by 6-foot (4' x 6') or larger manholes, including circular manholes with inside diameter of 5-feet (5.0') or larger, shall have 10-inch thick slabs with #7 bars at 6-inch centers both ways.

   d. Unless specified on the Plans, four-sided structures with both inside dimensions in excess of eight feet (8.0') and circular structures with inside diameter in excess of eight feet (8.0') shall not be covered by D.O.T. and the above criteria.

5. All grate inlets shall conform to the City of Tampa design standards.

6. Grates on inlets, as well as all other structures, shall be Traffic Bearing Type, unless specified otherwise, and subject to approval of the Engineer. All grate inlets shall be fitted with an approved metal frame at the top to seat the grates.

7. All Type-P manholes shall be bid at one average unit price regardless of size and shape. Similarly, all Type-J manholes will be bid at one average unit price regardless of size and shape unless indicated otherwise in the proposal.

8. The reinforcements and shapes for all drainage structures, unless directed by the Engineer otherwise, shall conform to the Plans and applicable design standards.

9. Vertical support columns (one in case of Type 5 inlet) shall be constructed by the Contractor, as a part of the D.O.T. Type 5 and 6 curb inlets, where and as directed by the Engineer.

10. The Contractor, if so directed by the Engineer in order to better meet site requirements, shall construct B-S-1, B-R-2, B-V-1, or B-R-1 type curb inlets in lieu D.O.T. Type 5 and 6 inlets and vice-versa without additional cost to the City. P-5 and P-6 inlets shall have 3-1/2-foot by 3-1/2-foot substructures unless oversize pipe is to be accommodated or otherwise directed by the Engineer. Legible, detailed plans of each inlet type shall be provided to the Contractor.

    Side openings in curb and grate type inlets may be specified in the Plans or by the Construction Engineer to meet site conditions. The Contractor shall provide such openings without any additional cost.

11. When precast drainage structures are requested as substitutions for poured in place concrete structures, the Contractor shall meet the following additional requirements:

    a. Minimum height of the base structure (manhole or inlet barrel), unless restricted by design, shall be 5 feet 0 inches before extending the structure height by another precast "barrel." The minimum height of the top (extension) precast "barrel" shall be 1 foot 6 inches. "Barrel" extensions of less than 1-foot 6-inch height shall be cast in place with continuous reinforcement.

    b. Four-sided structures may be considered as an alternate to circular structures, but not the reverse.

    c. For substructures for the City-type curb inlets, unless specified otherwise, directed by the Engineer, or to accommodate larger pipes, the Contractor may use a 3-foot by 4-foot (inside dimensions) structure. This structure shall have same slab and wall thicknesses and steel reinforcing as specified for "Type E" grate inlet.

    d. When circular structures are precast in accordance with ASTM C-478, minimum wall thickness shall be six inches (6") thick or as specified in ASTM C-478 for larger diameter structures.

    e. The location of the pipe holes and adequate basic substructures height, unless directed otherwise by the Engineer, shall be the responsibility of the Contractor.

    f. The Contractor shall submit shop drawings only as specified below:

        (1) One each-typical for different type of structures.

        (2) For structures directed by the Engineer, and/or requiring change with respect to design plans, or as otherwise required by these specifications.

    g. Provide schedule of manufacture of the structures. No compensation shall be paid to the Contractor for unusable precast drainage structures.

    h. Provide material testing acceptance reports by a licensed private laboratory verifying:

        (1) that the structures were constructed in accordance with details shown on the Plans and/or Shop Drawings;

        (2) the exact design criteria adhered to; if more than one, identify which criteria applies to which structures;

(3) the project title, project number, file number, date cast, structure, plan sheet number and station;

(4) reinforcement size, spacing and amount;

(5) concrete placement, curing and strength, and verification of concrete cover on reinforcement; and

(6) that the testing laboratory stamp is placed on each structure prior to shipment.

i. Cooperate with Department personnel regarding periodic inspection of the precast units and the precast operations.

12. All manhole and inlet structures shall be set on a minimum 6-inch thick layer of compacted number 57 size coarse aggregate unless noted otherwise in the Plans or Specifications, or unless the Engineer determines a thicker layer is required due to soil and/or water conditions. All such coarse aggregate shall be completely enveloped in non-woven filter fabric as directed by the Engineer.

