

October 18, 2013

To Whom It May Concern:

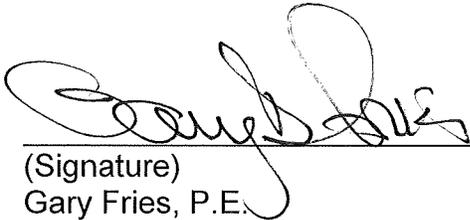
The Polk County UTILITIES CODE COMMITTEE is charged with updating the seven REFERENCE MANUALS associated with Ordinance 10-081 (AKA: Utilities Code). In accordance with Section 11: Utilities Code Committee and Section 12: Reference Manual Revision Procedure, the UTILITIES CODE COMMITTEE recommends approval of revisions to portions of the following reference manuals:

- **Utilities Standards and Specifications Manual (6B)**
 - **Table of Contents**
 - Add references to SCADA sections approved in April 2013
 - **Chapter Four (4): Potable Water**
 - Approved Materials Checklist
 - Automatic Combination Air/Vacuum Release Valves, Butterfly Valves (Val-Matic)
 - **Chapter Five (5): Wastewater**
 - Section 512: Wastewater Lift Station Design Standards
 - Wastewater Approved Materials Checklist
 - Material – Concrete (Atlantic TNG, Allied Precast)
 - Standard Drawings (WW-01-1, WW-05-1, WW-05-2, WW-06-2)
 - **Chapter Six (6): Reclaimed Water**
 - Approved Materials Checklist
 - Automatic Combination Air/Vacuum Release Valves, Butterfly Valves (Val-Matic)

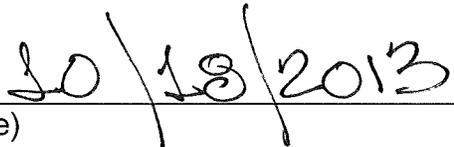
Details concerning each respectively edited Manual, Section, Chapter, and Appendix are attached herewith for reference.

Pursuant to Ordinance 10-081, all of the above listed and subsequently described recommendations are hereby approved as noted. In accordance with Section 12 of the aforementioned Ordinance, the Utilities Director is authorized to approve these updates as recommended by the Utilities Code Committee. The effective date of these revisions shall be 30 calendar days from the date of this approval and shall supersede the prior content and detail drawings in the respective manuals. Similarly all approved revisions will be incorporated into the master set of Utilities Code Documents and Manuals in a clean form without markups within 30 calendar days from the date of this approval.

Each REFERENCE MANUAL that has been revised shall be formally presented to the BoCC and adopted by separate resolution before calendar year end of 2013.



(Signature)
Gary Fries, P.E.
Polk County Utilities Director



(Date)

TABLE OF CONTENTS

Rev December 2013
Rev December 2012
December 2010

PREFACE

TABLE OF CONTENTS

TABLE OF STANDARD DRAWINGS

CHAPTER 1 GENERAL INFORMATION

- 110Introduction
- 111Abbreviations
- 112Definitions
- 113 Approval Process for New Products

CHAPTER 2 DEVELOPMENT COORDINATION

- 210.....Development Coordination
 - Part 1Introduction
 - Part 2Submittal Process
 - Part 3Project Acceptance Documentation (i.e Record Drawings, Surveys, GPS Coordinate Data)
 - Part 4.....Acceptance Documents (Construction Costs, Engineer’s Certification, Test Reports, Operation and Maintenance Manuals, etc.)
 - Part 5Construction Coordination Meetings
 - Part 6Construction Plan Time Limitation
- 211.....Project Design Documents and Submittals
- 250.....Standard Drawings – Development Coordination
 - 250-A.....Request for Restricted Information
 - 250-B.....Records Distribution Tracking Form
 - 250-C.....Request for Utilities Bond Form
 - 250-D.....Developer’s Letter of Dedication and Statement of Warranty Form
 - 250-E.....Engineer of Record’s Letter of Certification Form
 - 250-F.....Contractor’s Letter of Certification Form
 - 250-G.....THIS SECTION IS INTENTIONALLY BLANK
 - 250-H.....THIS SECTION IS INTENTIONALLY BLANK
 - 250-I.....THIS SECTION IS INTENTIONALLY BLANK
 - 250-J.....Request to Connect to Existing Utility Main Form
 - 250-K.....Polk County Utilities Easement Form (Corporate)
 - 250-L.....Polk County Utilities Easement Form (Individual)

CHAPTER 3 GENERAL REQUIREMENTS

- 310.....General Standards and Specifications
- 311Site Preparations, Surface Removal, and Restoration Specifications
- 312Excavations, Backfill, Compaction, and Grading Specifications
- 313Installation of Pipe Specifications
- 314Directional Drilling Standards and Specifications
- 315Jack and Bore Standards and Specifications
- 316.Aerial Crossing Standards and Specifications

TABLE OF CONTENTS

317System Connection Specifications
318Field Testing and Inspection Procedures
350.....Standard Drawings – General Requirements
350-A.....Utilities Inspection Report Form
350-B.....Inspector’s Overtime Tracking Form

CHAPTER 4 WATER

410Potable Water System Standards and Specifications
411.....Raw Water System Standards and Specifications
412.....Potable Water Production Facilities Standards
413.....Potable Water Production Facility SCADA Specifications
.....Standard Screens (WA-S-01 through WA-S-08)
450.....Standard Drawings – Water
450-A.....Testing and Inspection for Acceptance of Water Systems
450-B.....Approved Materials Checklist – Potable Water
450-C.....Water Hydraulic Modeling Standards
450-D.....Approved Meters List
450-E.....Potable Water Main Pressure Test Report Form – PVC & DIP
450-F.....Potable Water Main Pressure Test Report Form – HDPE
450-G.....Potable Water Main Pigging Report Form
450-H.....Fire Hydrant Flow Test Form
450-I.....Potable Water Schedule of Values Form

