

**PALM BEACH COUNTY WATER UTILITIES DEPARTMENT
ENGINEERING SERVICES DIVISION
8100 FOREST HILL BOULEVARD
P.O. BOX 16097, WEST PALM BEACH, FL 33416**

APPROVED MATERIALS AND EQUIPMENT LIST

PROJECT NAME

UTILITIES CONTRACTOR (Signature)

(DATE)

FIRM

ENGINEER (Signature)

(DATE)

FIRM

By signature above, the Utilities Contractor and Engineer for the referenced project agree to utilize the approved materials as indicated and follow Palm Beach County Water Utilities Department Minimum Engineering and Construction Standards.

1. APPROVED MATERIALS AND EQUIPMENT LIST

Only the materials and equipment listed in Sections 4.3.3 through 4.3.8 are approved for use within the PBCWUD Potable Water, Reclaimed Water and Wastewater systems. The Department may also utilize other materials and equipment in categories not specifically identified, or as approved by Department Director.

- (a) All materials and equipment shall be new and first quality. Damaged or faulty materials will not be accepted. Repair clamps may not be used on newly installed pipe. Sleeves may be used only with prior approval.
- (b) All materials, fittings and appurtenances for pressure pipe systems 24" and smaller shall be designed and constructed for a minimum working pressure of 150 psi unless the specific application dictates a higher working pressure requirement. Potable Water and Reclaimed Water pipes, fittings and related appurtenances larger than 24" shall be designed, constructed and tested for a minimum test pressure of 200 psi or as specified on plans.
- (c) All materials shall be permanently and visibly labeled with the name of the manufacturer, size, AWWA & NSF Standard and pressure rating. Glued on stickers are acceptable for ductile iron pipe only. The stickers shall name the manufacturer, pipe size, length, lining, pressure ratings and AWWA and NSF ratings (if applicable). The stickers shall be clearly visible and adhered well to the pipe.

Epoxy-lined pipe and fittings shall have legible markings on the interior with the date of application, application approved number, (if applicable), and have legible exterior markings identifying the lining and calling out "sewer use only". A certification shall be provided by the applicator and the manufacturer of the product being lined, that the pipe and fittings were bare and never lined with any type of material, before the epoxy was applied in accordance with manufacturer's specifications. Epoxy lined pipe and fittings shall be installed within a time period following the lining product application as specified by the lining manufacturer. All ductile iron fittings must comply with the following and must be certified by the manufacturer for compliance:

- All fittings must be tested in accordance with all applicable AWWA/NSF Standards.
- The foundry(s) shall be ISO-certified.
- Each fitting must have a cast-in "date code" which identifies the date and shift of manufacturer of that fitting.
- Each fitting must have cast-in clearly on the side of the fittings the name of the manufacturer, identify of the AWWA Standard, pressure rating, nominal diameter, the country where cast, the letters DI or word Ductile, and the number of degrees or fraction of the circle on all bends.

The material supplier and/or contractor shall furnish data certified by the pipe and/or fitting manufacturer that the fittings are of the material specified, and shall furnish physical and chemical certifications. Manufacturer shall furnish to the Department certifications that all fittings comply with the following requirements: All fittings shall be capable to withstand, without bursting, hydrostatic tests of minimum three times the rated water working pressure with results retained for at least two years for review.

- (d) Raw water main shall be designed to Potable Water main standards.
- (e) All valves shall be coated inside and out with factory applied epoxy. Valves shall operate "clockwise-close."
- (f) Pipe and fitting linings/coatings shall be applied and/or warranted by the pipe/fitting manufacturer.
- (g) Exposed pipe shall be painted as specified in the applicable material list.
- (h) Buried pressure pipe fittings and appurtenances 3" and larger shall be ductile iron with restrained mechanical joints unless stated otherwise on the Department's standard details. Above ground fittings shall have flanged joints. Plain end fittings are not allowed. Fittings for force mains shall be ceramic epoxy lined. For sizes less than 3", fittings shall be suitable to the pipe material and application. Exposed buried non stainless steel hardware (bolts, nuts, and rods) shall be coated after assembly with a thick (low viscosity) tar product. Bell

restraint tie-rods and nuts shall be Type 304 stainless steel. Nuts shall be coated with fluoropolymer (or equal) to prevent galling. Pipe gaskets shall be as supplied by the pipe manufacturers. Profiled gaskets are required for flanged pipe. Split type restraining glands are preferred and should be used whenever available.

- (i) Existing mains shall be tapped as long as the tapping line is smaller than the tapped line. No size-on-size taps are permitted unless approved for “line stop valves” or “insertion valves.” Asbestos cement pipes may be tapped for water services only (up to 2”). A larger size connection into an AC pipe shall generally require a cut-in tee.

The Department may require the replacement of the asbestos cement pipe and clay pipe. Double strap saddles are required for 2” and smaller taps. Stainless steel sleeves are acceptable for service taps on pipes larger than 16”. Equal size lines branch-offs shall require that a tee be cut in. A restrained joint, ceramic epoxy lined or cement lined ductile iron mechanical joint tapping sleeve is required for all taps unless the tapping line is less than half the diameter of the line to be tapped (a stainless steel tapping sleeve is permissible in those cases). Use of a stainless steel tapping sleeve is also permissible on taps on existing SDR-26 and SDR-21 PVC pipe only. For 4” and larger taps on pipes larger than 24”, the Department may allow the use of epoxy coated carbon steel sleeves with stainless steel hardware. Restrained joint cut-in tee construction may be specified, depending on the circumstances and sizes involved. A concrete thrust block shall be installed behind a tapping tee or cut-in tee if the tapped pipe is not adequately restrained or supported means of existing pipe restraint will be considered, depending on circumstances. Insertion valves or temporary “line stops” may be required in order to limit service interruptions and/or excessive spillage.

- (j) Transitions between DIP and PVC that are not specified or required by the plans or details are not permitted. PVC SDR-35 sewer pipe/ductile iron pipe adapters shall be used for DIP and PVC transition on all new constructions. Heavy-duty stainless steel flexible couplings are acceptable for transition joints with existing facilities only. Compression (pack joint) style adapters shall be used for transition from brass valves and fittings to PVC pipes.
- (k) No joint deflection is allowed with PVC pipe unless approved by the pipe manufacturer (maximum 75% of the manufacturer allowed joint deflection).
- (l) All dead ends (temporary and permanent) shall be mechanically restrained (plug or cap is required). Concrete thrust block restraint is not allowed. Permanent water main dead ends shall include an automatic flushing device (to be installed in grass area).
- (m) Wet wells and manholes shall have precast, monolithic bases. Alternative methods for constructing wet well bases will be considered on a case-by-case basis. The depth of wet wells shall be limited to 22’ unless approved in advance by the Department. All manholes shall have precast cones. Joint sealant shall be sized and placed as specified in detail by the precaster on shop drawings. Tongue joint surface shall be coated with a primer prior to joint sealant installation. External manhole joint seals must be applied between all manholes and wet well precast sections.
- (n) Steel pipe installed on aerial crossings shall have ½’ steel welded bearing pads at pile cap locations.
- (o) No PVC Male/Female adapters shall be used. Approved “pack joint” style brass fittings or polyethylene adaptors are required.
- (p) Concrete collars for valves and manholes shall be poured in place.
- (q) Any existing pipe which is not properly restrained at the designated point of connection shall have restraining installed by the Developer at no cost to the Department. The Engineer shall submit a drawing showing the proposed method of restraint. Pipe restraint and joint restraint shall be Factory Mutual approved unless specifically approved otherwise by the Department. Only wedge type restraint flange adapters are acceptable. When using flexible joint restraint pipe and fittings, the contractor shall follow the manufacturer’s installation specification to eliminate “slack” by locking the restraining joints in place.

- (r) If the design and/or construction activities impact any existing Department owned Facilities, the Developer shall relocate, remove, adjust or replace these Facilities as directed, at no cost to the Department.

When using flexible joint restraint pipe and fittings, the contractor shall follow the manufacturer's installation specification
- (s) "Premium Efficiency" rated motors shall be used whenever available.
- (t) Motors used for plant operations, rated 500 hp or less, shall meet the requirements of NEMA MG 1-2003, Tables 12-12 and 12-13:
 - 1. Efficiency
 - a. Tested in accordance with MG-1 paragraph 12.54.1
 - b. Guaranteed minimum at full load in accordance with Table 1 or as indicated in motor-driven equipment specifications.
 - 2. Power Factor: Guaranteed minimum at full load in accordance with Table 1 or as indicated in motor-driven equipment specifications.
- (u) For Palm Beach County Water Utilities Department initiated projects, the materials stated in the written specification for the project shall have precedent over the "Approved Material List".
- (v) Wedge Anchors (316 SS) for Pump Base Elbows shall be permanently marked, providing a cross reference to verify the anchor's length after installation.
- (w) All electrical components and systems shall be UL listed, and shall be assembled in a UL listed/approved facility.
- (x) Underground utility markers may be required for transmission mains.
- (y) Buried ductile iron pipe 30" and larger shall be polybagged unless a soil survey confirms it to be unnecessary.
- (z) Exposed ductile iron pipe and fittings to be shop painted with red oxide primer.
- (aa) "Lead Free" brass water works products shall meet the requirement of ASNI/AWWA C800 and the maximum lead content of S.3874 and NSF 61 Annex G. The manufacturer's designation as a Lead Free product shall be permanently stamped or cast into the product's body. Effective January 1, 2013, only "Lead Free" brass water works products shall be installed in contact with potable water.
- (bb) Sanitary sewer manhole castings shall be 7" tall. Alternative 4" models may be used with preapproval only.
- (cc) PVC/DI pipe transitioning from HDPE pipe shall be restrained as a minimum to "in-line valve" condition.
- (dd) Shop drawings for sewer concrete structures shall indicate the size and placement of joint sealant.
- (ee) Stainless steel insert stiffeners shall be used at connections of brass pack joint fittings to polyethylene service pipes.
- (ff) Selected service pipe material shall be used consistently in the whole project, as applicable.
- (gg) Tensile strength test on the first daily butt fusion weld may be required.
- (hh) Fusion weld data recording may be required for pipes larger than 12".

- (ii) Removed materials shall be disposed in approved manner. WUD inspector shall advise the contractor which removed materials are to be returned to WUD (hydrants, valves, fittings, meters, vaults, manhole rings, pumps, motors, electrical and other mechanical equipment, etc.).

2. APPROVED MATERIALS AND SPECIFICATIONS

POTABLE WATER SYSTEM

All components that come in contact with potable water shall conform to NSF standards. Effective January 1, 2013 only Lead Free brass water products shall be installed in contact with potable water.

PW 1. Ductile Iron Pipe (Pipes shall be color coded with blue paint)

Approved Products/Manufacturers for push-on and mechanical joint pipe:

- (1) American Cast Iron Pipe Company
- (2) U.S. Pipe
- (3) McWane Ductile (Atlantic States, McWayne, Pacific States, Clow Water Systems)

Approved Products/Manufacturers for flexible joint restraint pipe:

- (1) American – Flex Ring, Lok Ring; push-on joint pipe with Armadillo Fast Grip Gasket (sizes 4”-24”)
- (2) US Pipe - TR Flex; push-on joint pipe with Field Lok 350 Gasket (sizes 4”-24”) - Bolt Lok
- (3) McWayne Corporation – TR Flex
- (4) Griffin – Snap Lok, Bolt Lok

Approved Fabrications for “Flanged” pipe:

- ASAP Fabrication Inc. (1-813-752-1999)
- US Pipe Fabrication Inc. (1-866-347-7473)

Note: The Fabricators must use pipe supplied by approved manufacturers.

Interior pipe surfaces must be cement mortar lined and sealed per AWWA C-104/A21.50. Minimum Special Thickness Class 53 is required for flanged pipe. “Toruseal” or “Flange-Tyte” gaskets are required for flanged pipes.

Non-Flanged Pipe Size	Minimum Pressure Class	Minimum Special Thickness Class
3”,4”	350	51
6”-16”	350	50
20”	300	50
24”	250	50
30”	250	50

PW 2. Polyvinyl Chloride (PVC) Pipe (Mains 4” and larger shall be color-coded blue)

Approved Products/Manufacturers:

A. Push-on Joint Pipe, AWWA C900, SDR-18 min., 235 psi min., and AWWA C905, SDR-25 min., 165 psi min., NSF 61:

- (1) JM Manufacturing Company*

- (2) Diamond Plastic Corporation*
- (3) CertainTeed*
- (4) North American Pipe Corp.; NAPCO*
- (5) IPEX, Inc.**
- (6) National Pipe and Plastics**
- (7) Sanderson Pipe**

* No Pipe deflection at the joint allowed.

** Up to two (2) degrees deflection at pipe joint allowed.

B. Restrained Joint PVC Pipe, C900/C905, SDR 18/25 min., NSF61.

B1. Non-Metalic Modular Joint Restraint Design

- (1) Certain Teed Certalok

B2. Belle Integrated Metalic Ring Restraint Design

- (1) JM Eagle Lok

B3. Joint Free Restraint Piping System

- (1) Underground Solutions Fusible PVC Pipe

C. Service Pipe Up to 6” – PVC Schedule 40 (Color: White or Blue), Schedule 80, (Color: White or Dark Grey), NSF61

- (1) Heritage Plastics South Inc.
- (2) JM Manufacturing Company
- (3) Accord Industries/Universal 100 Products
- (4) Charlotte Pipe and Foundry Company

PW 3. Exposed Steel Pipe (A53 Grade B, ERW, minimum 0.500" wall thickness, AWWA C200; flange shall be Class D or E per AWWA C204. Interior shall be lined with 7-11 mils DFT of Tnemec N-140 Pota-Pox Plus (White 00WH); Exterior shall be: Primer 3 mils Tnemec Zinc 90-97, intermediate 4-6 mils Tnemec 66 top coat 2 mils Tnemec 1074 (Black with Blue striping)

Approved Products/Manufacturers:

- (1) US Pipe Fabrication

PW 4. High Density Polyethylene Pipes and Tubing.

Approved Products/Manufacturers:

A. High Density Polyethylene (HDPE) pipe (Fusible HDPE, PE 4710, AWWA C906); Pipes shall be color-coded blue, minimum 40 feet standard lengths, DR 11 minimum, DIPS Size, 3" and larger

- (1) CP Chem
- (2) JM Manufacturing Company
- (3) IPEX, Inc.
- (4) Polypipe By Dura-Line
- (5) KWH Pipe by Uponor Infra Ltd.