Payment for the 6-inch thick layer of stone shall be included in the price of the structure. Payment for thicker layers of stone shall be made from the select bedding material (stone) pay item, if available, or as extra work.

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

* * *

SECTION 430 - PIPE CULVERTS AND STORM SEWERS

W-430.01 General

The work specified in this section consists of furnishing drainage pipe and mitered end sections, conforming to these specifications and of the particular types, sizes, and dimensions shown in the plans. This work shall include the installation of the pipe and mitered end sections at the locations called for, in conformity with the lines and grades given, and the furnishing and construction of such joints and connections to existing pipes, catch basins, inlets, manholes, walls, etc., as may be required to complete the work as indicated in the plans.

W-430.02 Laying Pipe

General: Each section of pipe shall be inspected for defects before being lowered into the trench. All pipe shall be carefully laid, true to the lines and grades given, with hubs upgrade and tongue end fully entered into the hub. When pipe with quadrant reinforcement, or circular pipe with elliptical reinforcement, is used, the pipe shall be installed in a position such that the manufacturer's marks designating "top" and "bottom" of the pipe shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe. Any pipe that is not in true alignment or which shows any settlement after laying shall be taken up and relaid without additional compensation.

Trench Excavation: The excavation of the trench for pipe culverts and storm sewers shall be as specified in Section 1.

Foundation: Where the foundation material is of inadequate supporting value, a suitable foundation shall be provided, as directed by the Engineer, by the removal of unsuitable material and replacing with suitable material as specified in Section 2. Where in the Engineer's opinion, the removal and replacement of unsuitable material is not practicable, he may direct alternates in the design of the pipeline, as required to provide adequate support. Should such alteration in the design result in an increase in the costs of the installation, an appropriate adjustment will not be considered as an adequate basis for extra compensation.

Pipe shall not be laid on blocks or timbers, or on other unyielding material, except where the use of such devices is called for in the plans.

Backfilling: The backfilling around the pipe shall be as specified in Section 2.

Plugging Pipe: When so shown in the plans, the ends of the pipe culverts shall be sealed with a masonry plug a minimum of eight (8) inches in thickness unless otherwise shown in the plans.

End Treatment: The end treatment required at each cross drain, side drain, or storm sewer pipe end is shown in the plans. Alternate types are permitted only when shown. Details for each type of end treatment are contained in the standard index

drawings.

As an exception to the above, when concrete mitered end sections are permitted, reinforced concrete U-endwalls may be used but shop drawings must be submitted to the Engineer for approval prior to use.

Metal pipe Protection: To protect corrugated steel or aluminum pipe embedded in a concrete structure, such as an inlet, manhole, junction box, endwall, or concrete jacket, a bituminous coating shall be applied to the surface area of the pipe within and 12 inches beyond the concrete or mortar seal prior to sealing.

The surface preparation, application methods (dry film thickness and conditions during application), and equipment used shall be in accordance with the coating manufacturer's published specifications.

All coating products used must be approved by the Bureau of Materials and Research, Florida Department of Transportation, Gainesville, Florida.

The cost of furnishing and applying the bituminous material shall be included in the contract unit price for new pipe.

W-430.03 Removing and Relaying Existing Pipe

Removal: If the plans indicate that existing pipe is to remain the property of the City, all existing pipe or pipe arch so indicated in the plans to be removed or that does not conform to the lines and grades of the proposed work and that is not to be relaid, shall be taken up and stacked neatly along the right of way, as directed by the Engineer. Due care shall be exercised to prevent damage to salvageable pipe during removal and stacking operations.

Relaying: Where so shown in the plans, existing culvert pipe shall be taken up and cleaned and shall be relaid in the same manner as specified for new culvert pipe. Where necessary, existing metal pipe or pipe arch shall be straightened before it is relaid.

W-430.04 Placing Pipe Under Railroad

General: Pipe culverts to be constructed under railroad tracks shall be constructed in accordance with the requirements of the railroad company.