CHAPTER 5 WASTEWATER

510Gravity Wastewater System Standards and Specifications
511Wastewater Force Main Standards
512.....Wastewater Lift Station Standards and Specifications
513Wastewater Pipes, Valves, and Appurtenances Specifications
514Wastewater System Bypass Specifications
515Submersible Wastewater Pumps Specifications
516Wastewater Lift Station Electrical Power and Control System Specifications
517SCADA RTU Panel Specifications
518Wastewater Treatment Facilities Standards
519.....Wastewater Treatment Facility SCADA Specifications
.....Standard Screens (WW-S-01 through WW-S-12)
550Standard Drawings – Wastewater
550-A.....Testing and Inspection for Acceptance of Wastewater System
550-BTesting and Inspection for Acceptance of Wastewater Lift Stations
550-CApproved Materials Checklist – Wastewater
550-DWastewater Hydraulic Standards
550-E.....Wastewater Force Main Pressure Test Form – PVC & DIP
550-FWastewater Force Main Pressure Test Form – HDPE

TABLE OF CONTENTS

December 2010

- 550-G Wastewater Gravity Main CCTV and Mandrel Inspection Form
- 550-H Wastewater Force Main Pigging Report Form
- 550-I Wastewater Lift Station Start Up Completion Form
- 550-J Wastewater Schedule of Values Form

CHAPTER 6 RECLAIMED WATER

- 610 Reclaimed Water System Standards and Specifications
- 611 Reclaimed Water SCADA Specifications
- Standard Screens (RW-S-01 through RW-S-03)
- 450-D Refer to Chapter 4, Section 450-D for Approved Meters List
- 650 Standard Drawings – Reclaimed Water
- 650-A Testing and Inspection for Acceptance of Reclaimed Water Systems
- 650-B Approved Materials Checklist – Reclaimed Water
- 650-C Reclaimed Water Main Pressure Test Report Form – PVC & DIP
- 650-D Reclaimed Water Main Pressure Test Report Form – HDPE
- 650-E Reclaimed Water Pigging Report Form
- 650-F Reclaimed Water Schedule of Values Form

CHAPTER 4

WATER

Section 450-B

Approved Materials Checklist

December 2010

Four (4) sets of the CONTRACTOR's and ENGINEER's executed APPROVED MATERIALS CHECKLIST and any necessary shop drawings shall be submitted to PCU for its use and approval, plus the number of sets needed for the CONTRACTOR use. Ordering materials and products without specific written approval from PCU of the submitted list and shop drawings is NOT recommended and is done at the CONTRACTOR's sole expense and responsibility.

NOTE: The latest changes approved by the Utilities Code Committee are indicated by "underlining" and deleted items by "strikethroughs".

Water Category 1 of 5: VALVES AND ACCESSORIES			
ITEM TO BE USED	Manufacturer	Part Number	Comments
Automatic Combination Air / Vacuum Release Valves:			
	ARI	D-040	Combination
	ARI	S-050	Air Release Only
	ARI	S-010	Air Release Only
	Val-Matic	VM-38	<u>Air Release Only – Plant, Facility Use Only</u>
	Val-Matic	VM-45	<u>Air Release Only – Plant, Facility Use Only</u>
	<u>Val-Matic</u>	<u>VM-200C</u>	<u>Combination – Plant, Facility Use Only</u>
Air / Vacuum Release Valve Enclosure (Horizontal Venting and Medium Blue):			
	Water Plus	No. 40 (171730)	
	Channell	BPH 1730	
	Hydro-Guard	Safety-Guard 15100 Low Profile or 02100	
Air / Vacuum Release Valve Vault Frame And Cover:			
	US Foundry	USF-679-BK-M	
	CertainTeed	Pamrex 36"	Alternative – <u>Not to be used in paved roadways.</u>
Blow Off Valve:			
	Hydro Guard	HG-2 Low Profile	Automatic Blow Off
	Water Plus	Series VB 2000	
Butterfly Valves 42-inch And Larger: (8 mil Epoxy Coated, Lined (AWWA), And For On-Site Water Production Facility Use Only):			
	M & H	4500	
	Mueller/Pratt	Linseal III / BV (Ground Hog)	

CHAPTER 4

WATER

Section 450-B

Approved Materials Checklist

December 2010

<u>Butterfly Valves 16-inch And Larger: (Rubber Seated (AWWA):</u>			
	<u>Val-Matic</u>	<u>2000</u>	<u>To be utilized as directed by PCU.</u>
Gate Valves 16-inch Through 48-inch (Resilient Seated Only With Side Actuators):			
	American Flow Control	Series 2500	
	Mueller	Series A-2361	
	M & H	Series 4067	
Gate Valves 12-inch And Smaller (Resilient Seated Only):			
	American Flow Control	Series 2500	
	M & H	Series 4067	
	Mueller	Series A-2360	
	Clow	Series F-6100	
Hydraulically Operated Control Valves (Pressure Reducing/Sustaining Valves):			
	Cla-Val		Model or Series based on field application.
	OCV		Model or Series based on field application.
	Watts/Ames		Model or Series based on field application.
Sample Station (Above Grade) (Blue in Color):			
	Water Plus	Series 301W	May be used as an alternative to the field assembled sample station.
	Hydro-Guard	Safety-Guard SGBSS-05 SS or -06 SS with S300 Enclosure	May be used as an alternative to the field assembled sample station.
Tapping Valves (Resilient Seated Only):			
	American Flow Control	Series 2500	
	M & H	Series 4751	
	Mueller	Series T-2360 & T-2361	
	Clow	Series F-6114	
Test Station Box For Buried Valves:			
	Bingham/Taylor	P200NFG2T	
Valve Boxes with Lids (5¼ -Inch, ASTM A48 30B Cast or Ductile Iron, With "WATER" cast into the lid top):			
	Bingham / Taylor Foundry	4905-X, 4905, 4904L	
	Tyler	Series 6850	