B. High Density Polyethylene (HDPE) Tubing (PE 3408/3608), CTS, DR9, AWWA C901 up to 2" size (blue or blue striped)

Approved Products/Manufacturers:

- (1) Charter Plastics, Inc.
- (2) ENDOT, Industries, Inc.
- (3) JM Manufacturing Company

PW 5. PVC Cement (Must be certified for both Schedule 40 and Schedule 80)

Approved Products/Manufacturers:

A. Plumbing Applications

- (1) Harvey's Wet Set PVC Cement #018430
- (2) Christy's Red Hot Blue Glue
- (3) WHITLAM Weatherproof Blue All Weather Low VOC Medium Body Cement

B. Electrical Conduit Applications (Medium Body Clear Cement)

- (1) Datey 31008
- (2) Harvey's 018280-12

PW 6. Thread Sealant

Approved Products/Manufacturers:

- (1) E-Z Weld 209 by Fry Technology
- (2) Pipe Fit, FPPI

- (3) Teflon Tape (all manufacturers)

PW 7. Gate Valves (AWWA C509, C515, Ductile Iron Body)

Approved Products/Manufacturers:

- (1) Mueller 2362, 2361
- (2) American 2500 (MM, FF)
- (3) Kennedy Ken-Seal II
- (4) M & H 4067
- (5) Clow F-6100
- (6) US Pipe Metroseal AUSP1, AUSP2

Minimum Pressure Class 200 is required for valves larger than 24"

PW 8. Butterfly Valves (AWWA C504)

Approved Products/Manufacturers:

- (1) Mueller Linesal III B-3211
- (2) M & H 450, 4500, 1450
- (3) Pratt "Groundhog"
- (4) DeZurik Class 150B
- (5) Valmatic

Note: Worm Gears are required for valves larger than 16" Minimum Pressure Class 200 is required for valves larger than 24"

PW 9. Combination Air Release Valves (Fusion bonded epoxy interior and exterior stainless steel cover bolts and plugs)

Minimum Sizes:

- 1" ARV for pipes 4" – 16"**
- 2" ARV for pipes larger than 16"**

Approved Products/Manufacturers:

- (1) Valmatic VM22.3 SV, VM38.2 SV
- (2) Crispin PL 10
- (3) GA Industries Model 920
- (4) Apco

PW 10. Tapping Valves (AWWA C509, C515, Ductile Iron Body)

Approved Products/Manufacturers:

- (1) American 2500 TM
- (2) Mueller T- 2362, T-2361
- (3) US Pipe Metroseal TUSP1, TUSP2
- (4) M & H 4751-NRS
- (5) Clow F-6114

Pressure Class 200 is required for valves larger than 24".

PW 11. Residential Dual Check Valves (Angled, Cartridge Style, ASSE Approved)-Lead Free

Approved Products/Manufacturers:

- (1) Ford ¾" HHCA91-NL-323
1" HHCA91-NL-444
- (2) Ay McDonald ¾" 712 -3YE33-44
1" 712-3YE44-44
- (3) Mueller ¾" H-14464AN
1" H-14464AN

PW 12. Brass Pack Joint Branch Valves (PVC) Lead Free

Approved Products/Manufacturers:

- (1) AY McDonald 708U4M (1½ x ¾ x 7.5)
- (2) Ford U78-63 – NL
- (3) Mueller V15361N

PW 13. Inflow Preventer for ARV's in Vaults and Manholes

Approved Products/Manufacturers:

- (1) Valmatic FloodSafe

PW 14. Screw Type 2 Piece Valve Box

Approved Products/Manufacturers:

- (1) East Jordan Iron Works 8550
- (2) Bingham/Taylor 4905
- (3) SIGMA Corp. - Ductile Iron only - Top VB2611-D, Bottom VB2612-D

PW 15. Valve Box Lid (Min. weight 24 lbs., 4" skirt; Lid Marked "Water")

Approved Products/Manufacturers:

- (1) East Jordan Iron Works Drop Lid# 0680045
- (2) Bingham/Taylor # 4906
- (3) SIGMA Corp. - Ductile Iron only - VB2600W-D

PW 16. Sliding Type 2 Piece Valve Box and Lid for Corporation Stops (arched bottom)

Approved Products/Manufacturers:

- (1) Bingham/Taylor 4903
Box only: I4B143RSL
Lid only: CUL4LHVTSKSV

PW 17. Reduced Pressure Principle Backflow Prevention Assemblies (to be owned by PBCWUD, must be USC or ASSE [with field testing] approved)

Approved Products/Manufacturers:

- (1) AMES 4000 SS/Watts 994 (Required for Plant Installations)

- (2) WILKINS 975XL
- (3) WILKINS 375 (3" and larger)
- (4) AMES C400, C500/Watts 957, 957 RPDA

Note: All Reduced Pressure Principle Backflow Prevention Assemblies which are included on the latest "List of Approved Backflow Prevention Assemblies" as published by the University of Southern California or by the American Society of Sanitary Engineering (with field testing) may be used for private water services.

PW 18. Double Check Detector Assemblies (to be owned by PBCWUD, must be USC or ASSE [with field testing] approved)

Approved Products/Manufacturers:

- (1) AMES 3000 SS/Watts 774 DCDA
- (2) FEBCO
- (3) Wilkins
- (4) AMES C300/Watts 757 DCDA

Note: Private fire lines may use any of the "Double Check Detector Assemblies" or "Reduced Pressure Principle Backflow Detector Assemblies" which are included on the latest "List of Approved Backflow Prevention Assemblies" as published by the University of Southern California **USC or ASSE [with field testing]**.

PW 19. Mechanical Joint Ductile Iron Tapping Sleeves (for Taps 4" and Larger)

Approved Products/Manufacturers:

- (1) American 2800 Series
- (2) Mueller H-615
- (3) US Pipe MJ

PW 20. Tapping Sleeves (For Outlets 4” and Larger)

Approved Products/Manufacturers:

A. Stainless Steel Body, Flange and Hardware

- (1) Dresser 630
- (2) Ford FTSS
- (3) Cascade CST-EX
- (4) JCM 432, 452
- (5) Power Seal Model 3490
- (6) Smith Blair 663

B. Fabricated Epoxy-coated Steel Body and Flange with Stainless Steel Hardware (For Pipes Larger than 24”)

- (1) JCM 412
- (2) Smith-Blair 622
- (3) Powerseal 3460
- (4) Ford FTSC
- (5) Dresser 610
- (6) Cascade CFT-ESS, CFT-LP-ESS

PW 21. Mechanical Joint Restraining Devices

Approved Products/Manufacturers:

A. Solid Design for D.I. Pipe

- (1) EBBA Iron Megalug 1100
- (2) Sigma One-Lock SLDE
- (3) Uniflange (Ford) Series 1400
- (4) Star Grip Series 3000 (up to 16”)

B. Solid Ring Design for PVC Pipe

- (1) EBAA Iron Megalug 2000 PV
- (2) Sigma One-Lok SLCE
- (3) Uniflange (Ford) Series 1500
- (4) Star Grip Series 4000 (up to 16”)

C. Solid Ring Design for HDPE pipe up to 12” (requires stainless steel stiffening insert)

- (1) EBAA Iron Megalug 2000 PV
- (2) Uniflange (Ford) Series 1500

D. Split Ring Design for D.I. Pipe

- (1) EBAA Iron Megalug 1100-SD
- (2) Sigma One-Lok SSLD
- (3) Star Grip Series 3000 S (up to 16”)

E. Split Ring Design for PVC Pipe

- (1) EBAA Iron Megalug 2000 SV

F. Split Ring Design for HDPE Pipe up to 8” (requires stainless steel stiffening insert)

- (1) EBAA Iron Megalug 2000 SV

PW 22. Pressure Pipe Bell Restraints Bellside ring without serrations; rods, and nuts to be stainless steel 304 with nuts coated to prevent galling; split ring design shall be used if available.

Approved Products/Manufacturers:

A. Split Ring Design for DI Pipe

- (1) EBAA IRON Series 1600 TD
- (2) EBAA IRON Series 1100 HD
- (3) SIGMA One-Lok Series SSLDH

B. Split Ring Design for PVC Pipe

- (1) EBAA IRON Series 1600 TD
- (2) EBAA IRON Series 1600
- (3) EBAA Iron Series 1100 HV
- (4) SIGMA PV Lok Series PWH
- (5) Ford Uniflange UFR 1355-C-X

C. Solid Ring Design for DI Pipe

- (1) EBAA Iron Series 1700
- (2) SIGMA One-Lok Series SLDEH
- (3) Ford Uni-Flange 1450-X

D. Solid Ring Design For PVC Pipe

- (1) EBAA Iron Series 2800
- (2) SIGMA One Lok Series SLCEH
- (3) Ford Unit-Flange 1350-X

PW 23. Pressure Pipe Bell Joint Leak Clamps

Approved Products/Manufacturers:

- (1) Smith Blair Type 274 (stainless steel Type 304 bolts, SS Type 316 nuts or Type 304 stainless steel coated to prevent galling)
- (2) Ford Style FBC (SS nuts and bolts)
- (3) Romac Style 516 (stainless steel Type 304 bolts and nuts; nuts coated to prevent galling)

Note: Split Ductile Iron Rings required. Buna-N gasket required. Longer bolts required for PVC pipe.

PW 24. Ductile Iron Restrained Flange Adapters. (Set Screw Design Not Acceptable)

Approved Products/Manufacturers:

- (1) Smith Blair Type 912 (stainless steel Type 304 bolts and nuts coated to prevent galling) restraint, with anchor studs
- (2) EBAA Iron 2100 Megaflange; hardware coated with Megabond
- (3) Power Seal Model 3521 – restraint; with anchor studs

PW 25. Ductile Iron Fittings

A. Both Ends Mechanical joint and Flanged Joints Fittings

Approved Products/Manufacturers:

- (1) Tyler
- (2) US Pipe/Metalfit
- (3) American
- (4) Union Foundry
- (5) Star
- (6) Sigma
- (7) Clow

B. Flexible Restraint Fittings

Approved Products/Manufacturers:

- (1) American – Flex Ring, Lok Ring
- (2) US Pipe/Metalfit – TR Flex, Bolt Lok
- (3) McWayne Corporation – Super Lock

C. Welded on Outlet Tees for pipes larger than 24” non-flanged pipe. The welded on branch size shall not exceed 1/2 of the main pipe size. Welding shall be performed and tested by the pipe manufacturer.

Approved Products/Manufacturers:

- (1) American Cast Iron Pipe Company
- (2) US Pipe

Fittings must be ductile iron meeting the requirements of AWWA C-110, AWWA C-153 and must be cement mortar lined and sealed per AWWA C-104 or fusion bonded epoxy lined inside and outside per AWWA C116/ANSI A21.16.

The epoxy shall be applied to both exterior and interior surfaces. The lining shall be warranted by the pipe manufacturer. Toruseal or Flange-Tite gaskets are required for flanged fittings.

PW 26. PVC Fittings (Up to 6” Schedule 80 and Schedule 40)

Approved Products/Manufacturers:

- (1) Lasco Fittings Inc.
- (2) Nibco, INC.
- (3) Spears Manufacturing Company
- (4) Charlotte Pipe and Foundry Company

PW 27. Brass Pack Joint Yoke Quarter Bend Couplings (PVC) – Lead Free

Approved Products/Manufacturers:

- (1) Ford L91-23-NL, L91-44-NL
- (2) Mueller H-14214N
- (3) AY McDonald 74779Y-44
- (3/4” x 02; 1” x 04)

PW 28. Follower Glands

Approved Products/Manufacturers:

- (1) Tyler
- (2) US Pipe
- (3) Union Foundry
- (4) SIGMA/NAPPCO

PW 29. Casing Pipe Spacers

Approved Products/Manufacturers:

- (1) Cascade
- (2) APS Spacing System
- (3) RACI
- (4) BWM

PW 30. Brass Curb Stops, Straight, FIP x FIP, Lead Free

Approved Products/Manufacturers:

- (1) Ford B11-333-W-NL, -444-W-NL, -666-W-NL, -777-W-NL
- (2) Mueller B-20200N -38
- (3) AY McDonald 76101W

PW 31. Brass Curb Stops with Pack Joints (3/4”- 2”) (PVC) – Lead Free

Approved Products/Manufacturers:

- (1) Ford B77-333-W-NL, 444-W-NL, 666-W-NL, 777-W-NL
- (2) AY McDonald 76100W-44
- (3) Mueller P-25236N -38

PW 32. Pack Joint Brass Male Adapters (PVC) – Lead Free

Approved Products/Manufacturers:

- (1) Ford C87-44-NL, -46-NL, -66-NL, -77-NL
- (2) AY McDonald 74753-44 (1”, 1 1/2”, 2”)
- (3) Mueller V-15440 N

PW 33. Brass Yoke Angle Curb Stops (FIP x Yoke) Lead Free

Approved Products/Manufacturers:

- (1) Mueller B-24278N -38: -(5/8 x 3/4 x 3/4), (5/8 x 3/4 x 1), (1)
- (2) Ford BA91-323W-NL, -444W-NL, -344W-NL
- (3) AY McDonald 74604 BY-44; -(3/4 x 3/4 x 02), (1 x 3/4 x 02), (1 x 1 x 04)

PW 34. Corporation Stops (PVC) with PVC pack joint outlet and tee head- Iron Pipe Thread – Lead Free

Approved Products/Manufacturers:

- (1) Ford FB1102-6-TA-NL, FB1102-7-TA-NL

- (2) AY McDonald 74104B-44 (1 ½", and 2")
- (3) Mueller V-25058-I0N -38

- (1) JCM 438
- (2) Smith Blair 372

PW 35. Corporation Stops for ARV Installations (MIP & MIP) – Lead Free

Approved Products/Manufacturers:

- (1) Ford FB500-NL
- (2) AY McDonald 73131 B
- (3) Mueller B-20013N -38, B-2969N -38

PW 36. Meter Yokes (must be epoxy coated, e-coated or powder coated)

Approved Products/Manufacturers:

- (1) Ford Y502, Y504
- (2) Mueller H-5020, H-5040
- (3) AY McDonald 14-2, 14-4

PW 37. Yoke Expansion Connections- Lead Free

Approved Products/Manufacturers:

- (1) Ford EC23-NL, EC4-NL
- (2) Mueller H-14234N-26
- (3) AY McDonald 714-2EHG, 714-4EHG

PW 38. Service Saddles/Sleeves (up to 2" Tap Size) Iron Pipe Thread

Approved Products/Manufacturers:

- A. Ductile Iron Body, Double Steel Bales (up to 16")
 - (1) JCM 408
 - (2) Smith Blair 313
 - (3) Ford FC202 (Epoxy-coated)
 - (4) Romac 202, NU
 - (5) AY McDonald 4826A
- B. Ductile Iron Body Double Stainless Steel Straps
 - (1) JCM 406
 - (2) Smith Blair 317
 - (3) Ford FCD 202
 - (4) Romac 202 NS (up to 16", pre-approval required)
 - (5) Power Seal 3417 DI
 - (6) Ay McDonald 4855A
- C. Epoxy-coated Steel Body Threaded Outlet Tapping Sleeves, Stainless Steel Hardware Required (Larger than 16", Pre-approval Required)
 - (1) JCM 418
 - (2) Romac FTS420T
- D. Stainless Steel Body Threaded Outlet Tapping Sleeves (Larger than 16")

PW 39. Fire Hydrants

Approved Products/Manufacturers:

- (1) Kennedy Guardian K-81D – (5 ¼")
- (2) Mueller Super Centurion
- (3) American/Darling (5 ¼") B-84-B
- (4) Clow Medallion (5 ¼")

Buried hydrant bolts, washers and nuts shall be stainless steel. Bolts shall be 316 SS, washers shall be 316 SS, and nuts shall be 304 SS. Fire hydrants shall be ordered red in color with the finish epoxy coat applied by the manufacturer. New fire hydrants which need re-painting shall be field coated safety red. Approved security caps with chains are required.