Unless the specific provisions specifically stipulate that the work of shoring under the tracks, and sheeting and bracing of the trench, is to be done by the railroad company, all such work required by the railroad company or deemed necessary by the Engineer in order to assure safe and uninterrupted movement of the railroad equipment, shall be done by the Contractor ar his expense.

Requirements of the Railroad Company: The method of installation shall be as required by the railroad company as specified in the specific provisions.

When the general method of installation which the railroad company will require is indicated in the plans, such method and any other specific details of the installation which might be indicated in the plans, shall not be changed without written approval of the Engineer, after the approval (or the direction) for such change has been obtained from the railroad.

Notification to Railroad Company; The Contractor shall notify the railroad company of the date on which he expects to begin the work of placing pipe under the railroad tracks at least ten days prior to such date.

Placing Pipe by Jacking: When the placing of the pipe through the railroad embankment is done by the jacking method, the details of the jacking method to be used must be approved by the Engineer and the railroad company before the work is started.

Use of Tunnel Liner: When the railroad company requires that a tunnel liner be used for placing the pipe in lieu of the jacking method, separate payment for the tunnel liner material will be made only in cases where the plans or specifications do not specifically provide that a tunnel liner will be required; in which cases the City will reimburse the Contractor for the actual cost of the liner, delivered at the site. Such cost shall be based on a liner having the minimum gauge acceptable to the railroad.

W-430.05 Specific Requirements for Concrete Pipe

Sealing Joints:

(1) Round Concrete Pipe Other than Side Drain: For all round concrete pipe other than side drain pipe, the pipe joints shall be sealed by the use of round rubber gaskets. When rubber gaskets are used, the pipe joints shall meet the requirements specified in Section W-942-1. The gasket and the surface of the pipe joint, including the gasket recess, shall be clean and free from grit, dirt, and other foreign matter at the time the joints are made. In order to facilitate closure of the joint, application of an approved vegetable soap lubricant immediately prior to closing of the joint will be permitted.

(2) Side Drain Pipe: For all concrete pipe which does not have rubber-gasket joints, the joints shall be thoroughly wetted before the inside mortar is placed; and before succeeding sections of the pipe are laid, the lower half of the joint portion of the pipe in place shall be filled on the inside with cement mortar and the upper half of the tongue portion of the next joint wiped with cement mortar, both in sufficient thickness to bring the inner surface of the abutting pipe flush and even, when the pipe is laid. After the pipe is laid, the inside of the joint shall be wiped and finished smooth and a mortar bead not less than 3/4 inch thick shall be formed completely around the outside of the joint.

Laying Requirements for Concrete Pipe with Rubber Gasket Joints: For concrete pipe laid with rubber gasket joints, any deviation from true alignment or grade which would result in a displacement from the normal position of the gasket of as much as 1/4 inch, or which would produce a gap exceeding 1/2 inch between sections of pipe for more than 1/3 of the circumference of the inside of the pipe, will not be acceptable and where such occurs the pipe shall be relaid without additional compensation. Where minor imperfections in the manufacture of the pipe cause a gap greater than 1/2 inch between pipe sections, the joint will be acceptable provided the gap does not extend more than 1/3 the circumference of the inside of the pipe. No mortar, joint compound, or other filler which

would tend to restrict the flexibility of the gasket joint shall be applied to the gap.

Field Joints for Elliptical Concrete Pipe: Field joints for elliptical concrete pipe will be detailed in the plans or may be made with a preformed plastic gasket material. Pipe to be laid with joints made from preformed plastic material shall be subject to the following requirements:

(1) General: Installation shall be in accordance with the manufacturer's instructions and these specifications. The Contractor shall be responsible for obtaining a permanent watertight joint.

(2) Material: The preformed gasket material shall conform to the requirements of Section W-942-2.

(3) Joint Design: The pipe manufacturer shall furnish the Engineer with details in regard to configuration of the joint and the amount of gasket material required to effect a satisfactory seal. Joint surfaces which are to be in contact with the gasket material shall not be brushed or wiped with a cement slurry. Minor voids may be filled with cement slurry provided that all excess cement slurry is removed from the joint surface at the point of manufacture.

(4) Primer: Prior to application of the gasket material, a primer of the type recommended by the manufacturer of the gasket material shall be applied to all joint surfaces which are to be in contact with the gasket material. The surface to be primed shall be thoroughly cleaned and dry when the primer is applied.