CHAPTER 4

WATER

Section 450-B

Approved Materials Checklist

December 2010

	Ford	BA44-444W	
	Mueller	P25146	
	McDonald	6100W-22	

Polyethylene Tubing (Blue With UV Protection [SDR-9] 1-inch And 2-inch Only):

	Endot	PE-4710 EndoPure	
	Endot	PE-4710 EndoTrace	Alternative Pipe and Tracer Wire Combo
	Charter Plastics	PE-4710	
	ARNCO	PE-4710 Perma-Guard	
	ARNCO	PE-4710 Perma-Find	Alternative Pipe and Tracer Wire Combo
	<u>ADS</u>	<u>CTS 200 PSI DR-9</u>	<u>Service Tubing</u>

Service Saddles (Epoxy Or Nylon Coated Ductile Iron Body with Stainless Steel 18-8-Type 304 Straps, CC Threads – 2-inch To Be Iron Pipe Threads Controlled OD Saddles To Be Used On C-900 And IPS OD PVC Pipe, Double Straps To Be 2-inch Minimum Width Each):

	Ford	Series FC202	
	JCM	Series 406	
	Mueller	DR2S, DR2SOD	
	McDonald	3855, 3855	
	Cascade	CNS 1, CNS 2	
	Romac	202N	
	Romac	202N-H	For Use With HDPE Pipe

Not Authorized based on additional findings since 9/6/2013 workshop

Y Branch (1-inch By 2-inch):

	Ford	U-48-43	
	Mueller	P15363	
	McDonald	08U2M	

Y Branch Assemblies With Angle Ball Valves (1-inch By 2-inch):

	Ford	UVB43-42W	
	Mueller	P15363-05	
	McDonald	09U2BW	

Meter Boxes w/ Plastic Lids (Black, HDPE):

	Carson PolyPlastic	1015-12 (Box)	1015-5 (Lid)
	DFW Alliance	DFW 1200.12 (Box) DFW 1200.12.1R (Combo Unit)	DFW 1200.1R (Lid)

CHAPTER 5 WASTEWATER

Section 512

Wastewater Lift Station Standards and Specifications

December 2010

			or sliding	or sliding
5	Flow Meters	no	yes	yes
6	Odor Control System	*	*	*
7	SCADA	yes	yes	yes
8	Generator	*	yes	yes
9	A/C MCC	no	no	yes
10	VFD	no	*	*
11	Wet Well / Valve Vault Liner	yes	yes	yes
12	Level Control	float ball and/or transducer	float ball and/or transducer	float ball and/or transducer
13	SCADA Panel	Type 2	Type 3	Type 4
14	Automatic Gear Actuator	*	*	*
15	Pump Control Panel	yes	yes	*
16	Wet Well Fall Protection System	yes	yes	yes

NOTE: Please refer below for component explanation.

** In accordance with MANUAL or as determined by PCU for proper system operation.*

1. Site Sizing, Tract, and Easement Requirements:

Lift station sites shall be sized as delineated in the STANDARD DRAWINGS for the duplex, triplex, or more than three pumps per the lift station site plans. The DEVELOPER shall dedicate the lift station site and driveway by plat or separate instrument to PCU. Dedicated easements shall be shown as specified on the lift station site plans in the STANDARD DRAWINGS. All temporary access roads shall be improved to accommodate heavy truck traffic and dedicated to PCU, with a minimum 20 foot wide Polk County Utilities Easement that provides for ingress and egress to the lift station.

2. Wet Well Requirements:

a. Single wet well:

- i. The wet well for a duplex lift station shall have a minimum six feet inside diameter ~~and shall have a minimum 4.5 feet between the lead pump on elevation and top of the pump.~~ If the design requirements require 35 horsepower pumps or larger for a duplex lift station (less than 1000 gpm), a minimum 10-foot inside diameter wet well shall be required. Sufficient depth shall be provided to accommodate cycle time and motor submergence.
- ii. The wet well for a triplex lift station shall have a minimum 12-foot inside diameter ~~and shall have a minimum 5.5 feet between the lead pump on elevation and top of the pump.~~ Sufficient depth shall be provided to

CHAPTER 5

WASTEWATER

Section 512

Wastewater Lift Station Standards and Specifications

December 2010

- accommodate cycle time and motor submergence.
- iii. In determining the cycle time, no consideration of volume shall be used for the volume below the top of the pump or the manufacturer's minimum submergence recommendation, whichever is greater.
 - iv. Pumping levels shall be set to provide a minimum capacity between operational water levels sufficient to allow a minimum of ten minutes in one pumping cycle. The minimum time between successive starts of the same pump shall be ten minutes.
 - v. Sufficient capacity shall be provided in the wet well for a period of 15 minutes at a peak hourly flow (PHF) that equals 4.0 ADF. For duplex lift stations (less than 1,000 GPM), the effective volume (from pump off elevation to the invert of the gravity pipe) shall be based on a fill time of 30 minutes at Average Daily Flow (ADF). For triplex lift stations, the fill time shall not exceed 10 minutes at ADF. The high liquid level in the wet well (storage capacity) shall not exceed the invert elevation of the lowest inflow pipe. When new development proposes connection to an existing lift station, vertical storage criteria within the wet well shall not be applied to the existing lift station without consideration of other factors including, but not limited to generator installation.
 - vi. Pump-off water levels shall provide adequate submergence to preclude pump inlet cavitations. Design maximum water levels shall not exceed the invert elevation of the influent pipe.
 - vii. The wet well floor shall have a minimum slope of one to one to the hopper bottom. The horizontal area of the hopper bottom shall be no greater than necessary for proper installation and function of the pump inlet.
 - viii. Interior ladders shall not be permitted.
 - ix. Only one inlet connection shall be permitted to a wet well.
 - x. For buoyancy calculations, the soil ring weight (from the outer face of the bottom slab to the outer edge of the wet well) shall be 50 percent of the total weight of the soil ring. The net density of the soil shall be used for calculating weight, i.e., soil density less the water density (62.4 pounds per cubic foot).
- b. Dual wet wells:
- When required, dual wet wells shall be designed with the same criteria as a single wet well; except with master manhole and valving to separate either wet well. The influent slope of the wet well floor shall have a minimum slope one inch per foot to the hopper bottom.
3. Piping in Valve Vault or Above Ground:
- Piping shall be installed in a valve vault or above ground with a concrete slab for a duplex lift station. Above ground piping with a concrete slab shall be installed for lift stations with more than two pumps. In general, all lift stations servicing non-