PW 40. Fire Hydrant Paint

Approved Products/Manufacturers:

- (1) Sherwin Williams (DTM acrylic coating) B66-R38

All paint shall be gloss, safety red in color and two coats shall be applied.

PW 41. Meter Boxes (Tier-8 Load Category Minimum per ANSI/SCTE 77)

Approved Products/Manufacturers:

- A. Single Service: (5/8" x 3/4" meters)
 - (1) CDR: Box B03111812A
 - (2) GlasMasters J111812S2N08-1 (2 mouse holes) J111812SS0N08-1 (no mouse holes)
 - (3) Armorcast: Box A 6000485-PBC (12" x 20" x 12" polymer concrete box).
- B. Double Service: (5/8 x 3/4" meters)
 - (1) CDR: Box B03151712A
 - (2)GlasMasters J151712S2N08-1 (2 mouse holes) J151712S0N08-1 (no mouse holes)
 - (3) Armorcast: Box A 6000510 X12-PBC (15" x 17" x 12" FPR Box)
- C. Single Service: (1" meters)
 - (1) CDR: Box B03132412A
 - (2) GlasMasters S132412S2N08-1 (2 mouse holes) S132412S0N08-1 (no mouse holes)
 - (3) Armorcast: Box 6001868x12-PBC
- D. Single Service: (1½", 2", meters)
 - (1) CDR: Box B03173012A
 - (2) GlasMasters S173012S2N08-1 (2 mouse holes) S173012S0N08-1 (no mouse holes)

- (3) Armorcast: Box A 6001534 X12-PBC (17" x 30" x 12" FPR Box)
- E. Single Meter Service: (3", 4", and 6" meters)
 - (1) CDR: Box B03173018A
 - (2) GlasMasters S173018S2N08-1 (2 mouse holes) S173018S0N08-1 (no mouse holes)
 - (3) Armorcast A6001534X18

F. Single Service: 8" and larger meters
Shop drawings must be submitted and approved by Department

All meter boxes covers shall have vertical straight walls.

All meter boxes shall display the manufacturer's name.

All meter boxes shall display the date of manufacture. Only boxes for 1-1/2" meters and larger shall have "mouse holes", unless noted otherwise.

PW 42. Meter Box Lids (Grass Areas) (Tier-8 Load Category Minimum)

Approved Products/Manufacturers:

- A. Single service (5/8" x 3/4" meters)
 - A1. Without Antenna Opening
 - (1) CDR: Lid C08111802D
 - (2) Armorcast: Lid A 6000484RCI-PBC
 - (3) GlasMasters S1118RN08-1-WA

- A2. AMR Antenna Ready
 - (1) GlasMasters S1118BN08-1-PBCWU

- B. Double Service: (5/8" x 3/4" meters)
 - B1. Without Antenna Opening
 - (1) CDR: Lid C08151702F
 - (2) Armorcast Lid A 6000469RCI-PBC
 - (3) GlasMasters S1517RN08-1- WA

- B2. AMR Antenna Ready
 - (1) GlasMasters S1517BN08-1-PBCWU

- C. Single Service: (1" meters)
 - C1. Without Antenna Opening
 - (1) CDR: Lid C08132402D
 - (2) GlasMasters S1324RN08-1-WA
 - C2. AMR Antenna Ready
 - (1) GlasMasters S1324BN 08-1-PBCWU

- D. Single Service: (1-1/2", 2", 3", 4", 6" meters)
 - D1. Without Antenna Opening
 - (1) CDR: Lid C08173002F
 - (2) Armorcast: Lid A 6001643RCI-PBC
 - (3) GlasMasters S1730RN08-1-WA

- D2. AMR antenna Ready
 - (1) GlasMaster S1730BN08-1-PBCWU
- E. Single Service: (8" and larger meters)
 - (1) CDR. (Shop drawings are required.)
 - (2) GlasMasters (Shop Drawing Required)

Note: Traffic-bearing (Tier 15 minimum) lids and boxes are required for all meters in hardscaped areas.

PW 43. Manhole Adjustment Rings

Approved Products/Manufacturers:

- A. Steel Rings for Existing Manholes (maximum 4" height adjustment)
 - (1) Manhole Systems MS-101
 - (2) Roblyn Series 2300, 2400
 - (3) EJ (Andrews Metal Style) M2-A, M5-A

- B. Masonry Rings for new Manholes (maximum 12" total ring height)
 - (1) Brick chimney, field installed (2-5 courses of bricks) (field-applied corrosion barrier systems required).
 - (2) Precast reinforced concrete rings (4,000psi), field-installed for cast- in liner and for field-applied corrosion barrier systems.

Approved Products/Manufacturers:

- (1) U.S. Precast
- (2) US Concrete Products
- (3) American Concrete Products

PW 44. Paint for Exposed Ductile Iron Pipe and Fittings (Exposed D.I. pipe and fittings to be shop painted with red oxide primer), black with blue stripes

Approved Products/Manufacturers:

- A. Moderate Exposure
 - (1) SunTec – Primer 801 Rustking, Top Coat – 860A Rustking Acrylic Gloss (Black with Blue Stripes), two (2) coats at 3 mils each.
 - (2) Sherwin Williams Targuard Low VOC Coal Tar Epoxy with Reducer R7K111; two coats at 8-16 mils per coat, 50% overlap with each pass (not to be used for direct contact with potable water).

- B. Severe Exposure
 - (1) Tnemec – Primer: Zinc Series 90- 97 (3 mils DFT) - Intermediate: Epoxoline II Series N 69 (two (2) coats, 6 mils DFT/coat) - Topcoat: Endura Shield II Series 1074 (two (2) coats, 3 mils DFT/coat) color black

PW 45. Detectable Marking Tape for Potable Water Mains

Approved Products/Manufacturers:

- (1) Empire Level MFG. Corp. MagnaTec
- (2) T. Christy Enterprises TA-TD-6-BPW
- (3) Pro-Line Safety Products

Detectable blue mylar tape 6" wide imprinted with the following in 2" high lettering: "**CAUTION WATER LINE BURIED BELOW**". The wording shall occur every 3 feet.

PW 46. Permanent Sampling Stations

Aluminum Housing, hinged door opening, padlock, unthreaded sample point with protective cap, stainless steel piping

Approved Products/Manufacturers:

- (1) Kupferly Foundry: Eclipse No. 88 WC -SS-PBC

PW 47. Remote Telemetry Units (PLC Type)

Approved Products/Manufacturers:

- (1) Curry Control PBCRTU2015
- (2) ESC PBCRTU2015
- (3) AES PBCRTU2015
- (4) CC Control PBCRTU2015
- (5) Unitron PBCRTU 2015
- (6) Champion Controls, Inc. PBCRTU 2015

PW 48. Root Barrier Systems

Approved Products/Manufacturers:

- (1) Bio-Barrier
- (2) DeepRoot UB36-2, UB48-2

PW 49. Lead Free Brass Nipples (MTP x MTP)

Approved Products/Manufacturers:

- (1) Meritt Brass 2012-400
- (2) Lee Brass
- (3) Mid -American Brass

PW 50. Pack Joint Quarter Bend Coupling (3/4"-2") PVC Compression x MPT -Lead Free

Approved Products/Manufacturers

- (1) Ford - L87 - NL Series
- (2) AY McDonald (74779M-44) Series

PW 51. Pack Joint Quarter Bend Coupling Lead Free (PVC x PVC) (3/4"- 2")

Approved Products/ Manufacturers:

- (1) AY McDonald (74761-44) Series
- (2) Ford L77 Series - NL

PW 52. Line Stop Tapping Sleeve

Approved Products/ Manufacturers:

- (1) JCM 440

PW 53. Brass Compression by Male Adapter (PVC) - Lead Free

Approved Products/ Manufacturers:

- (1) AY McDonald (74753-44)
- (2) Ford C-87 Series - NL

PW 54. Brass Compression by Female Adapter (PVC x FIP), Straight, 3/4" - 2", Lead Free

Approved Products/ Manufacturers:

- (1) AY McDonald (74754-44) Series
- (2) Ford C-17 Series - NL

PW 55. HDPE/DIP Electro-fusion Couplings and Fittings

Approved Products/ Manufacturers:

- (1) Central Plastics Company
- (2) Ipex Friatec

PW 56. HDPE/DIP MJ Adapter

Approved Products/ Manufacturers:

- (1) Independent Pipe Products, Inc.
- (2) Improved Piping Products, Inc.
- (3) Central Plastics

PW 57. Paint for Buried DIP/PCCP Pipe

Approved Products/ Manufacturers:

- (1) Induron Aquanaut (Color: Alaskan Blue) Min. 8 mils WFT, min 3 mils DFT

PW 58. Above Ground Utility Markers

Approved Products/Manufacturers:

A. Canal Crossings:

- (1) Rocal, Inc. #RI-UPLPBC 12-6

B. Miscellaneous Locations:

- (1) Rhino Marking & Protection Systems, Inc. - Triview Marker Post, color coded with decals.

- (2) Rhino Marking & Protection Systems, Inc. - Rhino 3-Rak (66") color coded with decals.

PW 59. Meter Setter Assembly for 1 ½ " and 2" Meters – Lead Free

Approved Products/Manufacturers:

(1) AY McDonald 722G700WW (777 x 15.62 x 404)

Note: 1 ½" Meter requires adapter 710J67DH

(2) Ford CS-C95632-01 – NL

Note: 1 ½" Meter requires adapter A-67 – NL

PW 60. Manhole Ring and Cover for ARV

Approved Products/Manufacturers

(1) US Foundry 690-AH-M

(2) Pamrex (Ductile Iron, 32")

Note: Manhole shall be marked: "Water-ARV"

PW 61. Aluminum Vault Frame and Cover for ARV

(1) US Foundry AHS or AHD

(2) Bilco J or JD (H-20)

PW 62. Insertion Valve (AWWA C515, MJ Type End Restraints, Resilient Seat Gate, Ductile Iron Body, Wedge to Seal against valve body)

Approved Products/Manufacturers:

(1) Team INSERT VALVE

PW 63. Hose Bibbs (brass) – Lead Free

Approved Products/Manufacturers:

(1) NIBCO

(2) Jones

(3) American Standard

PW 64. Heavy Duty Meter Box Lids (ANSI Tier 15 minimum load rated)

Approved Products/Manufacturers:

A. Single Service (5/8" x ¾")

(1) EBAA – Cover MC1118-2R

(2) GlasMasters S1118RN15-1WA

B. Double Service: (5/8" x ¾")

(1) EBAA – Cover MC1118-2R

(2) Glas Masters S1517RN15-1 WA

C. Single Service: (1" Meters)

(1) EBAA – Cover MC1324-4R

(2) GlasMasters S1324RN15-1-WA

D. Single Service: (1-1/2", 2", 3", 4" Meters)

(1) EBAA – Cover MC1730-5R

(2) GlasMasters S1730RN15-1-WA

E. Single Service: (6" Meters and Larger)

(1) EBAA – Cover

(2) GlasMaters (Shop Drawings are Required)

PW 65. Stainless Steel Stiffening Inserts for HDPE Pipe Restraint (4" – 12")

Approved Products/Manufacturers:

1) JCM 231

(2) Cascades

PW 66. Typical Stainless Steel Stiffening Inserts for HDPE CTS Tubing (up to 2")

Approved Products/Manufacturers:

(1) Ford 50 series (51, 52, 54, 55)

(2) Mueller 5287 (04, 05, 06, 07)

(3) AY McDonald 6133T (¾, 1, 1-1/2, 2)

PW 67. Fire Hydrant Security Devices (Locking Nozzle Caps with Chains)

Approved Products/Manufacturers:

(1) American Flow Control Captivater Hydrant Assembly

Note: One AFC Captivater adjustable wrench is required with each 10 hydrants (min. one wrench per project)

PW 68. Valve Stem Extensions (Carbon Steel Hot Dip Galvanized with Centering Ring and Stainless Steel Set Screws)

Approved Products/Manufacturers:

(1) Custom Fab

(2) Trumbull Industries

PW 69. Directional Drill Tracer Wire APWA Colored Coded – Blue) AWG 12

Approved Products/Manufacturers:

(1) Copperhead 1245 EHS

(2) Pro-Line Products Protrace HD-CCS PE45

PW 70. Brass Pack Joint Branch Valves (CTS) – Lead Free (HDPE: CTS x MIP)

Approved Products/Manufacturers:

- (1) Ford U48-63 – NL
- (2) Mueller H-15363N (1-1/2 x 3/4 x 7- 1/2)
- (3) AY McDonald 708U2M (1-1/2 x 3/4 x 7.5)

PW 71. Brass Pack Joint Male Adapter (HDPE) - Lead Free

Approved Products/Manufacturers:

- (1) Ford C84-NL (-44, -46, -66, -77, -36-AWT)
- (2) Mueller P-15428N (1-1/2 x 1), (1-1/2), (1), (3/4)
- (3) AY McDonald 74753-22 (1-1/2 x 1), (1-1/2), (1), (3/4)

PW 72. DELETED

PW 73. Brass Corporation Stop Valve – (HDPE: CTS) Lead Free – Compression/Pack Joint Outlet, Tee Head, Iron Pipe Thread)

Approved Products/Manufacturers:

- (1) Ford FB 1100-6-TA-NL
- (2) Mueller P-25028N-38
- (3) AY McDonald 74104B-22 (1-1/2), (2)

PW 74. Curb Stop with Pack Joints (HDPE: CTS x CTS) – Lead Free

Approved Products/Manufacturers:

- (1) Ford B44-NL (-333, -444, -666, -777)
- (2) Mueller P-25146N -38 (3/4), (1-1/2), (2)
- (3) AY McDonald 76100W22 (3/4), (1), (1-1/2), (2)

PW 75. Pack Joint Coupling (HDPE: CTS x CTS), Lead Free

Approved Products/Manufacturers:

A. Straight Coupling

- (1) Ford C44-NL (-33, -44, -46, -66, -77)
- (2) Mueller P-15403N (3/4, 1, 1 x 1-1/2, 1-1/2, 2)
- (3) AY McDonald 74758-22 (3/4), (1), (1 x 1-1/2”), (1-1/2), (2)

B. Ell Coupling

- (1) Ford L44-NL (-33, -44, -66, -77)
- (2) Mueller P-15526N
- (3) AY McDonald 74761-22 (3/4), (1), (1-1/2),

PW 76. Pack Joint Couplings (HDPE: CTS x PVC) - Lead Free

Approved Products/Manufacturers:

- (1) Ford C47-NL (-33, -44, -66, -77)
- (2) Mueller V-15441N (3/4, 1, 1-1/2, 2)

- (3) AY McDonald 74758-22-44 (3/4, 1, 1-1/2, 2)

PW 77. HDPE Service Fittings (Couplings, Repair Couplings, Brass Adaptor Couplings, Blind End Stubs and Caps, Shut-off Valves with Coupling Outlets) (HDPE: CTS – SDR9)