(5) Application of Gasket: Prior to placing a section of pipe in the trench, gasket material shall be applied to form a continuous gasket around the entire circumference of the leading edge of the tongue and the groove joint in accordance with the detail entitled "Detail for Application of Gasket Material (Before Joint Pull-Up)." The paper wrapper on the exterior surface of the gasket material shall be left in place until immediately prior to joining of sections. The gasket material shall be checked to assure that it is bonded to the joint surface, immediately prior to placing a joint in the trench. Plastic gasket material shall be applied only to surfaces which are dry. A hand heating device shall be kept at the job site to dry joint surfaces immediately before application of the plastic gasket material. When the atmospheric temperature is below 60 degrees F., plastic joint seal gaskets shall either be stored in an area warm to above 70 degrees F., or artificially warmed to this temperature in a manner satisfactory to the Engineer.

(6) Installation of Pipe: Handling of a section of pipe after the gasket material has been affixed shall be carefully controlled to avoid displacement of gaskets or contamination of gasket material with dirt or other foreign material. Any gasket displaced or contaminated in handling of the pipe shall be removed and repositioned or replaced as directed. The pipe shall be installed in a dry trench. The bottom of the trench shall be carefully shaped so as to minimize the need for realignment of sections of pipe after they are placed in the trench. Care shall be taken to properly align each section of

pipe prior to the gaskets coming into contact. Realignment of a joint after the gaskets come into contact tends to reduce the effectiveness of the seal and shall be held to a minimum. When the pipes are joined, the entire joint shall be filled with gasket material and there shall be evidence of squeeze-out of gasket material for the entire internal and external circumference of the joint. Excess material on the interior of the pipe shall be trimmed to provide a smooth interior surface. After the pipe is in its final position, the joint shall be carefully examined to determine that the gasket material is satisfactorily adhering to all surfaces of the joint and that the entire joint is filled with gasket material. If a joint is defective, the leading section of pipe shall be removed and the joint resealed.

Requirements for Concrete Radius Pipe:

Design: Concrete radius pipe shall be constructed in segments not longer than four feet (along the pipe centerline), except where another length is called for in the plans or the specific provisions. Each segment shall be joined by round rubber gaskets. The pipe manufacturer shall submit details of his proposed joint and the segment length and shape for approval by the Engineer prior to manufacture.

Pre-Assembly: Prior to acceptance of the pipe, the manufacturer shall pre-assemble the entire radius section in his yard to assure a proper fit for all parts. This assembly may be made without gaskets at the option of the manufacturer. Upon satisfactory assembly, the joints shall be consecutively numbered on both the interior and exterior surfaces of each joint, and match marks showing proper position of joints shall be made. Installation on the project shall be in the order of pre-assembly.

W-430.06 Field Joints for Aluminum Pipe

General: Field joints for aluminum pipe shall be made with bands fabricated of the same alloy as the culvert sheeting and shall meet the requirements of AASHTO M 196.

Aluminum Cross Drains, Storm Sewers, and Gutter Drains: The provisions specified above for corrugated steel pipe for these installations shall apply also to aluminum pipe (for circular and helical corrugations) except that the material used in the bands and band connections for the alternate combination of joint materials shall be fabricated of the same alloy as the culvert sheeting.

W-430.07 Joints in Cast Iron Pipe

The provisions of Section 430.07 for mortaring and wetting inside the joints, as specified for concrete side drain pipe without rubber gaskets, shall apply to the inside joints of all cast iron pipe.

* * *

SECTION 2930
SODDING

PART 1: GENERAL

1.01 DESCRIPTION

A. Provide sodded lawns as shown and specified. The work includes:

1. Soil preparation.
2. Sodding lawns, athletic fields, and other indicated areas.
3. Maintenance.

B. Related work:

1. Section 2900: Trees, Plants, and Ground Covers.

1.02 QUALITY ASSURANCE

A. Sod: Comply with American Sod Producers Association (ASPA) classes of sod
materials.

B. Provide and pay for materials testing. Testing agency shall be acceptable to the Landscape Architect. Provide the following date:

1. Test representative materials samples proposed for use.

2. Soil analysis of existing conditions.

    a. Soil pH and recommendations for correction. Ideal pH for Bahia is
    5.0 - 6.5.

    b. Nematode infestation check and recommendation for eradication.

    c. Organic matter check and recommendation.

    d. Starter fertilizer check and recommendations.