CHAPTER 5

WASTEWATER

Section 512

Wastewater Lift Station Standards and Specifications

December 2010

residential, industrial, and commercial developments shall utilize above ground piping. The use of above ground piping for duplex lift stations servicing residential developments may be permitted if desired by the DEVELOPER.

4. Site Enclosures:

All lift station sites shall be enclosed. Duplex lift stations shall have six-foot high factory applied black vinyl security type chain link fencing with two offset six foot high chain link double swing gates or one single six foot high chain link rolling type gate as specified by PCU. PCU may require that lift stations with more than two pumps have eight-foot high concrete masonry unit perimeter walls and two offset eight-foot high minimum aluminum, double-hung swing gates instead of the required chain link fencing and gates. The use or substitution of chain link fencing slats, vinyl fencing, or wood fencing instead of or in addition to the black vinyl coated chain link fencing shall be prohibited. Three strands of barb wire shall be installed on top of the chain link fencing at the direction of PCU if it is determined to be necessary for site security.

Florida Friendly Landscaping may be permitted along the outside perimeter fencing of the lift station site as long as the center of all trees are no closer than fifteen feet and the center of all other non-tree type plantings are no closer than five feet. Maintenance and irrigation of the landscaping shall be the responsibility of the installing entity and not PCU.

5. Flow Meters:

Indicating, totalizing, and recording flow measurement devices shall be provided at lift stations where required in Table 512-2. Bypass piping around the meter shall be provided for all stations with flow meters to facilitate meter maintenance.

6. Odor Control System:

Provide a complete system for the control of hydrogen sulfide gas and other wastewater odors as required and specified by PCU.

7. SCADA:

a. Control Panel:

Panel shall be of type to match lift station configuration (number of pumps, control features, etc) as determined by PCU. Refer to the Section entitled "SCADA RTU Panel Specifications" for additional information.

8. Emergency Generator:

a. Permanent stationary emergency generator sets shall be provided for all lift stations that utilize a 12 inch and larger force main, receive flows from ~~two~~one or more contributing lift stations, that receive flow from a generator equipped tributary lift station, pump more than 1000 gallons per minute, or as required by FDEP.

b. The ENGINEER shall size the generator and fuel tank as required by PCU and submit the name of the manufacturer, burn rate specifications, and sizing