Approved Products/Manufacturers:

- (1) Elster Perfection: Hydrosert

PW 78. Brass 90 Degree Elbow (FTP x FTP)

Approved Products/Manufacturers:

A. Lead Free

- (1) AY McDonald 72290 (3/4), (1)
- (2) Merit Brass NL101 (3/4), (1)
- (3) Lee Brass 60235 LF

PW 79. Heavy Duty Water Meter Boxes (ANSI Tier 15 Load Rating Minimum)

A. Single Service (5/8” x 3/4” meters)

- (1) GlasMasters J111812S2N15-1
- (2) CDR B04111812A

B. Double Service (5/8” x 3/4” meters)

- (1) GlasMasters J151712S2N15-1
- (2) CDR B04151712A

C. Single Service (1” meter)

- (1) GlasMasters S132412S2N15-1
- (2) CDR B04132412A

D. Single Service (1 1/2” , 2” meters)

- (1) GlasMasters S173012S2N15-1
- (2) CDR B04173012A

E. Single Service (3”, 4”, 6” meters)

- (1) GlasMasters S173018S2N15-1
- (2) CDR B04173018A

PW 80. Valve Box Lid for 4 1/4” Corporation Stop Boxes (Heavy Weight, 4” Skirt, Labeled “SERVICE”)

Approved Products/Manufacturers:

- (1) Bingham/Taylor
CUL4LHV5SKSVC

PW 81. Automatic Flushing Assembly (Battery powered)

Approved Products/Manufacturers:

- (1) Mueller Hydroguard HG-6 Signature (to be bolted to a 4' by 3' by 5" Reinforced Concrete Pad)
- (2) Mueller Hydroguard HG-1 Basic S, with integrated controller and pad lock wings, Part

#HG1BSSI02000NFPVC00

Note: HG-6, Assembly to be bolted to a 4' x 3' concrete pad (min. 5" thick, with reinforcement)

PW 82. Brass Yoke Angle Curb Stop (Compression PVC x Yoke)

- (1) AY McDonald 74602 BY-44 (3/4", 1")
- (2) Mueller V-25103-N -38

PW 83. Brass Quarter Bend Yoke x FIPT

Approved Products/Manufacturers:

- (1) AY McDonald 74779FY (3/4" x 02, 1" x 04)

PW 84. End Seal for Casing/Carrier Pipe Installation

New Products/Manufacturers

A. New Pipe Installation (Min. 1/8" thick Neoprene, preassembled, with Stainless Steel bands, sized to match application):

- (1) GPT Model C

B. Retrofit End Seal Installation (Min. 1/8" thick Neoprene, with Stainless Steel bands, sized to match application):

- (1) GPT Model "W"

2. WASTEWATER SYSTEM

WW 1. Ductile Iron Pipe

Approved Products/Manufacturers for flanged, push-on and mechanical joint pipe (Force main pipe shall be color-coded (striped) with APWA green paint)

Approved Products/Manufacturers:

- (1) American Cast Iron Pipe Company
- (2) U.S. Pipe
- (3) McWane Ductile (Atlantic States, McWane, Pacific States, Clow Water Systems)

Approved Products/Manufacturers for flexible joint restraint pipe:

- (1) American – Flex-Ring, Lok Ring; push-on joint pipe with Armadillo Fast Grip Gasket (sizes 4”- 24”)
- (2) US Pipe – TR Flex; push-on joint pipe with Field Lok 350 Gasket (sizes 4”- 24”) - Bolt Lok
- (3) McWane Corporation – TR FLEX

Non Flanged Pipe Size	Minimum Pressure Class	Minimum Special Thickness Class
3", 4"	350	51
6"-16"	350	50
20"	300	50
24"	250	50
30" and larger	200	50

Minimum Special Thickness Class 53 is required for flanged pipe. Pipe must be ceramic epoxy lined with ‘PROTECTO 401’, or ‘PERMITE 9043 type 2” or Permax CTF. The lining must be factory applied and warranted by the pipe manufacturer. Toruseal or Flange-Tyte gaskets are required for flanged pipe.

Approved Fabricators for “Flanged” pipe:

- ASAP Fabrication, Inc. (1-813-752-1999)
- US Pipe Fabrication Inc. (1-866-347-7473)

Note: The Fabricators must use pipe supplied by approved manufacturers.

WW 2. Polyvinyl Chloride (PVC) Pressure Pipe (Pipe to be color-coded green)

Approved Products/Manufacturers:

- A. Push-on Joint Pipe, AWWA C900, SDR-18, 235 psi min, and AWWA C-905, SDR-25 min., 165 psi, (14”- 24”) NSF 61:
 - (1) JM Manufacturing Company*
 - (2) Diamond Plastic Corporation*
 - (3) CertainTeed*
 - (4) North American Pipe Corp.
 - (5) IPEX, Inc.**

- (6) National Pipe and Plastics
- (7) Sanderson Pipe**

* No Pipe deflection at the joint allowed
 ** Up to two (2) degrees deflection at pipe joint allowed.

B. Restrained Joint PVC Pipe, C900/C905, SDR 18 min., NSF61.

B1. Non-Metalic Modular Joint Restraint Design
 (1) Certain Teed Certalok

B2. Belle Integrated Metalic Ring Restraint Design
 (1) JM Eagle Lok

B3. Joint Free Restraint Piping System
 (1) Underground Solutions Fusible PVC Pipe

C. Service Pipe Up to 6” PVC SCH 40 (White or Green), SCH 80 (White or Grey), NSF61
 (1) Heritage Plastics South Inc.
 (2) JM Manufacturing Company
 (3) Accord Industries/Universal 100 Products
 (4) Charlotte Pipe and Foundry Company

WW 3. Exposed Steel Pipe (A53 Grade B, ERW, minimum 0.500” wall thickness, AWWA C200; flange shall be Class D per AWWA C204. Interior shall be lined with Permite 9043 Type II. Exterior shall be: Primer 3 mils Tnemec Zinc 90-97, intermediate 4-6 mils Tnemec 66, top coat 2 mils Tnemec 1074 (black with green stripes).

Approved Products/Manufacturers:

- (1) US Pipe Fabrication

WW 4. High Density Polyethylene (HDPE) pipe and tubing

Approved Products/Manufacturers:

A. Fusible HDPE, PE4710, AWWA C906; Pipes shall be color-coded black with green stripes, minimum 40 feet standard lengths, DR 11 minimum, DIPS Size, 3” and larger

Approved Products Manufactures:

- (1) CP Chem
- (2) JM Manufacturing Company
- (3) IPEX, Inc.
- (4) Polypipe By Dura-Line
- (5) KWH Pipe by Uponor Infra Ltd

B. High Density Polythylene (HDPE) Tubing (PE3408/3608), CTS, DR9, AWWA C901, up to 2” size

Approved Products/Manufacturers:

- (1) Charter Plastics, Inc.
- (2) Endot Industries, Inc.
- (3) JM Manufacturing Company

WW 5. PVC Cement (Certified for both Schedules 40 and Schedule 80)

Approved Products/Manufacturers:

A. Plumbing Applications

- (1) Harvey's Wet Set PVC Cement #018430
- (2) Christy's Red Hot Blue Glue
- (3) WHITLAM Weatherproof Blue All Weather Low VOC Medium Body Cement

B. Electrical Conduit Applications (medium body clear cement)

- (1) Oatey 31008
- (2) Harey's 018280-12

WW 6. Thread Sealant

Approved Products/Manufacturers:

- (1) E-Z Weld 777 by Fry Technology
- (2) Pipe Fit, FPPI
- (3) Teflon Tape (all manufacturers)

WW 7. Polyvinyl Chloride (PVC) Gravity Mains and Laterals Pipe (Color: Green), ASTM-3034, SDR-26 Pipe within Wellfield Protection Zones 1 & 2 must meet the requirements of C-900, SDR-18, and 150 psi.

Approved Products/Manufacturers:

- (1) JM Manufacturing Company
- (2) Diamond
- (3) North American Pipe Corp.
- (4) National Pipe and Plastics, Inc.
- (5) Accord Industries

WW 8. Gate Valves (AWWA C509, C515, Ductile Iron Body)

Approved Products/Manufacturers:

- (1) Mueller 2361, 2362
- (2) American Series 2500 (MM, FF)
- (3) Kennedy Ken-Seal II
- (4) M & H 4067
- (5) Clow F-6100, F-6102

WW 9. Eccentric Plug Valves, AWWA C517, (Requires approval by PBCWUD during design process), Quarter Turn, min. 79% Port Area, Worm Gear Required for 10" and larger, Fusion Bonded Epoxy Inside and Outside, Ductile Iron Body, Nickel Seat Weld, Ductile Iron Plug Encapsulated with Bura-N Rubber, Bi-Directional Shutoff.

Approved Products/Manufacturers:

- (1) Clow
- (2) Pratt/Milliken
- (3) Dezurik
- (4) GA Industries

WW 10. Combination Air Release Valves (Min. 2" required)

Approved Products/Manufacturers:

- (1) H-Tec 986-01 (Aerial Crossings)
- (2) ARI D-025 NPT (For use in vaults and manholes)
- (3) Valmatic 49A, 49A.2 (Fusion Bonded Epoxy Coating inside and out; Iron Body with SS Bolts, 316 SS Trim) (For use in vaults and manholes)
- (4) H-Tec (For use in vaults and manholes)

WW 11. Tapping Valves (AWWA C509, C515, Ductile Iron Body)

Approved Products/Manufacturers:

- (1) American 2500TM
- (2) Mueller T-2361, T-2362
- (3) US Pipe Metroseal Tusp 1, Tusp 2
- (4) M & H 4751-NRS
- (5) Clow F-6114

WW 12. Ductile Iron Body Check Valves; AWWA C508; (Lever and Weight, Lever and Air Cushion, Level and Spring), Full Port, Fusion Bonded Epoxy inside and Outside, Stainless Steel Body Seat.

Approved Products/Manufacturers:

- (1) M & H 159-02
- (2) Mueller 2600-6-01
- (3) Kennedy 106LW
- (4) Clow 5382
- (5) American 50SC (lever & weight)

Valves larger than 24" shall be rated min. 200 psi.

WW 13. Screw Type (2) Piece Valve Boxes

Approved Products/Manufacturers:

- (1) East Jordan Iron Works 8550
- (2) Bingham/Taylor 4905
- (3) SIGMA Corp. - Ductile Iron only - Top VB2611-D, Bottom VB2612-D

**WW 14. Valve Box Lids (marked "Sewer")
Minimum weight 24 lbs, 4" skirt**

Approved Products/Manufacturers:

- (1) East Jordan Ironworks 0680045
- (2) Bingham Taylor 4906
- (3) SIGMA Corp. - Ductile Iron only - VB2600S-D

WW 15. Valve Stem Extension (Carbon Steel, Hot Dip Galvanized with Centering Ring and Stainless Steel Set Screws)

Approved Products/Manufacturers:

- (1) Custom Fab
- (2) Trumbull Industries

WW 16. Mechanical Joint Ductile Iron Tapping Sleeves (Ceramic epoxy lined)

Approved Products/Manufacturers:

- (1) American 2800 Series
- (2) Mueller H-615
- (3) US Pipe MJ

WW 17. Tapping Sleeves (Taps 4" and Larger)

Approved Products/Manufacturers:

- A. Stainless Steel Body, Flange and Hardware
- (1) Dresser 630
 - (2) Ford FTSS
 - (3) Cascade CST-EX
 - (4) JCM 432, 452
 - (5) Power Seal Model 3490
 - (6) Smith Blair 663

WW 18. Mechanical Joint Restraining Devices

Approved Products/Manufacturers:

- A. Solid Design for D.I. Pipe
- (1) EBAA Iron Megalug 1100
 - (2) Sigma One-Lock SLDE
 - (3) Uniflange (Ford) Series 1500
 - (4) Star Grip Series 4000 (up to 16")
- B. Solid Ring Design for PVC Pipe
- (1) EBAA Iron Megalug 2000 PV
 - (2) Sigma One-Lock SLDE
 - (3) Uniflange (Ford) Series 1500

- (4) Star Grip Series 4000 (up to 16")
- C. Solid Ring Design for HDPE pipe up to 12" (required stainless steel stiffening insert)
- (1) EBAA Iron Megalug 2000 PV
 - (2) Uniflange (Ford) Series 1500

- D. Split Ring Design for D.I. Pipe
- (1) EBAA Iron Megalug 1100-SD
 - (2) Sigma One-Lok SSLD
 - (3) Star Grip Series 3000 (up to 16")

- E. Split Ring Design for PVC Pipe
- (1) EBAA Iron Megalug 2000 SV

- F. Split Ring Design for HDPE Pipe up to 8" (required stainless steel stiffening insert)
- (1) EBAA Iron Megalug 2000 SV

WW 19. Pressure Pipe Bell Restraint (Bellside ring without serrations; rods, and nuts to be stainless steel 304 with nuts coated to prevent galling; split ring design shall be used if available)

Approved Products/Manufacturers:

- A. Split Ring Design for DI Pipe
- (1) EBAA IRON Series 1600 TD
 - (2) EBAA IRON Series 1100 HD
 - (3) SIGMA One-Lok Series SSLDH
- B. Split Ring Design for PVC Pipe
- (1) EBAA IRON Series 1600 TD
 - (2) EBAA IRON Series 1600
 - (3) EBAA Iron Series 1100 HV
 - (4) SIGMA PV Lok Series PWH
 - (5) Ford Uni-Flange UFR 1355-C-X

- C. Solid Ring Design for DI Pipe
- (1) EBAA Iron Series 1700
 - (2) SIGMA One-Lok Series SLDEH
 - (3) Ford Uni-Flange 1450-X

- D. Solid Ring Design for PVC Pipe
- (1) EBAA Iron Series 2800
 - (2) SIGMA One Lok Series SLCEH
 - (3) Ford Unit-Flange 1350-X

WW 20. Pressure Pipe Bell Joint Leak Clamps

Approved Products/Manufacturers:

- (1) Smith Blair Type 274 (stainless steel Type 304 bolts and nuts; nuts coated to prevent galling)
 - (2) Ford Style FBC (SS nuts and bolts)
 - (3) Romac Style 516 (stainless steel Type 304 bolts and nuts; nuts coated to prevent galling)
- Note:** Split Ductile Iron Rings required. Buna-N gasket required. Longer bolts required for PVC pipe.

WW 21. Ductile Iron Restrained Flange Adapters

Approved Products/Manufacturers:

- (1) EBAA Iron 2100 Megaflange Hardware coated with Megabond
- (2) Smith Blair 912 (stainless steel Type 304 bolts and nuts; nuts coated to prevent galling) (restraint with anchor studs)
- (3) Power Seal Model 3521- Stainless Steel Hardware, with anchor studs

WW 22. Ductile Iron Fittings

Approved Products/Manufacturers:

A. Both ends mechanical joints and flanged joints

- (1) Tyler
- (2) US Pipe/Metalfit
- (3) American
- (4) Union Foundry
- (5) Star
- (6) Sigma
- (7) Clow

B. Flexible Restraint Fittings

- (1) American – Flex Ring, Lok Ring
- (2) US Pipe/Metalfit – TR Flex - Bolt Lok
- (3) McWane Corporation – Super Lock

C. Welded on Outlet Tees for pipes larger than 24” non-flanged pipe. The welded on branch size shall not exceed ½ of the main pipe size. Welding shall be performed and tested by the pipe manufacturer.