1.03 SUBMITTALS

A. Submit sod growers certification of grass species. Identify source location.

B. Submit the following material samples:

1. Topsoil.

C. Submit the following material certification:

1. Submit certificates of inspection as required by governmental authorities and
manufacturers or vendors certified analysis for soil amendments, herbicides,
insecticides and fertilizer materials; submit other data substantiating that
materials comply with specified requirements.

D. Submit soil analysis report.

E. Bidders shall furnish, with their bid, evidence in writing that they maintain a permanent place or places of business and have adequate equipment, finances, and personnel to provide the specified services. This evidence shall include, but not be limited to: a list of current contracts, their value, and a contact person with each firm; at least three references who can verify work of a similar nature done by your firm in the last three year; a list of owned and/or leased equipment available for use on this contract; a list of key personnel and a brief summary of their qualifications. Failure to provide the listed material may cause the Bidder to be deemed non-responsive. The City reserves the right to inspect the apparent low Bidder's place of business and equipment prior to contract of any bid to determine the responsibility and capability of the Bidder to perform the services. The City also reserves the right to solicit references in making judgment on the Bidder's ability to perform said services.

1.04 DELIVERY, STORAGE AND HANDLING

A. Cut, deliver and install sod within a 24-hour period.

1. Do not harvest or transport sod when moisture content may adversely affect
Sod survival.

2. Protect sod from sun, wind, and dehydration prior to installation.

3. Do not tear, stretch, or drop sod during handling and installation.

1.05 PROJECT CONDITIONS

A. Work notification: Notify City of Tampa representative at least 7 working days

prior to start of sodding operations.

B. Protect existing utilities, paving and other facilities from damage caused by
sodding operations.

C. Perform sodding work only after planting and other work affecting ground surface
has been completed.

D. Existing soil to be amended as determined necessary from soil analysis, including:
soil pH, nematode infestation, organic matter check and starter fertilizer check.

E. Restrict traffic from lawn areas until grass is established.

F. Provide hose and lawn watering equipment as required.

G. The irrigation system will be installed prior to sodding. Locate, protect and main-
tain the irrigation system during sodding operations. Repair irrigation system components damaged during sodding operations at this contractor's expense.

1.06 WARRANTY

A. Provide a uniform stand of grass by watering, mowing and maintaining lawn areas until final acceptance and for a period of 90 days after acceptance. Resod areas, with specified materials, which fail to provide a uniform stand of grass until all affected areas are accepted by the City of Tampa representative.

PART 2: PRODUCTS

2.01 MATERIALS

A. Sod: An "approved" nursery grown sod composed of Argentine Bahia (Paspalum notatum "Argentine".

1. Provide well-rooted, healthy sod, free of diseases, nematodes and soil
borne insects. Provide sod uniform in color, leaf texture, density, and free
of weeds, undesirable grasses, stones, roots, thatch, and extraneous material;
viable and capable of growth and development when planted.

2. Furnish sod machine stripped and of supplier's standard width, length, and
Thickness: Uniformly 1" to 1-1/2" thick with clean cut edges. Mow sod before stripping.

B. Fertilizer:

1. Granular, non-burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.

a. Type A: Starter fertilizer containing 16% nitrogen, 4% phosphoric acid, and 8% potash by weight or similar approved composition.

b. Type B: Top dressing fertilizer containing 31% nitrogen, 3% phosphoric acid, and 10% potash by weight or similar approved composition.

c. Ground Limestone: Containing not less that 85% of total cabonates and
Ground to such fineness that 50% will pass through a 100 mesh sieve and 90% will pass through a 20 mesh sieve.

C. Stakes

1. Steel, tee shaped pins, 4" head x 8" leg.

D. Water: Free of substance harmful to sod growth. Hoses or other methods of
Transportation furnished by contractor.

E. Topsoil: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, reasonably free from clay lumps, coarse sand stones, plants, roots and other foreign materials with an acidity level as specified by type of sod.