CHAPTER 5

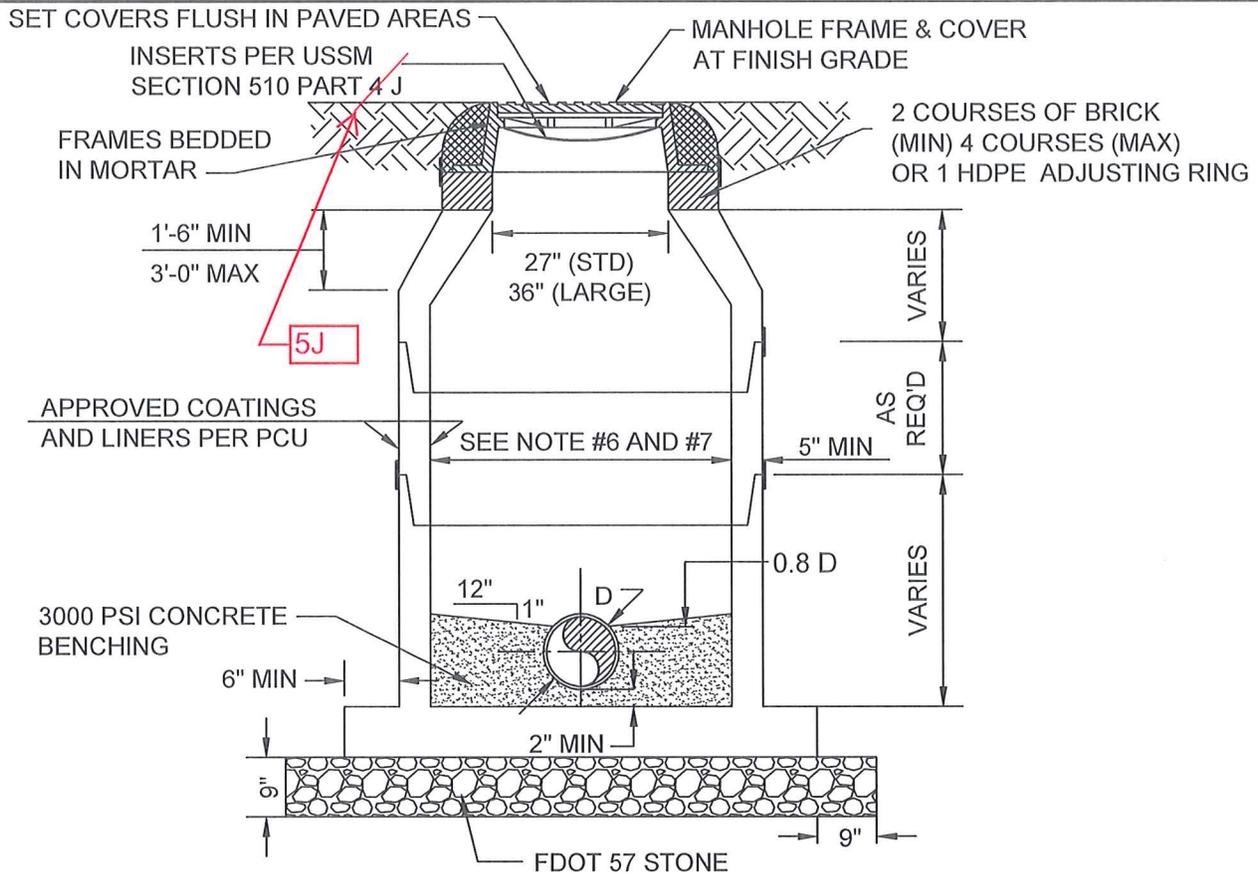
WASTEWATER

Section 550-C

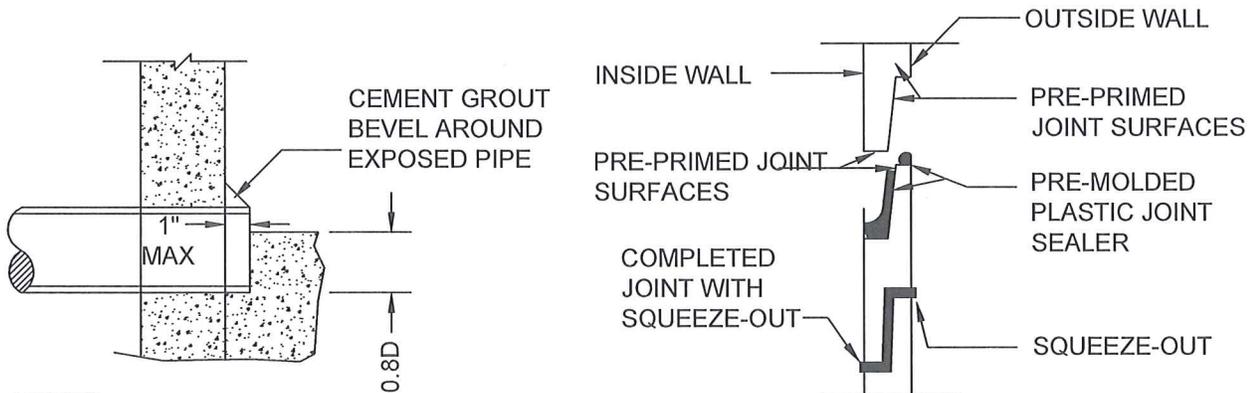
Approved Materials Checklist

December 2010

	USSI-USA	Inflow Defender - Black	HDPE with 1/8” Minimum Continuous Polymer Thickness.
	Inflow Systems	Inflow Shield	16 Gage Type 304 SS
Jointing Material			
	K.T. Snyder Co, Inc.	Ram-Nek	
Material – Concrete			
	Mack Precast		Precast
	Standard Precast		Precast
	Hanson Pipe & Product		Precast
	Oldcastle Precast		Precast
	Atlantic TNG		Precast
	Allied Precast		Precast
Pipe Seals, Force Main Entering Wet Well And/OR Valve Box			
	Link Seal	Model S-316 Link Seal Modular Seal	
Pipe Seals, Manhole – Gravity Less Than 12-inch			
	Atlantic Concrete	A-Lok (cast-in-place)	
	NPC	Kor-N-Seal Model WS	
Pipe Seals, Manhole – Gravity Greater Than Or Equal To 12-inch			
	Atlantic Concrete	A-Lok (cast-in-place)	
Surface Coatings – Exterior (Manholes, Wet Wells, and Valve Vaults)			
	Carboline	Bitumastic 300M	
	Conseal	CS-55	
Surface Coatings – Interior (Light Colors) (Manholes, Wet Wells, and Valve Vaults)			
	Sauereisen	SewerGuard 210	
	Sauereisen	F-170	
	Kerneos Aluminates Technologies	Sewpercoat	
	CCI Spectrum, Inc.	Spectrashield	
	Strong Company	Strong-Seal Systems	
	Sherwin-Williams	Cor-Cote SC	Sewer Cote Epoxy
	Sherwin-Williams	Sherflex	Polyurethane Elastomer
	Raven Lining	Raven 404	
	Raven Lining	Raven 405	
Top Adjusting Rings (Use Must Be Approved In Advance By FDOT Or Polk County Transportation):			
	Ladtech, Inc.		HDPE