- (1) American
- 2) US Pipe

AWWA C-110, AWWA C-153 “bare” ductile iron fittings must be ceramic epoxy lined with “Protector 401” or “Permite 9043 Type 2” OR lined with “Polybond Plus or “PERMOX CTF.” The lining must be factory applied and/or warranted by the fitting manufacturer. Toruseal or Flange-Tyte gaskets are required for flanged fittings.

WW 23. Follower Glands

Approved Products/Manufacturers:

- (1) Tyler
- (2) US Pipe

WW 24. Casing Pipe Spacers

Approved Products/Manufacturers:

- (1) Cascade
- (2) APS Spacing System
- (3) RACI
- (4) BWM

WW 25. Pipe Adapter Couplings (for use on existing facilities)

Approved Products/Manufacturers:

- (1) Fernco
- (2) Indiana Sea
- (3) Atlas
- (4) HARCO

WW 26. Pipe Transition Couplings - SDR-35/SDR 26 PVC to DIP or to PVC C900

Approved Products/Manufacturers:

- (1) Harco
- (2) Flow Control
- (3) NYOPLS
- (4) WAGER

WW 27. Corporation Stops with T-Head, MIP x MIP, (3/4, 1, 1-1/2, 2)

Approved Products/Manufacturers:

- (1) Ford FB500-TA
- (2) AY McDonald 4104BP
- (3) Mueller B-20013-10-38, B-2960-10 -38

WW 28. Corporation Stops for ARV and Pressure Gauge Installations (MIP & MIP)

Approved Products/Manufacturers:

- (1) Ford FB 500
- (2) AY McDonald 3131 B
- (3) Mueller B-2969 -38, B-20013 -38

WW 29. Service Saddles/Sleeves (up to 2” Tap Size) – Iron Pipe Thread

Approved Products/Manufacturers:

- A. Ductile Iron Body, Double Steel Bales (up to 16”)**
- (1) JCM 408
 - (2) Smith Blair 313
 - (3) Ford FC202 (Epoxy-coated)
 - (4) Romac 202 NU
 - (5) AY McDonald 4826A

B. Ductile Iron Body Double Stainless Steel Straps

- (1) JCM 406
- (2) Smith Blair 317
- (3) Ford FCD 202
- (4) Romac 202 NS (up to 16”, pre-approval required)
- (5) Power Seal 3417 DI
- (6) AY McDonald 4855A

C. Epoxy-coated Steel Body Threaded Outlet Tapping Sleeves, Stainless Steel Hardware Required (Larger than 16", Pre-approval Required)

- (1) JCM 418
- (2) Romac FTS420T

D. Stainless Steel Body Threaded Outlet Tapping Sleeves (Larger than 16")

- (1) JCM 438
- (2) Smith Blair 372

WW 30. Manhole Adjustment Rings

Approved Products/Manufacturers:

A. Existing Manholes only, (max. 4" height adjustment)

- (1) Manhole Systems MS-101
- (2) Roblyn Series 2300, 2400
- (3) EJ Corp. (Andrews Metal Style) M2-A, M5-A

B. New manholes, max 12" total ring height

(1) Brick chimney, field installed (2-5 courses of bricks) (for field-applied corrosion barrier systems).

(2) Precast reinforced concrete rings (4,000psi), field-installed forecast-in liner and for field-applied corrosion barrier systems

Approved Products/Manufacturers:

- (1) Tri-County
- (2) U.S. Precast
- (3) US Concrete Products

WW 31. Manhole Frame and Cover (Gravity Sewer) – 7" Casting Standard, 4" Casting Must be Preapproved (Lid with PBC Logo required for all PBCWUD Manholes)

Approved Products/Manufacturers:

A. Casting frame 4" High:

- (1) U.S. Foundry 465KD
- (2) EJ Corp. V1144-2

B. Casting frame 7" High

- (1) US Foundry 420 KD
- (2) EJ Corp. 1072 Series (Frame EJ 1072 Z, Lid EJ 1072 A1)

Note: Lids must be machined to accept inflow protectors.

WW 32. Rigid Manhole to PVC Pipe Connectors ("Sand Collar")

Approved Products/Manufacturers:

- 1) Harco SDR 35

WW 33. Manhole Flexible Pipe Connector Sleeves (Cast-in)

Approved Products/Manufacturers:

- (1) Press-Seal Gasket Corp: Cast-a-Seal 12-08 (for PVC SDR Pipe; PVC C900 and D.I. Pipe in structures without Cast-in liner)
- (2) A-LOCK Products Inc: sealing gasket for lower invert in outside drop manholes with Cast-in liner
- (3) Cast-A-Seal (for PVC C900 and D.I. Pipe)

WW 34. Manhole Flexible Pipe Connector Sleeves (for use in structures with Cast-in liners and Cast-in "turn-back").

Approved Manufacturer:

- (1) Press-Seal Gasket Corp: PSX Direct Drive 12 M Boot (Double ridge sleeve with two stainless steel bands)
- (2) NPC Trelleborg Kor-N-Seal I 10B Series

WW 35. Manhole Inflow Protectors

Approved Products/Manufacturers:

- (1) Southwestern Packing and Seals "Rainstopper PBC-1"
- (2) L.F. Manufacturing, Inc. "Rain Guard LFN-SV"
- (3) Knutson Enterprises Manhole Insert
- (4) USSI – "Inflow Defender SV-1"

Note: All Protectors must have Stiffening Ribs; Sealing Gasket and pre-approved valve design.

WW 36. Paint for Exposed Ductile Iron Pipe and Fittings (Exposed D.I. Pipe and Fittings to be shop painted with red oxide primer) – Black with Green Stripes

Approved Products/Manufacturers:

A. Moderate Exposure

(1) SunTec – Primer 801 Rustking, Top Coat – 860A Rustking Acrylic Gloss (Black), (2) coats at 3 mils each.

(2) Sherwin Williams Targuard Low VOC Coal Epoxy with Reducer R7K111; two coats at 8-16 mils per coat, 50% overlap with each pass.

B. Severe Exposure

- (1) Tnemec-Primer Zinc Series 90-97 (3 mils DFT) - Intermediate: Epoxoline II Series N69 (2 coats, 6 mils DFT/coat)
- Top Coat: EnduraShield II Series 1074 (2 coats, 3 mils DFT/coat)

WW 37. Detectable Marking Tape for Force Mains

Approved Products/Manufacturers:

- (1) Empire Level Mfg., Corp. "MagnaTec"
 - (2) T. Christy Enterprises TA-TD-6-BRFM
 - (3) Pro-Line Safety Products
- Detectable brown mylar tape 6" wide imprinted with the following in 2" high lettering: "**CAUTION-FORCE MAIN BELOW**". The wording shall occur every 3 feet.

WW 38. Sewer Lift Station Submersible Pumps

Approved Products/Manufacturers:

- (1) Flygt
- (2) WILO-EMU
- (3) HOMA (up to 60 HP)

Note: Must comply with NEC Class 1, Group D, Division 1; Five Year Warranty Begins at Lift Station Start Up

WW 39. Remote Telemetry Units (PLC Based) – (Panel shop UL Approved)

Approved Products/Manufacturers:

- (1) Curry Controls PBCRTU2015
- (2) ESC PBCRTU2015
- (3) AES PBCRTU2015
- (4) CC Control PBCRTU2015
- (5) Unitron PBCRTU 2015
- (6) Champion Control PBCRTU 2015

WW 40. Corrosion Barrier System for Concrete Structure

A. Approved Products/Manufacturers for field applied systems

- (1) Madewell Corp. Mainstay System (ML-10 hydraulic cement mortar, ML-72 microsilica mortar, DS-5 epoxy)
- (2) SewperCoat by Kerneos
- (3) Strong Seal High Performance Mix
- (4) REFRATTA HAC 100 by Global Materials Company

B. Approved Products/Manufacturers for cast-in Solid Liners.

- (1) Agru SURE-GRIP Polypropylene liner with 3M sealant tape 5354 and ADEKA P-201 Waterstop

- (2) Agru SURE-GRIP HDPE Liner with 3M sealant tape 5354 and Adeka P-201 Waterstop
- (3) GU Systems of Florida, LLC: GU Liner System (Polypropylene Sealplate Wall Liner, Cone Liner (PP or FRP construction) and optional manhole base liner (PP or FRP) with 3M sealant tape 5354 and Adeka P-201 Waterstop

C. Approved Products/Manufacturers for field installed Thermo-Plastic Liner Systems

- (1) Agru SURE-GRIP HDPE Liner with ADEKA P-201 Waterstop

WW41. Cleanout Castings

Approved Products/Manufacturers:

- (1) U.S. Foundry No. 7621
- (2) SIGMA C-762

WW 42. Lift Station Control Panel and Electrical Components (UL Shop Listing Required) Refer to standard details.

Approved Products and Manufacturers:

- (1) Engineer Service Corp
- (2) CC Controls
- (3) Atlantic Environmental Systems
- (4) Unitron Controls
- (5) Curry Controls
- (6) Champion Controls

WW 43. Standard Aluminum Access Cover (Channel Frame Design, Spring Lift Assists)

Approved Products/Manufacturers:

- A. Rated 300 lbs
 - (1) Halliday Products W1S, W2S
 - (2) USF Fabrication TPS 300, TPD 300
 - (3) BILCO Type J-AL, JD-AL
- B. Rated H-20 for off-street locations
 - (1) Halliday Products H1WS, H2W
 - (2) USF Fabrication THS, THD
 - (3) BILCO Type JAL-H20, JDAL- H20

WW 44. Flexible Manhole/Pipe Connector

Approved Products/Manufacturers:

- (1) PSI-Link Seal by GPT

WW 45. Root Barrier System

Approved Products/Manufacturers:

- (1) Bio-Barrier
- (2) DeepRoot UB36-2, UB48-2

WW 46. Fall Protection Systems

Approved Products/Manufacturers:

- (1) Halliday Products Protective Grating Panel
- (2) USF Fabrication Hinged Hatch Safety Grate

WW 47. External Manhole Joint Seal

Approved Products/Manufacturers:

- (1) Marmac Inc. Cretex Wrap
- (2) Canusa WrapadSeal

WW 48. Line Stop Tapping Sleeve

Approved Products/Manufacturers:

- (1) JCM 440

WW 49. HDPE/DIP Electrofusion couplings, fittings

Approved Products/Manufacturers:

- (1) Central Plastic Company
- (2) IPEX Friatec

WW 50. HDPE/DIP MJ Adapter

Approved Products/Manufacturers:

- (1) Independent Pipe Products, Inc.
- (2) Improved Piping Products, Inc.
- (3) Central Plastics

WW 51. PVC Fittings (Up to 2")

Approved Products/Manufacturers:

- (1) Lasco
- (2) NIBCO
- (3) Spear
- (4) Charlotte

WW 52. PVC Fittings (Gravity Mains and Laterals), ASTM 3034 SDR 35.

Approved Products/Manufacturers:

- (1) Harco Harrington Corp.
- (2) Tigre S/A
- (3) Multi Fittings Corp.
- (4) Royal Building Products G- Series

WW 53. Portable Trailer Mounted Generator Set (56 KW – 400 KW) (see specifications for required features)

Approved Products/Manufacturers:

- (1) Tradewinds Corp: TP/TJ (size 56-400)
- PBC
- (2A) Magnum Power Products: MMG (size 75-405) – PBC

(2B) Generac Branded Units from Magnum Power Products (must include a certificate of authenticity and conformity)

(3) Baldor Electric: TS (size 80T-350T) – PBC
Note: Electrical connectors for power outlets and trailer plug must be compatible with PBCWUD equipment. Battery shut-off switch is required.

WW 54. Ultrasonic Level Transducer (with Stainless Steel Mounting Bracket)

Approved Products/Manufacturers:

- (1) Pulsar dB-10 with Black Box 130

WW 55. Above Ground Utility Markers

Approved Products/Manufacturers:

A. Canal Crossings:

- (1) Rocal, Inc. #RI-4PLPC 12-6

B. Miscellaneous Locations:

(1) Rhino Marking & Protection Systems, Inc.: Triview Marker Post, color coded with decals.

(2) Rhino Marking & Protection Systems, Inc, Rhino 3-Rail (66"), color coded with decals.

WW 56. Fabricated Manhole Flow Channels

Approved Products/Manufacturers:

A. Concrete

- (1) Tri County
- (2) US Precast

B. Fiberglass/Polypropylene Cast-In Base Liner

- (1) GU Liner Systems

WW 57. Hydrophilic Waterstop

Approved Products/Manufacturers:

- (1) Adeka P-201 Ultra Seal (Min. 3/8" Bead)

WW 58. Manhole Ring and Cover (ARV)

Approved Products/Manufacturers:

- (1) US Foundry 690-AH-M
- (2) US Foundry USF 751 (Ductile Iron, 32")
- (3) Pamrex (Ductile Iron, 32")

Note: Manholes shall be marked: "Sewer ARV"

WW 59. Aluminum Vault Frame and Cover (for ARV)

Approved Products/Manufacturers:

- (1) US Foundry AHS or AHD
- (2) Bilco J or JD (H-20)

WW 60. Grease Trap (Point of Use Type)

Approved Products/Manufacturers:

- (1) Zurn 1170 RE-HD Model 800
- (2) Approved Equal

Note: Facilities with total flow rates larger than 25 gpm require the installation of a minimum 750 gallon Oil/Grease Interceptor.

WW 61. Wedge Anchors for Pump Base Elbows (316 Stainless Steel, Minimum ¾" x 10", Minimum 2" thread length, Top of bolt permanently coded)

Approved Products/Manufacturers:

- (1) Hilti Kwik Bolt 3, 316 SS, ¾" x 10"
(Marked "R", Torque 150 ft/lbs)
- (2) Simpson Strong-Tie WA751003 SS
(Marked "R", Torque 150 ft/lbs)

WW 62. Lift Station Base Elbow Insert

Approved Products/Manufacturers:

- (1) WILO EMU: Elbow Saver #2710169, 2710080

WW 63. Meter Box and lid for Force Main Flushing Connection (Tier 8 Load Category Minimum per Ansi/SCTE77)

Approved Products/Manufacturers:

- (1) CDR: Box B0317302A Lid: C00173002

Note: Box lid shall be without reader lid.