1. Identify source location of topsoil.
2. Topsoil shall be fertilized.

PART 3 EXECUTION

3.01 INSPECTION

A. Examine finish surfaces, grades, topsoil quality, and depth.
Do not start sodding work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. If area to be sodded has existing grass or vegetative cover, apply a non-selective
Herbicide (Round-up) to area. Wait ten (10) days before continuing with prep work.

B. Loosen topsoil of lawn areas to minimum depth of 8". Remove stones over 1" in
any dimension and sticks, roots, rubbish, and extraneous matter.

C. Add 2" topsoil or organic material as required from organic matter check. Till
into top 8" of existing soil.

D. Grade lawn areas to smooth, free drainage and even surface with a loose,
uniformly fine texture. Roll and rake, remove ridges and fill depressions as required to drain.

E. Apply limestone at rate determined by the soil test, to adjust pH of topsoil as
specified in sod type. Distribute evenly by machine and incorporate thoroughly
into topsoil.

F. Apply "Type A" fertilizer as specified by manufacturer. Apply fertilizer by mechanical rotary or drop type distributor, thoroughly and evenly incorporated with the soil to a depth of 3" by discing or other approved methods. Fertilize areas inaccessible to power equipment with hand tools and incorporate it into soil.

G. <u>Dampen dry soil prior to sodding.</u>

H. Restore prepared areas to specified condition if eroded, settled or otherwise
Distributed after fine grading and prior to sodding.

3.03 INSTALLATION

A. Lay sod to form a solid mass with tightly-fitted joints. Butt ends and sides of sod
Strips. Do not overlay edges. Stagger strips to offset joints in adjacent courses. Remove excess sod to avoid smothering of adjacent grass.

Provide sod pad top flush with adjacent curbs, sidewalks, drains and seed areas.

B. Do not lay dormant sod or install sod on saturated soil.

C. Install initial row of sod in a straight line, beginning at bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and lightly against previously installed row.

D. Peg sod on slopes greater than 3 to 1 to prevent slippage at a rate of 2 stakes per yd. of sod.

E. Water sod thoroughly with a fine spray immediately after laying.

F. Roll with light lawn roller to ensure contact with subgrade.

G. Sod indicated areas within contract limits and areas adjoining contract limits disturbed as a result of construction operations.

H. Top dress all seams of sodded area with specified topsoil.

3.04 MAINTENANCE

A. Maintain sodded lawns for a period of at least 90 days after completion and acceptance of sodding operations.

B. Maintain sodded lawn areas, including watering, spot weeding, mowing, Application of herbicides, fungicides, insecticides and resodding until a full, uniform stand of grass free of weed, undesirable grass species, disease, and insects is achieved and accepted by the City of Tampa representative.

1. Water sod thoroughly every 2 to 3 days, as required to establish proper rooting.

2. Repair, rework, and resod all areas that have washed out or are eroded.
   Replace undesirable or dead areas with new sod.

3. Mow lawn areas as soon as law top growth reaches a 3” height. Cut back to
   2” height. Repeat mowing as required to maintain specified height. Not more than 40% of grass leaf shall be removed at any single mowing.

4. Apply “Type B” fertilizer to lawns approximately 30 days after sodding at a rate specified by the manufacturer. Apply with a mechanical rotary or drop type distributor. Thoroughly water into soil.

5. Apply herbicides as required to control weed growth or undesirable grass species.

6. Apply fungicides and insecticides as required to control disease and insects.

3.05 ACCEPTANCE

A. Inspection to determine acceptance of sodded lawns will be made by the Landscape architect, upon contractor’s request. Provide notification at least 5 working days before requested inspection date.

1. Sodded areas will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, even colored viable lawn is established, fee of weeds, undesirable grass species, disease, and insects.

B. Upon acceptance contractor shall maintain area for 90 days. At the end of this period contractor shall request a final request a final maintenance inspection for acceptance.

C. Upon acceptance at end of maintenance period the City of Tampa will assume lawn maintenance.

3.06 CLEANING

A. Perform cleaning during installation of the work and upon completion of the Work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.