NOT TO SCALE



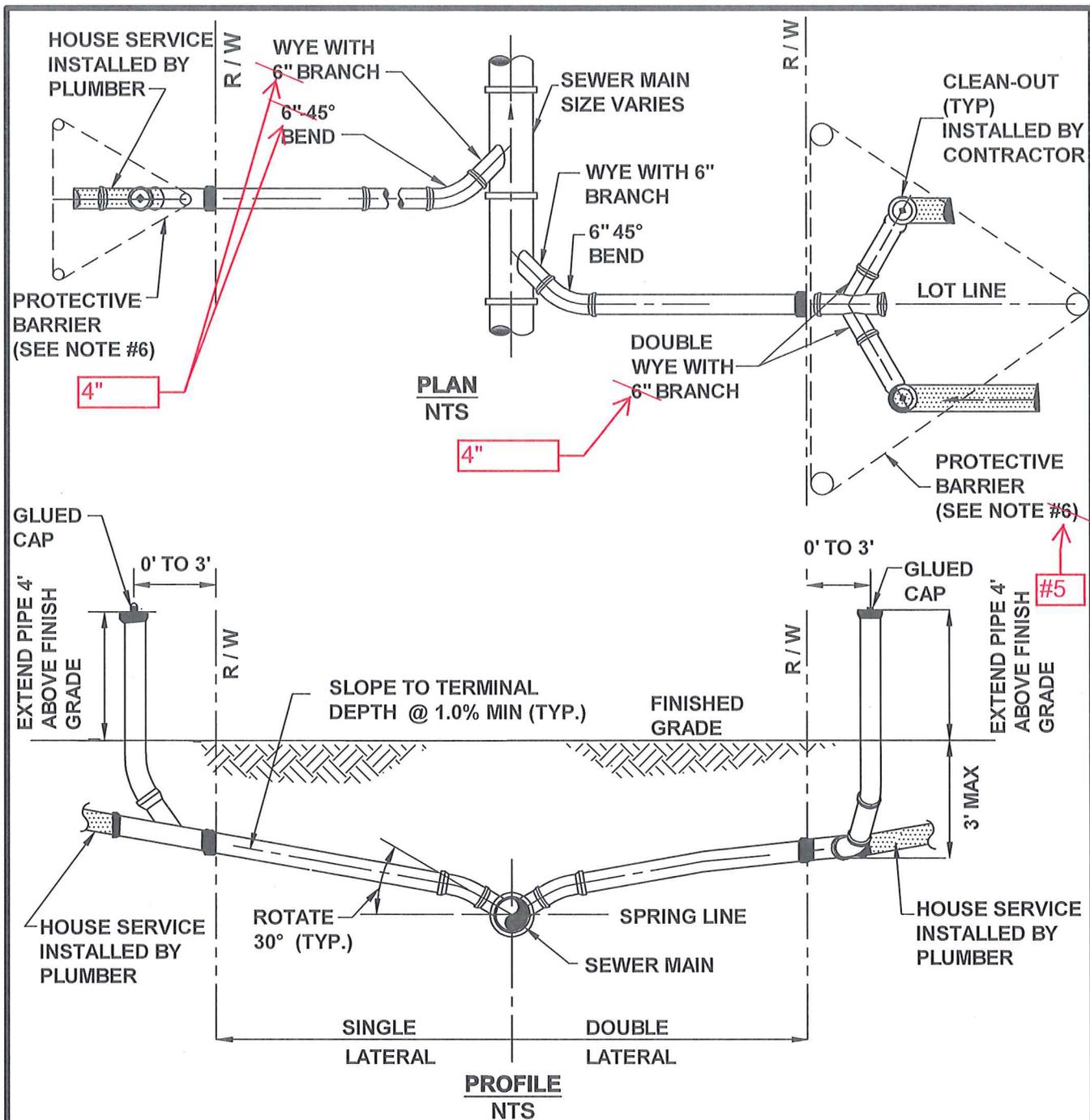
NOTES:

1. INTERIOR DROP CONNECTIONS ARE REQUIRED WHENEVER THE INVERT OF THE INFLUENT SEWER IS 24" OR MORE ABOVE THE INVERT OF THE MANHOLE. THE DIAMETER OF THE DROP MANHOLE SHALL BE 5'-0".
2. ECCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE, AS APPROVED.
3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
4. LIFT HOLES THROUGH STRUCTURE ARE NOT PERMITTED.
5. HDPE ADJUSTING RINGS MAY BE SUBSTITUTED FOR BRICK RISERS.
6. MASTER MANHOLES SHALL BE 5'-0" DIAMETER.
7. MANHOLE DIAMETER SHALL BE 4'-0" MIN FOR MAINS 8" TO 24" (STD), 5'-0" MIN FOR MAINS 24" TO 36" AND 6'-0" MIN FOR SEWER 36" AND LARGER..

December 2013

PRECAST CONCRETE MANHOLE (TYPICAL)

**FIGURE
WW-01-1**



NOTES:

1. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
2. SERVICE LATERAL CLEAN OUT PIPE SHALL BE EXTENDED AND CAPPED BY CONTRACTOR.
3. ALL FITTINGS SHOWN ARE TO BE INSTALLED.
4. BUILDER'S PLUMBER WILL REMOVE PLUG, ADJUST CLEAN OUT PIPE TO GRADE, AND CONNECT SERVICE LATERAL TO HOUSE.
5. PROTECTIVE BARRIER TO BE 3-2" x4" or 2" POLES w/ WITH RED CONSTRUCTION WARNING FENCE OR TAPE.