WW 64. Insertion Valve (AWWA C515 Wedge to seal against valve body) – Ductile Iron Body, Resilient Seat Gate, MJ Type End Restraints

Approved Products/Manufacturers:

- (1) Team INSERT VALVE
(Occlude)

WW 65. Stainless Steel Stiffeners for HDPE Pipe Joint Restraint

Approved Products/Manufacturers:

- (1) Cascade
- (2) JCM
- (3) Romac

WW 66. Sewer Pump Station Back up Pumping/Power/Control Unit (Critical Silenced, Diesel Powered, 6" Pump Size, Trailer Mounted, 30 Feet Suction and 30 Feet Discharge 4" Diameter Hoses, (2) 6" x 4" Hose Adapters, Self Priming (No Water Adding Required to Operate), 4" Discharge Female Camlok/Male Hose Adapter, Enclosure Doors with a Clasp for a Padlock, Integrated Battery Disconnect, Double wall tank, DOT Trailer, Vacuum Assisted, Steel Frame and Tank Coated with RHINO or Equal, Aluminum Enclosure, Overall Length less than 15 feet (unless preapproved otherwise)

Approved Products/Manufacturers:

- (1) Godwin Pumps (CD 150 or larger, with Primeguard Control Panel)
- (2) Thompson Pumps

Note: Trailer plug connector must be compatible with PBC WUD equipment. Unit size must be preapproved. See also written specifications.

WW 67. Directional Drill Tracer Wire (APWA Color Coded Green, AWG #12 Min.)

Approved Products/Manufacturers:

- (1) Copperhead 1245 EHS
- (2) Pro-Line Safety Products: Pro-Trace HD-CC & PE45

WW 68. Identification Paint for Buried DIP Force Main (APWA Green Stripes)

Approved Products/Manufacturers:

- (1) Induron Aquanaut (min. 8 mils WFT)

WW 69. Force Main Flow Through Isolation Valve for Pressure Monitoring (1/2" Stainless Steel Body)

Approved Products/Manufacturers:

- (1) Red Valve Series 742
- (2) WIKA
- (3) Endress and Hauser

WW 70. Stainless Steel Stiffening Insert for HDPE Tubing

Approved Products/Manufacturers:

- (1) Ford
- (2) Mueller
- (3) AY McDonald

WW 71. Sealant Gasket for Concrete Structure

Joints

Approved Products/Manufacturers:

A. Concrete Structures without Cast-in Liner

- (1) Henry Company Ramnek RN103/RN101
- (2) Concrete Sealants Inc. Con Seal CS102B

B. Concrete Structures with Cast-in Liner

B1. Liner Turn Back Seal and Vertical Seal Riser

- (1) Henry Company Rubr Nek LTM RU106
- (2) Concrete Sealants Inc. Con Seal CS 102
- (3) Press-Seal EZ Stik Premium Butyl Joint Sealant

B2. Vertical Riser Seal

- (1) Henry Company Ramnek RN103/RN101
- (2) Concrete Sealants Inc. Con Seal CS102B

WW 72. Primer for Concrete Structure Joints (to be applied by precaster)

Approved Products/Manufacturers:

- (1) Henry Company Synko-Flex SF 311
- (2) Concrete Sealants Inc. Con Seal CS-50
- (3) Press-Seal EZ-Stik #4 Primer

WW 73. Soft Starters (SSRVS) with Integral Bypass and Fan (Required for pumps 20 Hp and larger)

Approved Products/Manufacturers:

- (1) Square D ATS 22D88S6U

WW 74. Lift Station Service Entrance Fused Disconnect Switch

Approved Products/Manufacturers:

- (1) Square D H363NS

WW 75. Service Fuse for Disconnect Switch (600 V, Dual Element, Time Delay Fuses Class RK1)

Approved Products/Manufacturers:

- (1) Bussmann LPS-RK

WW 76. End Seal for Casing/Carrier Pipe Installation

New Products/Manufacturers

A. New Pipe Installation (Min. 1/8" thick Neoprene, preassembled, with Stainless Steel bands, sized to match application):

- (1) GPT Model C

B. Retrofit End Seal Installation (Min. 1/8" thick Neoprene, with Stainless Steel bands, sized to match application):

- (1) GPT Model "W"

WW 77. Radar Level Transmitter

Approved Products/Manufacturers

- (1) VEGA
- (2) E + H FMR 20

3. RECLAIMED WATER SYSTEM

RW 1. Ductile Iron Pipe

Approved Products/Manufacturers for push-on and mechanical joint pipe:

- (1) American Cast Iron Pipe Company
- (2) U.S. Pipe
- (3) McWane Ductile (Atlantic States, McWane, Pacific States, Clow Water Systems)

Approved Products/Manufacturers for flexible joint restraint pipe:

- (1) American – Flex-Ring, Lok Ring; push-on joint pipe with Armadillo Fast Grip Gasket (sizes 4”-24”)
- (2) US Pipe – TR Flex; push-on joint pipe with Field Lok 350 Gasket (sizes 4”-24”) - Bolt Lok
- (3) McWane Corporation– TR FLEX
- (4) Griffin – Snap Lok, Bolt Lok

Approved Fabrications for “Flanged” pipe:

- ASAP Fabrication Inc. (1-813-752-1999)
- US Pipe Fabrication Inc. (1-866-347-7473)

Note: The Fabricators must use pipe supplied by approved manufacturers.

Non-Flanged Pipe Size	Minimum Pressure Class	Minimum Special Thickness Class
3", 4"	350	51
6"-16"	350	50
20"	300	50
24"	250	50
30" and larger	200	50

Pipe must be cement mortar lined per AWWA C-104/A21.50. Minimum Special Thickness Class 53 is required for flanged pipe. Toruseal or Flange-Tyte gaskets are required for flanged pipes.

RW 2. Polyvinyl Chloride (PVC) Pipe (Color: Purple)

Approved Products/Manufacturers:

- A. Push-on Joint Pipe, AWWA C-900, SDR-18 min, 235 psi min., and AWWA C905, SDR-25 min., 165 psi min., NSF 61:

- (1) JM Manufacturing Company*
- (2) Diamond Plastic Corp.*
- (3) CertainTeed*
- (4) NAPCO North American Pipe Corp.*
- (5) IPEX, Inc. **

- (6) National Pipe and Plastics
- (7) Sanderson Pipe**

* No Pipe deflection at the joint allowed.

** Up to two (2) degrees deflection at pipe joint allowed.

- B. Restrained Joint PVC Pipe, C900/C905, SDR 18 min., NSF61.

B1. Non-Metalic Modular Joint Restraint Design

- (1) Certain Teed Certalok

B2. Belle Integrated Metalic Ring Restraint Design

- (1) JM Eagle Lok

B3. Joint Free Restraint Piping System

- (1) Underground Solutions Fusible PVC Pipe

C. Service Pipe Up to 6”– PVC Schedule 40 and 80, NSF61

- (1) Heritage Plastics South Inc.
- (2) JM Manufacturing Company
- (3) Accord Industry
- (4) Charlotte Pipe and Foundry Company

RW 3. Exposed Steel Pipe (A53 Grade B, ERW, minimum 0.500” wall thickness, AWWA C200; flange shall be Class D per AWWA C204. Interior shall be lined with 7-11 mils DFT of Tnemec N-140 Pota-Pox Plus; Exterior coat: Tnemec 1074, 2 mils, color Pentone 522C, 2 coats.

Approved Products/Manufacturers:

- (1) US Pipe Fabrication

RW 4. High Density Polyethylene (HDPE) pipe and Tubing

Approved Products/Manufacturers:

- A. Fusible HDPE, PE 4710, AWWA C906; Pipes shall be color-coded purple, minimum 40 feet standard lengths, DR 11 minimum, DIPS Size, 3” and larger

- (1) CP Chem
- (2) JM Manufacturing Company
- (3) IPEX, Inc.
- (4) Polypipe by Dura-Line
- (5) KWH Pipe by Uponor Infra Ltd.

B. High Density Polyethylene (HDPE) Tubing (PE 3408/3608), CTS, DR9, AWWA C901 up to 2" size (purple or purple striped)

Approved Products/Manufacturers:

- (1) Charter Plastics, Inc.
- (2) ENDOT, Industries, Inc.
- (3) JM Manufacturing Company

RW 5. PVC Cement (Certified for both Schedule 40 and Schedule 80)

Approved Products/Manufacturers:

A. Plumbing Applicators:

- (1) Harvey's Wet Set PVC Cement #018430
- (2) Christy's Red Hot Blue Glue
- (3) WHITLAM Weatherproof Blue All Weather Low VOC Medium Body Cement

B. Electrical Conduit Applicators (Medium Body Clear Cement)

- (1) Oatey 31008
- (2) Harey's 018280-12

RW 6. Thread Sealant

Approved Products/Manufacturers:

- (1) E-Z Weld 777 by Fry Technology Pipe Fit, FPPI
- (2) Teflon Tape (all manufacturers)

RW 7. Gate Valves (AWWA C509, C515, Ductile Iron Body)

Approved Products/Manufacturers:

- (1) Mueller 2361, 2362
- (2) American 2500 (MM/FF)
- (3) Kennedy Ken-Seal II
- (4) M & H 4067
- (5) Clow F-6100
- (6) US Pipe Metroseal AUSP1, AUSP2

Minimum Pressure Class 200 is required for valves larger than 24"

RW 8. Butterfly Valves (AWWA C504)

Approved Products/Manufacturers:

- (1) Mueller Linesal III B3211
- (2) M & H 450
- (3) Pratt Groundhog
- (4) DeZurik 150B
- (5) Valmatic

Note: Worm Gears are required for valves larger than 16".

Minimum Pressure Class 200 is required for valves larger than 24"

RW 9. Combination Air Release Valves

Min. 1" ARV for pipes 4" – 16" Min. 2" ARV for pipes larger than 16" (Fusion Bonded Epoxy Interior and Exterior, Stainless Steel Bolts and Plugs)

Approved Products/Manufacturers:

- (1) Valmatic VM22.3 SV, VM 38.2 SV
- (2) Crispin
- (3) GA Industries Model 912,920
- (4) APCO

RW 10. Tapping Valves (AWWA C509, C515, D.I. Body)

Approved Products/Manufacturers:

- (1) American 2500 TM
- (2) Mueller T-2361, T-2362
- (3) US Pipe Metroseal
- (4) M & H 4751-NRS
- (5) Clow F-6114

Minimum Pressure Class 200 is required for valves larger than 24"

RW 11. Pack Joint Angle Single Check Valves – up to 1" (ASSE Approved)

Approved Products/Manufacturers:

- (1) Ford HA91-323, HA91-444
- (2) McDonald
- (3) Mueller

RW 12. Pack Joint Single Check Valves – for 1-1/2" and 2" meters (ASSE Approved)

Approved Products/Manufacturers:

- (1) Ford HS 11-777 HS 11-666
- (2) Mueller

RW 13. Check Valve for Reuse Water Services - 3" and larger (AWWA C508)

Approved Products/Manufacturers:

- (1) Valmatic Swing Flex Check Valve
- (2) APCO Rubber Flapper Swing Check

RW 14. Pack Joint Branch Valves

Approved Products/Manufacturers:

- (1) AY McDonald 08U4M (1½ x ¾ x 7.5);

RW 15. Mechanical Joint Ductile Iron Tapping Sleeve (Taps 4” and Larger)

Approved Products/Manufacturers:

- (1) American 2800 Series
- (2) Mueller H-615
- (3) US Pipe MJ

RW 16. Tapping Sleeves (Taps 4” and arger)

Approved Products/Manufacturers:

A. Stainless Steel Body, Flange and Hardware

- (1) Dresser 630
- (2) Ford FTSS
- (3) Cascade CST-EX
- (4) JCM 432, 452
- (5) Power Seal Model 3490
- (6) Smith Blair 663

B. Fabricated Epoxy-coated Steel Body and Flange with Stainless Steel Hardware (For Pipes Larger than 24”)

- (1) JCM 412
- (2) Smith-Blair 622
- (3) Powerseal 3460
- (4) Ford FTSC
- (5) Dresser 610
- (6) Cascade CFT-ESS, CFT-LP-ESS

RW 17. Mechanical Joint Restraining Devices

Approved Products/Manufacturers:

A. Solid Design for D.I. Pipe

- (1) EBBA Iron Megalug 1100
- (2) Sigma One-Lock SLDE
- (3) Uniflange (Ford) Series 1400
- (4) Star Grip Series 3000 (up to 16”)

B. Solid Ring Design for PVC Pipe

- (1) EBAA Iron Megalug 2000 PV
- (2) Sigma One-Lok SLCE
- (3) Uniflange (Ford) Series 1500
- (4) Star Grip Series 4000 (up to 16”)

C. Solid Ring Design for HDPE pipe up to 12” requires stainless steel stiffening insert)

- (1) EBAA Iron Megalug 2000 PV
- (2) Uniflange (Ford) Series 1500

D. Split Ring Design for D.I. Pipe

- (1) EBAA Iron Megalug 1100-SD
- (2) Sigma One-Lok SSLD
- (3) Start Grip Series 3000 S (up to 16”)

E. Split Ring Design for PVC Pip

- (1) EBAA Iron Megalug 2000 SV

F. Split Ring Design for HDP Pipe up to 8” (requires stainless steel stiffening insert)

- (1) EBAA Iron Megalug 2000 SV

RW 18. Pressure Pipe Bell Restraint (Bellside ring without serrations; rods, and nuts to be stainless steel 304 with nuts coated to prevent galling; split ring design shall be used if available)

Approved Products/Manufacturers:

A. Split Ring Design for DI Pipe

- (1) EBAA IRON Series 1600 TD
- (2) EBAA IRON Series 1100 HD
- (3) SIGMA One-Lok Series SSLDH

B. Split Ring Design for PVC Pipe

- (1) EBAA IRON Series 1600 TD
- (2) EBAA IRON Series 1600
- (3) EBAA Iron Series 1100 HV
- (4) SIGMA PV Lok Series PWH
- (5) FORD Uniflange UFR 1355-C-X

C. Solid Ring Design for DI Pipe

- (1) EBAA Iron Series 1700
- (2) SIGMA One-Lok Series SLDEH
- (3) Ford Uni-Flange 1450-X

D. Solid Ring Design For PVC Pipe

- (1) EBAA Iron Series 2800
- (2) SIGMA One Lok Series SLCEH
- (3) Ford Unit-Flange 1350-X

RW 19. Pressure Pipe Bell Joint Leak Clamps

Approved Products/Manufacturers:

- (1) Smith Blair Type 274 (stainless steel Type 304 bolts, SS Type 316 nuts or Type 304 stainless steel coated to prevent galling)
- (2) Ford Style FBC (SS nuts and bolts)
- (3) Romac Style 516 (stainless steel Type 304 bolts, SS Type 316 nuts or Type 304 stainless steel coated to prevent galling)

Note: Split Ductile Iron Rings required. Buna-N gasket required. Longer bolts required for PVC pipe.

RW 20. Restrained Ductile Iron Flange Adapters

Approved Products/Manufacturers:

- (1) EBAA Iron 2100 Megaflange Hardware coated with Megabond
- (2) Smith Blair 912 (SS 304 bolts and nuts; nuts coated to prevent galling) restraint with anchor studs
- (3) Power Seal Model 3521 –Stainless Steel Hardware, with anchor studs

RW 21. Flange Adapters - for 1 ½ and 2” meters

Approved Products/Manufacturers:

- (1) Ford CF31-77 (with slotted bolt holes)
- (2) McDonald 610 F
- (3) Mueller

RW 22. Ductile Iron Fittings

Approved Products/Manufacturers:

A. Both Ends Mechanical Joints and Flanged Joint fittings

Approved Products/Manufacturers:

- (1) Tyler
- (2) US Pipe/Metalfit
- (3) American
- (4) Union Foundry
- (5) Star
- (6) Sigma
- (7) Clow

B. Flexible Restraint Fittings

Approved Products/Manufacturers:

- (1) American – Flex Ring, Lok Ring
- (2) US Pipe/Metalfit – TR Flex Bolt Lok
- (3) McWane Corporation – Super Lock

C. Welded on Outlet Tees for pipes large than 24” non-flanged pipe. The welded on branch size shall not exceed ½ of the main pipe size. Welding shall be performed and tested by the pipe manufacturer.

Approved Products/Manufacturers:

- (1) American
- (2) US PIPE

Fittings must be ductile iron meeting the requirements of AWWA C-110, AWWA C-153 and must be cement mortar lined and sealed per AWWA C-104 or fusion bonded epoxy lined inside and outside per AWWA C116/ANSI A21.16.

The epoxy shall be applied to exterior and interior surfaces. The lining shall be factory applied and warranted by the fitting manufacturer. Toruseal or Flange-Tyte gaskets are required for flanged fittings.

RW 23. Follower Glands

Approved Products/Manufacturers:

- (1) Tyler International
- (2) US Pipe
- (3) Union Foundry
- (4) Sigma/NAPPCO

RW 24. Casing Pipe Spacers

Approved Products/Manufacturers:

- (1) Cascade
- (2) APS Spacing System
- (3) RACI
- (4) BWM

RW 25. Pack Joint Curb Stops

Approved Products/Manufacturers:

- (1) Ford BRW 77-777W
- (2) AY McDonald 6100W RWT- 44 (Reclaimed Water size 2”)

Must be permanently marked "**Reclaimed Water**"**RW 26. Pack Joint Yoke Angle Curb Stops (Compression PVC x Yoke)**

Approved Products/Manufacturers:

- (1) Ford BARW91-323W, BARW91-444W
- (2) AY McDonald 4602BY-44 RTW –44 (Reclaimed Water)

RW 27. Corporation Stops (PVC Pipe) with PVC Compression Outlet and Tee Head – Iron Pipe Thread

Approved Products/Manufacturers:

- (1) AY McDonald 4704B-44 (reclaimed water)
- (2) Ford FBRW 1102

RW 28. Corporation Stops for ARV Installations (MIP & MIP)

Approved Products/Manufacturers:

- (1) AY McDonald 3131B (reclaimed water)
- (2) Ford FBRW 500

RW 29. Meter Yokes (must be epoxy coated or powder coated)

Approved Products/Manufacturers:

- (1) Ford Y502, Y504
- (2) Mueller H5020, H5040
- (3) AY McDonald 14-2, 14-4

RW 30. Yoke Expansion Connections

Approved Products/Manufacturers:

- (1) Ford EC23, EC4
- (2) Mueller H-14234
- (3) AY McDonald 14-2EHG, 14-4EHG

RW 31. Double Strap Service Saddles/Sleeves (up to 2" Taps) – Iron Pipe Thread

Approved Products/Manufacturers:

- A. Ductile Iron Body, Double Steel Bales (up to 16")
 - (1) JCM 408
 - (2) Smith Blair 313
 - (3) Ford FC202 (Epoxy-coated)
 - (4) Romac 202 NU
 - (5) AY McDonald 4826A
- B. Ductile Iron Body Double Stainless Steel Straps
 - (1) JCM 406
 - (2) Smith Blair 317
 - (3) Ford FCD 202
 - (4) Romac 202 NS (up to 16", pre-approval required)
 - (5) Power Seal 3417 DI
 - (6) Ay McDonald 4855A
- C. Epoxy-coated Steel Body Threaded Outlet Tapping Sleeves, Stainless Steel Hardwar Required (Larger than 16", Pre-approval Required)
 - (1) JCM 418
 - (2) Romac FTS420T
- D. Stainless Steel Body Threaded Outlet Tapping Sleeves (Larger than 16")
 - (1) JCM 438
 - (2) Smith Blair 372

RW 32. Post Type Flushing Hydrant

Approved Products/Manufacturers:

- (1) Mueller 2-1/8"
- (2) M & H 33

RW 33. Meter Boxes (Tier 8 ANSI/SCTE77 Load Rating Minimum)

Approved Products/Manufacturers:

- A. Single Service: 5/8" x 3/4" meters
(1) Box: CDR WB03-1015-12
- B. Double Service: 5/8" x 3/4" meters
(1) Box: CDR WB03-1517-12
- C. Single Service: (1" meters)
(1) Box: CDR WB03-1118-12
- D. Single Service: (1½" and 2" meters)
(1) Box: CDR WB03- 2436-18
- E. Single Service: (3" meters)
Direct Service: (1) Box: CDR WB03-2460-24
Lake Discharge: (1) box CDR WB03-2448- 24
- F. Single Service: (4" meters)
Direct Service: (1) Box: CDR WB 03-2460-24
Lake Discharge: (1) Box CDR WB03-2448-24
- G. Single Service: (6" meters)
Direct Service (1) Box: CDR WB03-3672- 24
Lake Discharge: (1) Box: CDR WB03-3660
- H. Single Service: (8" meters and larger)
Shop drawings required for review
Direct Service (1) CDR
Lake Discharge: (1) CDR
Straight wall meter boxes are required.
Only boxes for 1-1/2" meters shall have "mouse holes".

RW 34. Meter Box Lids (Permanently infused with purple color and marked "Reclaimed Water—Do Not Drink"), Tier 8 ANSI/SCTE77 Load Rating Minimum

Approved Products/Manufacturers:

- A. Single service (5/8" x 3/4" meter)
(1) CDR C00101502P
- B. Double service (5/8" x 3/4" meter)
(1) CDR C00151702P
- C. Single service (1" meter)
(1) CDR C00111802P

D. Single service (1-1/2" and 2" meter)
(1) CDR C00243602P
(offset meter reader lid)

E. Single service (3" meter)
Torsion Assist Lid Required
Direct service: (1) CDR C00246002P
(one piece lid, offset meter lid)
Lake Discharge: (1) CDR
C00244802P

F. Single service (4" meter)
Torsion Assist Lid Required
Direct service: (1) CDR C00246002P
(one piece lid, offset meter lid)
Lake Discharge: (1) CDR C00244802P
(one piece lid)

G. Single service (6" meter)
Torsion Assist Lid Required
Direct service: (1) CDR C00367202P
(two piece lid)
Lake Discharge: (1) CDR
C00366002P \\
(two piece lid)

H. Single service (8" meter and larger)
Torsion Assist Lid Required
Shop drawings required for review
Direct Service: (1) CDR
Lake Discharge: (1) CDR

RW 35. Manhole Cover Riser Rings (Max. 4" height, existing manholes only)

Approved Products/Manufacturers:

- (1) Manhole Systems MS-101
- (2) Rinker MR-1
- (3) EJ Corp. Andrews Metal Style Inc.
M2-A, M5-A

RW 36. Purple Identification Paint for Components with Asphaltic Coating

Approved Products/Manufacturers:

- (1) Indurall Coatings Inc. "Induron" Aquanaut
A1272-RT170 Color shall be Pantone 522c.
(Minimum 8 mil WFT, minimum 3 mils DFT)

RW 37. Purple Identification Paint for Components with Non-asphaltic Coating (minimum two coats required). Exposed ductile iron pipe and fittings shall be shop coated with red primer. (Color shall be Pantone 522c.)
Approved Products/Manufacturers:

- (1) TNEMEC Series 30 DTM acrylic
- (2) Sherwin Williams DTM acrylic coating B66-100 Series

RW 38. Purple Identification Paint for PVC Components Color shall be Pantone 522c.

Approved Products/Manufacturers:

- (1) Tnemec Series 66 Highbuild Polyamid Epoxy

RW 39. Screw Type (2) Piece Valve Boxes (Square Top)

Approved Products/Manufacturers:

- (1) Bingham/Taylor 4905

RW 40. Valve Box Lid (Heavy Weight, Square top, 4" skirt, marked "REUSE")

Approved Products/Manufacturers:

- (1) Bingham/Taylor

RW 41. Detectable Reclaimed Water Marking Tape

Approved Products/Manufacturers:

- (1) Empire Level MFG Corp. MagnaTec
- (2) T. Christy Enterprises TA-TD-6-PRW
- (3) Pro-Line Safety Products

Detectable purple mylar tape 6" wide imprinted with the following in 2" high lettering: "CAUTION-RECLAIMED WATER MAIN BELOW". The wording shall occur every 3 feet.

RW 42. Root Barrier System

Approved Products/Manufacturers:

- (1) Bio-Barrier
- (2) DeepRoot UB36-2, UB48-2

RW 43. Sliding Type 2 Piece 4 1/4" Valve Box and cover for corporation stop (lid marked "REUSE")

Approved Products/Manufacturers:

- (1) Bingham Taylor 4903 Box (with Heavy Weight Tri-Skirt Lid) -I4B143SSR
Lid – CUL4LRSQLS
Top – CUL4TS
Bottom – CCO4B143S

RW 44. Brass Compression by Male Adapter

Approved Products/Manufacturers:

- (1) AY McDonald 4753-44
- (2) Ford C 87 Series

RW 45. Brass Compressions by Female Adapter

Approved Products/Manufacturers:

- (1) AY McDonald 4754-44
- (2) Ford C 17 Series

RW 46. Line Stop Tapping Sleeve

Approved Products/Manufacturers:

- (1) JCM 440

RW 47. HDPE/DIP Electrofusion Couplings, Fittings:

Approved Products/Manufacturers:

- (1) Central Plastics Company (1-800-654-3872)
- (2) IPEX Friatec

RW 48. HDPE/DIP MJ Adapter (SS Stiffener Required)

Approved Products/Manufacturers:

- (1) Independent Pipe Products Inc. (1-800- 499-6927)
- (2) Improved Piping Products, Inc.
- (3) Central Plastics

RW 49. PVC Fittings (Up to 6” Schedule 40 and Schedule 80)

Approved Products/Manufacturers:

- (1) Lasco Fittings Inc.
- (2) Nibco, Inc.
- (3) Spears Manufacturing Company
- (4) Charlotte Pipe and Foundry Company

RW 50. Above Ground Utility Markers

Approved Products/Manufacturers:

Canal Crossings:

- (1) Rocal, Inc. #RI-UPLPBC 12-6
 - A. Miscellaneous Locations:
 - (1) Rhino Marking & Protection Systems, Inc., Triview Marker Post, color coded with decals.
 - (2) Rhino Marking & Protection Systems, Inc., Rhino 3-rail (66’), color coded with decals.

RW 51. Manhole Ring and Cover (ARV)

Approved Products/Manufacturers:

- (1) US Foundry 690-AH-MS
- (2) US Foundry USF 751(Ductile Iron, 32’)
- (3) Pamrex (Ductile Iron, 32’)

Note: Manholes shall be marked: “Reuse ARV”

RW 52. Aluminum Vault Frame and Cover (ARV)

Approved Products/Manufacturers:

- (1) US Foundry AHS or AHD
- (2) Bilco J or JD (H-20)

RW 53. Stainless Steel Stiffener for HDPE Pipe Restraint

Approved Products/Manufacturers:

- (1) Cascade
- (2) JCM
- (3) ROMAC

RW 54. Insertion Valve (AWWA C515 Wedge to Seal Against Valve Body D.I. Body, Resilient Seat Gate, MJ-Type End Restraints

Approved Products/Manufacturers:

- (1) Team INSERT VALVE (Occlude)

RW 55. Pressure Control Valves (Sustaining, Reducing, Flow Rate, Float Pilot, Anti-Cavitation Trim Required)

Approved Products/Manufacturers:

- (1) Cla-Valve
- (2) Bermad
- (3) OCV
- (4) Ames

RW 56. Lake Discharge Outfall Pipe Check Valve

Approved Products/Manufacturers:

- (1) Cla-Valve - Duck-bill valve
- (2) Tideflex

RW 57. Valve Stem Extension (Carbon Steel Hot Dip Galvanized with Centering Ring and Stainless Steel Set Screws)

Approved Products/Manufacturers:

- (1) Custom Fab
- (2) Trumbull Industries

RW 58. Directional Drill Trace Wire (APWA Color Coded Purple, AWG #12 Min)

Approved Products/Manufacturers:

- (1) Copperhead 1245 EHS
- (2) Pro Line Safety Products Pro Trace HD CCSPE45

RW 59. Stilling Well Cover (1/4" Thick Aluminum Hinged End Cap, Lockable Stainless Steel Hinge)

Approved Products/Manufacturers:

- (1) US Custom Fabrication, Inc.
EC-USCFAL 3501S-HL

RW 60. Stilling Well Pipe Screen (#3 Stainless Steel Mesh End Cap with 2" x 1/8" Stainless Steel Flat Bar Frame)

Approved Products/Manufacturers:

- (1) US Custom Fabricator, Inc.
EC-USCFSS3310M

RW 61. Stainless Steel Stiffening Inserts for HDPE Pipe (4" -12")

Approved Products/Manufacturers:

- (1) JCM 231
- (2) Cascades

RW 62. Stainless Steel Stiffening Inserts for HDPE Tubing (up to 2")

Approved Products/Manufacturers:

- (1) Ford
- (2) Mueller
- (3) AY McDonald

RW 63. Electronic Pressure/Flow Control Valve With Anti-Cavitation Kit, Hydraulic Float Pilot Override (Lake Discharge), and Flow Rate Transmitter

Approved Products/Manufacturers

A. Lake Discharge Connection

- (1) Cla-Val 131-20 BCMPSVY KCO DS SSB 150AG

B. Direct Service Connection

- (1) Cla-Val 93EG-01 BCM PSVY KC DS SSB 150Ansi

RW 64. Remote Telemetry – Unit RTU (PLC Based)

Approved Products/Manufacturers

- (1) Curry Controls PBCRTU2013
- (2) Engineer Service Corp. PBCRTU2013
- (3) AES PBCRTU2013
- (4) CC Control PBCRTU2013
- (5) Unitron PBCRTU 2013
- (6) Champion Controls PBCRTU2013

RW 65. End Seal for Casing/Carrier Pipe Installation

New Products/Manufacturers

A. New Pipe Installation (Min. 1/8" thick Neoprene, preassembled, with Stainless Steel bands, sized to match application):

- (1) GPT Model C

B. Retrofit End Seal Installation (Min. 1/8" thick Neoprene, with Stainless Steel bands, sized to match application):

- (1) GPT Model "W"

4. LINE MAINTENANCE REPAIR MATERIALS

All components that come in contact with potable water shall conform to the current NSF Standard. Effective January 1, 2013, only "Lead Free" Brass Water Works Products shall be installed with Potable Water.