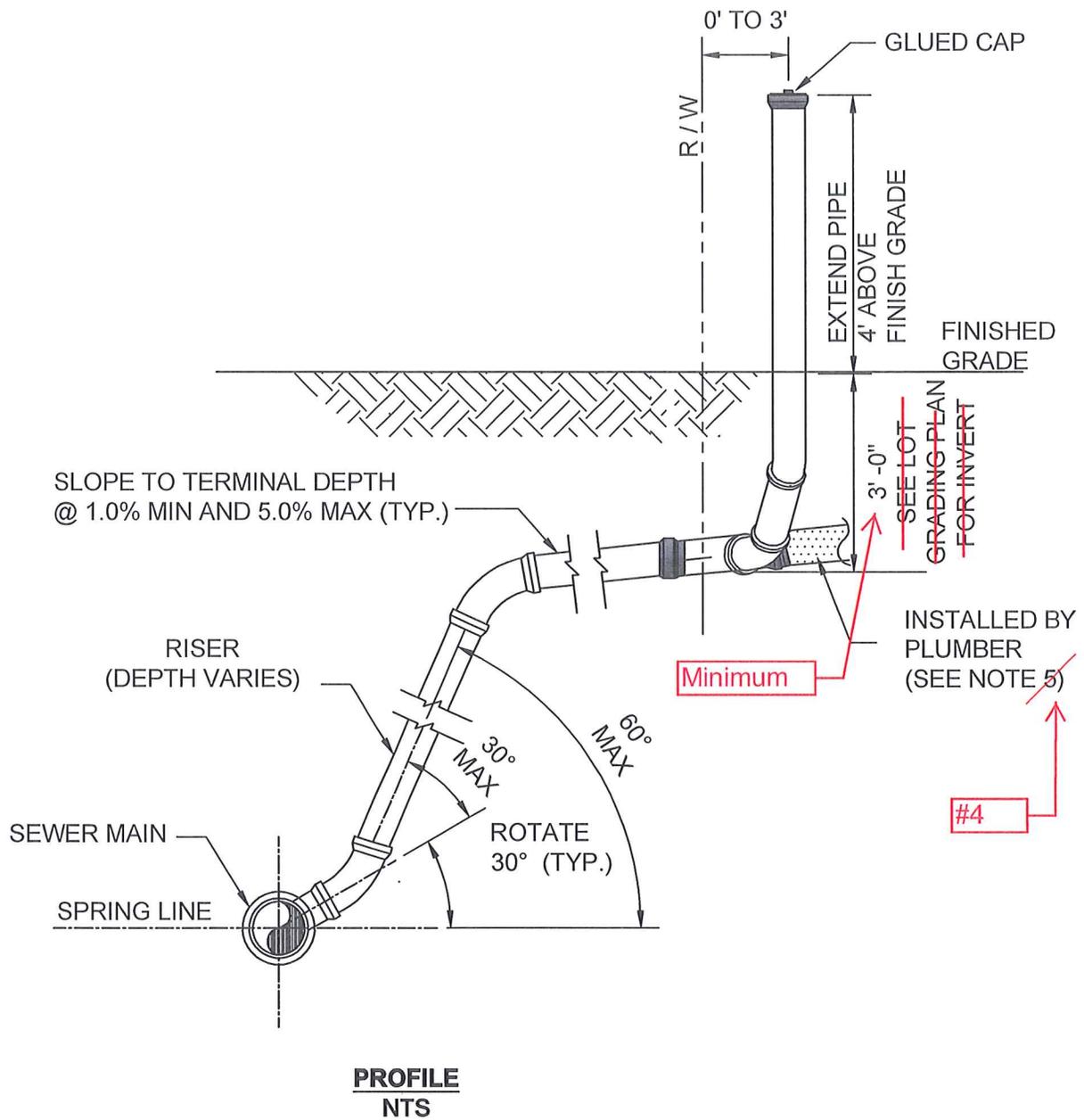
December 2013

SERVICE LATERAL (STANDARD)

**FIGURE
WW-05-1**

POLK COUNTY UTILITIES, FLORIDA

~~DECEMBER, 2010~~



NOTES:

1. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
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December 2013

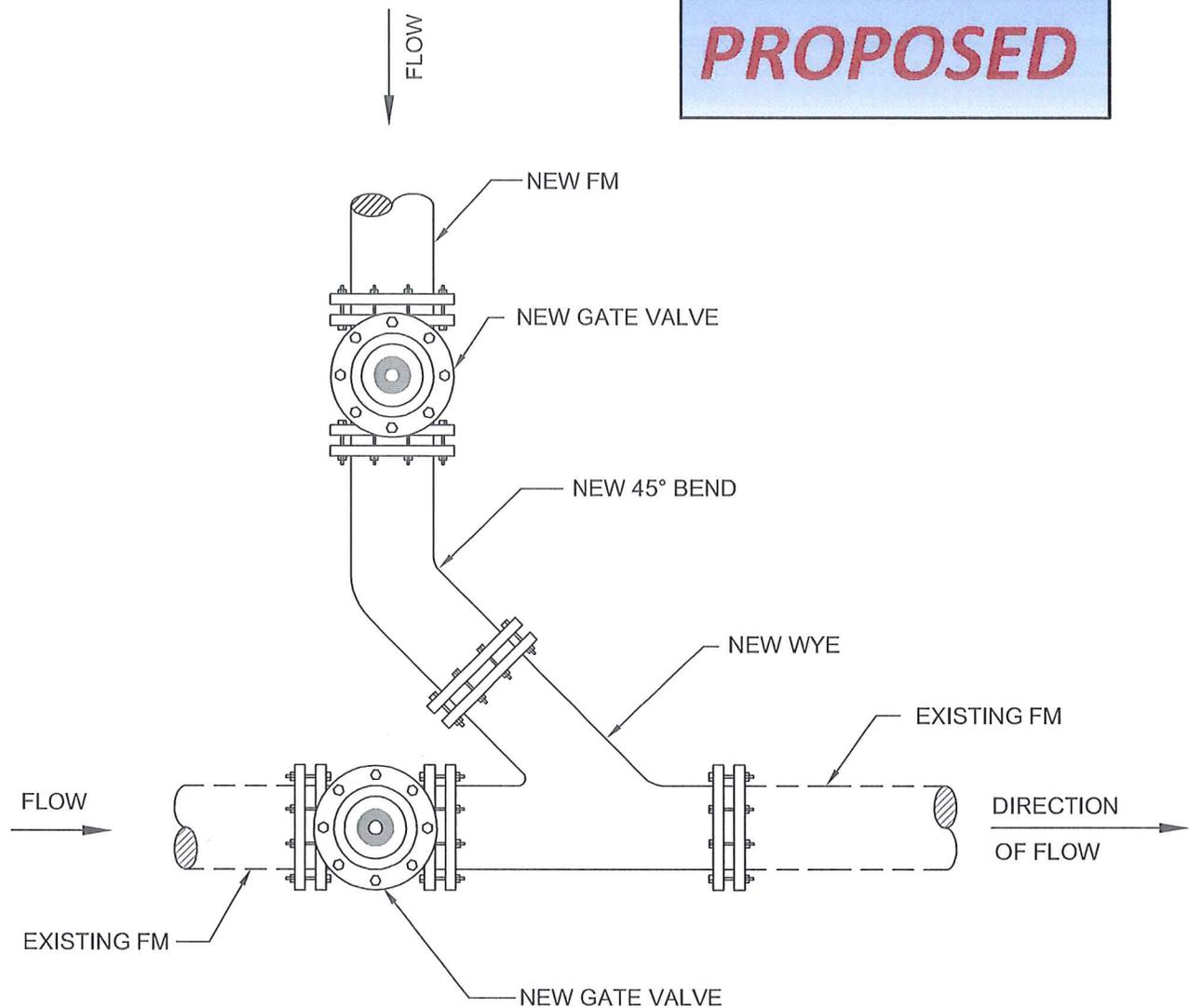
SEWER SERVICE (DEEP) (TYPICAL)

FIGURE
WW-5-2

POLK COUNTY UTILITIES, FLORIDA

DECEMBER, 2010

PROPOSED



PLAN VIEW

NOTES:

- 1. ALL JOINTS (INCLUDING JOINTS ON EXISTING MAINS) SHALL BE RESTRAINED IN ACCORDANCE WITH USSM CHAPTER 3. ENGINEER SHALL VERIFY DESIGN ASSUMPTIONS AND INCREASE RESTRAINED LENGTHS AS REQUIRED.

December 2013

**FORCE MAIN MANIFOLD CONNECTION
(TYPICAL)**
POLK COUNTY UTILITIES, FLORIDA

**FIGURE
WW-06-2**
~~AUGUST, 2013~~

CHAPTER 6

RECLAIMED WATER

Rev December 2013

Section 650-B

Approved Materials Checklist

December 2010

Four (4) sets of the CONTRACTOR's and ENGINEER's executed APPROVED MATERIALS CHECKLIST and any necessary shop drawings shall be submitted to PCU for its use and approval, plus the number of sets needed for the CONTRACTOR use.

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ITEM TO BE USED	Manufacturer	Part Number	Comments
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	ARI	D-21-PT01 (1"), D-021-PT02 (2")	Combination
	ARI	S-21-PT01 (1"), S-021-PT02 (2")	Air Release Only
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	Val-Matic	VM-45	<u>Air Release Only – Plant, Facility Use Only</u>
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Air / Vacuum Release Valve Enclosure (Horizontal Venting and Pantone 522-C Purple):			
	Water Plus	No. 40 (171730)	
	Channell	BPH 1730	
	Hydro-Guard	Safety-Guard 15100 Low Profile or 02100	
Air / Vacuum Release Valve Vault Frame And Cover:			
	US Foundry	USF-679-BK-M	
	CertainTeed	Pamrex 36"	Alternative – <u>Not to be used in paved roadways.</u>
Blow Off Valve:			
	Hydro Guard	HG-2 Low Profile	Automatic Blow Off
	Water Plus	Series VB 2000	

CHAPTER 6

RECLAIMED WATER

Section 650-B

Approved Materials Checklist

December 2010

Butterfly Valves 42-inch And Larger: (8 mil Epoxy Coated And Lined (AWWA)):			
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	Mueller/Pratt	Linseal III / BV Ground Hog	
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	M & H	Series 4067	
	Mueller	Series A-2360	
	Clow	Series F-6100	
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	Mueller	Series T-2360 & T-2361	
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Test Station Box For Buried Valves:			
	Bingham/Taylor	P200NFG2T	
Valve Boxes With Lids (5¼ -Inch, ASTM A48 30B Cast or Ductile Iron, With "RECLAIMED" cast into the lid top):			
	Bingham / Taylor Foundry	4905-X, 4905, 4904L	
	Tyler	Series 6850	
	American Flow Control*	Trench Adapter Models 1 through 9	* For mains that have valve nuts that are 6" or deeper.
	Sigma	VB261, VB262, VB264, VB4650W	
	Mueller	MVB	Use w/ AJBV-4" Locking Bolt

CHAPTER 6 RECLAIMED WATER
Section 650-B Approved Materials Checklist

	Endot	PE-4710 EndoTrace	Alternative Pipe and Tracer Wire Combo
	Charter Plastics	PE-4710	
	ARNCO	PE-4710 Perma-Guard	
	ARNCO	PE-4710 Perma-Find	Alternative Pipe and Tracer Wire Combo
	<u>ADS</u>	<u>CTS 200 PSI DR-9</u>	<u>Service Tubing</u>
Service Saddles (Epoxy Or Nylon Coated Stainless Steel 18-8-Type 304 Straps, Iron Pipe Threads – 2-inch To Be Iron Pipe Threads Controlled OD Saddles To Be Used On 4-inch And IPS OD PVC Pipe, Double Straps To Be 2-inch Minimum Width Each.):			
	Ford	Series FC202	
	JCM	Series 406	
	Mueller	DR2S, DR2SOD	
	McDonald	3835, 3855	
	Romac	202N-H	For Use With HDPE Pipe
Y Branch (1-inch By 2-inch):			
	Ford	U-48-43	
	Mueller	P15363	
	McDonald	08U2M	
Y Branch Assemblies With Angle Ball Valves (1-inch By 2-inch):			
	Ford	UVB43-42W	
	Mueller	P15363-05	
	McDonald	09U2BW	
Meter Boxes w/ Plastic Lids (Pantone 522-C Purple, HDPE, with English and Spanish Identification and Warning Wording plus International “Do Not Drink” Symbol on Top):			
	Carson PolyPlastic	1015-12 (Box)	1015-5 (Lid)
	DFW Alliance	DFW 1200.12 (Box) DFW 1200.12.5R (Combo Unit)	DFW 1200.5R (Lid)

Not Authorized based on additional findings since 9/6/2013 workshop

Reclaimed Water Category 3 of 64: PIPE MATERIAL			
ITEM TO BE USED	Manufacturer	Part Number	Comments
Casing Spacers (All Sizes) Stainless Steel With Vinyl Runners:			
	Cascade	Series CCS / CCPS / AZ	
	PSI	Series S-G-2	
	PSI-Ranger	Ranger II	
	RACI	S/T, F/G, P/Q, M/N, E/H	