MR 1. Brass Plumbing Gate Valves with Female Threaded Ends (1/2" – 4")

Approved Products/Manufacturers:

- (1) American Valve

MR 2. Brass Straight Curb Stop Ball Valve (Full Port, Female x Yoke)

Approved Products/Manufacturers:

- (1) Ford B91-W-NL
- (2) AY McDonald 76101WY

MR 3. Bronze Swing Check Valve (3/4" – 3")

Approved Products/Manufacturers:

- (1) American Valve

MR 4. Brass Pack Joint Couplings (1/2" – 2") – PVC x PVC; Lead Free

Approved Products/Manufacturers:

A. Straight Coupling

- (1) Ford C77- NL Series
- (2) Mueller - N
- (3) AY McDonald 7 -4758 Series

B. ELL Coupling

- (1) Ford L77 – NL Series
- (2) AY McDonald 7-4761 Series

MR 5. Brass, Male x Pack Joint Adapter (1/2" – 2"); Compression PVC x MIP; Lead Free

Approved Products/Manufacturers:

- (1) Ford C 87 NL - Series
- (2) Mueller – V- 15440N Series
- (3) AY McDonald 7 – 4753 Series

MR 6. Brass Dual Check Valve with Tail Pipe and Male Threaded Ends – Lead Free

Approved Products/Manufacturers:

- (1) Ford (3/4" – 2") - NL
- (2) Mueller (3/4") – H14272N

MR 7. Brass Fittings, Unions, Bushings, Tees, Bends, Service Plugs, Caps and Nipples (1/4" – 2"); Lead Free

Approved Products/Manufacturers:

- (1) Merit Brass
- (2) Lee
- (3) Mid-American Brass

MR 8. Rubber Reducers for Sewer Pipe (6" x 4", 8" x 6", 8" x 4")

Approved Products/Manufacturers:

- (1) FERNCO

MR 9. Pressure Pipe Repair Clamps

Approved Products/Manufacturers:

- (1) Ford FS1, FS2, FS3
- (2) Smith Blair 261, 262, 263
- (3) Power Seal Models 3121AS, 3122AS, 3123 AS
- (4) TPS EZmax
- (5) JCM 101, 102

Up to 10" – Single Band, minimum length 10", all stainless steel

Up to 16" – Double Band, minimum length 16", all stainless steel

Greater than 16" – triple band, minimum length equal to pipe diameter, all stainless steel

MR 10. Sewer Pipe Repair Couplings (4" – 10")

Approved Products/Manufacturers:

- (1) FERNCO
- (2) IPEX

MR 11. Ductile Iron Restraint Flanged Adapters

Approved Products/Manufacturers:

- (1) Smith Blair Type 912 (SS Hardware Coated to Prevent Galling, restraint with anchor studs)
- (2) EBAA Iron 2100 Megaflange (hardware coated with Megabond)
- (3) Power Seal Model 3521 (SS Hardware, restraint with anchor studs)

MR 12. Restraint Straight and Transition Couplings (EPDM or SBR Gaskets are required) Stainless Steel 304 Rods and Nuts (Flouropolymer coated)

Approved Products/Manufacturers:

- (1) Smith Blair Pipe-Lock 470 Series
- (2) EBAA Iron Mega Coupling Series 3800
- (3) TPS Hymax (Maxi-Lube Bolt Required)
- (4) ROMAC ALPHA Restraint Coupling

MR 13. Cement (Bagged)

Approved Products/Manufacturers:

- (1) Sackrete
- (2) Fabri-Form

MR 14. Fast Drying Cement (Bagged)

Approved Products/Manufacturers:

- (1) Quadex Quad Plugs
- (2) EMACO Plug/BASF
- (3) Strong Seal Strong Plug
- (4) Made Well ML-10 Mortar

MR 15. Meter Adapters (from 1" meter to 5/8" x 3/4", from 2" meter to 1") Lead Free

Approved Products/Manufacturers:

- (1) Ford A24 – NL, A47- NL
- (2) McDonald 7 -
- (3) Mueller – H 10879N

MR 16. Teehead Bolt, MJ with Nut for MJ Assemblies, AWWA C111

(3" - 6 1/2" long 5/8", 3/4", 1" and 1 1/4" thick)

Approved Products/Manufacturers:

- (1) Russell MSG
- (2) Birmingham Fastener, Inc.

MR 17. Water Meters

Approved Products/Manufacturers:

- A. Displacement, Compound, Turbine, Multijet
 - (1) Sensus
 - (2) Precision (5/8" x 3/4" Multijet Type Only)
 - (3) Neptune (Displacement up to 1 1/2" and Turbine 2" and Larger)
- B. Revenue Magnetic Type
 - (1) Sensus iPerl System (5/8" x 3/4"; 1")
And Related Appurtenances

MR 18. Corporation Stops (3/4" – 2") – Lead Free

Approved Products/Manufacturers:

- A. MIP x MIP Thread
 - (1) Ford FB500-NL
 - (2) AY McDonald 73131 B
 - (3) Mueller B-20013N (3/4", 1")
B-2969N (1-1/2", 2")
- B. MIP x FIP
 - (1) Ford FB1700 – NL
 - (2) AY McDonald 73149B
 - (3) Mueller B-20046N

MR 19. Straight Ball Meter Valve for 1 1/2" and 2" Meter) (Lead Free)

Approved Products/Manufacturers:

- (1) Ford BF 13-777W - NL
- (2) AY McDonald 76101 MW (2")
- (3) Mueller B-24337N -38 (2")

MR 20. Lift Station Main Breakers

Approved Products/Manufacturers:

- (1) Square D
- (2) Siemens
- (3) Westinghouse
- (4) Cuttler Hammer

MR 21. Lift Station Generator Breakers

Approved Products/Manufacturers:

- (1) Square D
- (2) Siemens
- (3) Westinghouse
- (4) Cuttler Hammer

MR 22. Lift Station Generator Receptacles

Approved Products/Manufacturers:

- (1) Russellstohl
- (2) Molex

MR 23. Lift Station Transient Voltage Surge Suppressor

Approved Products/Manufacturers:

- (1) Atlantic Scientific Zone Sentinel
12102 (480V), 11202 (120V-240V)

MR 24. Lift Station Surge Capacitors

Approved Products/Manufacturers:

- (1) Delta
- (2) GE
- (3) Comm-Omni International

MR 25. Lift Station Motor Circuit Breakers

Approved Products/Manufacturers:

- (1) Square D
- (2) Siemens
- (3) Westinghouse
- (4) Cuttler Hammer

MR 26. Lift Station 120 V Transformers

Approved Products/Manufacturers:

- (1) Square D
- (2) Acme
- (3) Westinghouse
- (4) Cuttler Hammer

MR 27. Lift Station Motor Starters

Approved Products/Manufacturers:

- (1) Square D
- (2) Siemens
- (3) Westinghouse
- (4) Cuttler Hammer
- (5) GE
- (6) Allen Bradley

MR 28. Lift Station Phase Monitors (Voltage: 230V, 480V) programmed for phase reversal and under voltage only

Approved Products/Manufacturers:

- (1) Diversified
- (2) MPE 001-230-118 PBC
- (3) MPE 001-480-118 PBC

MR 29. Lift Station Fuses

Approved Products/Manufacturers:

- (1) Buss
- (2) Goulds Shawmut
- (3) Little Fuse

MR 30. Lift Station Circuit Breakers (120 V)

Approved Products/Manufacturers:

- (1) Square D
- (2) Cuttler Hammer
- (3) Westinghouse

MR 31. Lift Station Outside Flood Lights (LED Type with Wire Guard)

Approved Products/Manufacturers:

- (1) Stonco STKLPF2K-8 with LPF2WG

MR 32. Lift Station Control Panel Outlets

Approved Products/Manufacturers:

- (1) Hubbell
- (2) Eagle
- (3) GE

MR 33. Lift Station Control Relay

Approved Products/Manufacturers:

- (1) Plotter Brumfield
- (2) Allen Bradley
- (3) Square D
- (4) Omron
- (5) AA Electric

MR 34. Lift Station Pump Selector

Approved Products/Manufacturers:

- (1) Square D
- (2) GE
- (3) Cuttler Hammer
- (4) Westinghouse

MR 35. Lift Station Panel Terminal

Approved Products/Manufacturers:

- (1) Square D
- (2) Westinghouse
- (3) Cuttler Hammer

MR 36. Lift Station Running Time Recorders

Approved Products/Manufacturers:

- (1) Redington

MR 37. Lift Station Alternator Switches

Approved Products/Manufacturers:

- (1) Square D
- (2) GE
- (3) Cuttler Hammer
- (4) Westinghouse

MR 38. Lift Station Alternators
Approved Products/Manufacturers:

- (1) Diversified Electronics
- (2) AA Electric
- (3) Zoeller
- (4) MPE 008-120-13S

MR 39. Lift Station Flasher
Approved Products/Manufacturers:

- (1) SSAC
- (2) Zoeller

MR 40. Lift Station Outside Alarm Light (Minimum 100 W)
Approved Products/Manufacturers:

- (1) RAB Lighting VXBR100DG (100W)
With GL 100R Globe

MR 41. Lift Station Outside Alarm Horn
Approved Products/Manufacturers:

- (1) Edwards
- (2) Zoeller
- (3) Federal

MR 42. Lift Station Transformer (24 V)
Approved Products/Manufacturers:

- (1) Square D
- (2) Westinghouse
- (3) Impervatron

MR 43. Lift Station Pilot Lights (24 V)
Approved Products/Manufacturers:

- (1) Square D
- (2) GE
- (3) Dialco

MR 44. Lift Station Silence Push Buttons
Approved Products/Manufacturers:

- (1) Square D
- (2) Cuttler Hammer
- (3) Westinghouse

MR 45. Lift Station Float Switches (40' and 60' Long Cables) – Mercury Free
Approved Products/Manufacturers:

- (1) Anchor Scientific
- (2) Zoeller
- (3) Flygt ENM–10 Level Regulator

MR 46. Lift Station Control Panel Wire Terminal
Approved Products/Manufacturers:

- (1) Phoenix
- (2) Panduit
- (3) Molex
- (4) Square D

MR 47. Lift Station Junction Box Power Terminal
Approved Products/Manufacturers:

- (1) Marathon (1323572 and 1320572) per pump

MR 48. Electrical Stainless Steel Enclosures
Approved Products/Manufacturers:

- A. NEMA 4X
 - (1) Hoffman
 - (2) Schaefer's
- B. NEMA 3R and Modified 3R
 - (1) Hoffman
 - (2) Schaefer's

MR 49. Lift Station Panel Gas Seal
Approved Products/Manufacturers:

- (1) O.Z. Gedney
- (2) Circle Seal Control, Inc.

MR 50. Lift Station Panel Raintight Hub
Approved Products/Manufacturers:

- (1) O.Z. Gedney
- (2) Bridgeport
- (3) Arlington
- (4) Circle Seal Controls

MR 51. Lift Station Panel Power Distribution Block
Approved Products/Manufacturers:

- (1) Square D
- (2) Cuttler Hammer
- (3) Westinghouse

MR 52. Lift Station Panel Ground Terminals
Approved Products/Manufacturers:

- (1) Square D
- (2) Cuttler Hammer
- (3) Westinghouse
- (4) Marathon

MR 53. Lift Station Remote Telemetry Units (PLC Based)

Approved Products/Manufacturers:

- (1) CurryControls PBCRTU2013
- (2) Engineer Service Corp. PBCRTU2013
- (3) AES PBCRTU2013
- (4) CC Control PBCRTU2013
- (5) Unitron PBCRTU 2013
- (6) Champion Controls PBCRTU2013

MR 54. Water Meter Boxes and Lids (polymer concrete, straight walls, all sizes)

Approved Products/Manufacturers:

- (1) CDR
- (2) GlasMasters
- (3) Armorcast

MR 55. Hydrant Adapter

Approved Products/Manufacturers:

- (1) Powhattan
- (2) Trumbull Industries

MR 56. Brass Hosebibbs (Threaded Outlet) and Sampling Point Spigots (plain outlet); Lead Free

Approved Products/Manufacturers:

- (1) Nibco
- (2) Jones
- (3) American Standard

MR 57. Vacuum Breaker; Lead Free

Approved Products/Manufacturers:

- (1) AY McDonald # 4421-146
- (2) Ford
- (3) Mueller

MR 58. Meter Tail Pipe Coupling (Brass) 3/4" -2"; Lead Free

Approved Products/Manufacturers:

- (1)AY McDonald 74620 Series
- (2) Ford C38 - NL
- (3) Mueller H-10896 N

MR 59. Eye Bolt (3/4", 5/8" x 4")

Approved Products/Manufacturers:

- (1) Unique Industries
- (2) Action Bolt
- (3) Florida Bolts

MR 60. Valve Box Extension (Max. 2 1/2" Valve Box Riser)

Approved Products/Manufacturers:

- (1) Bingham/Taylor
- (2) East Jordan Iron Works
- (3) Sigma VB 26025-D (Ductile Iron)

MR 61. Gaskets (Flanged Pipe, Meters, Transition)

Approved Products/Manufacturers:

- (1) Toruseal by ACIPCO
- (2) Southern Mechanical Seals (flanged pipe fiber neoprene gaskets)
- (3) Specification Rubber Products
- (4) Flange-Tyte by US Pipe
- (5) Garlock
- (6) John Crane

MR 62. Stainless Steel Type 304 All Thread Rods (1/8"-1")

Approved Products/Manufacturers:

- (1) Fastening Specialist
- (2) Infasco
- (3) Unistrut
- (4) Action Bolt
- (5) Florida Bolts

MR 63. Stainless Steel Nuts Type 304 (1/8" -1", Coated to Prevent Galling)

Approved Products/Manufacturers:

- (1) Fastening Specialist
- (2) Infasco
- (3) Unistrut
- (4) Action Bolt
- (5) Florida Bolts

MR 64. PVC Unions (1/2"- 2")

Approved Products/Manufacturers:

- (1) Heritage Plastics South Inc.
- (2) Lasco
- (3) Spears
- (4) Colonial

**MR 65. PVC Ball Valves Schedule 80 (1/2" – 3")
(Full Port, Viton or EPDM "O" Rings)
Female Thread or Slip Ends**

Approved Products/Manufacturers:

- (1) Heritage Plastics South Inc.
- (2) Nibco
- (3) Spears
- (4) Hayward Industrial Products
- (5) Colonial

**MR 66. Bronze Ball Valve (1/4 turn, 1/2" – 2");
Lead Free**

Approved Products/Manufacturers:

- (1) NIBCO
- (2) American Valve

**MR 67. Pressure Sensor Transducer (4-20mA
output, IP68 Rated, NEMA 6 cable, 24 VDC)**

Approved Products/Manufacturers:

- (1) Endress & Hauser Cerabar-T PMC 131-
- (2) Yokogawa
- (3) WIKA S-10

**MR 68. Minimum 4" Skirt Heavy Duty Valve Box
Lids**

Approved Products/Manufacturers:

- (1) Bingham/Taylor (4906)
- (2) East Jordan Iron Works (06800045)
- (3) Sigma Corp. (Ductile Iron only) VB 2604WX
(Water), VB 2604SX (Sewer)

Note: Drop lid shall weigh minimum 24 lbs.

**MR 69. CPVC Pipe SCH 80 ASTM D-1784, D-
2846, NSF (1/2" and 3/4")**

Approved Products/Manufacturers:

- (1) Bristol Pipe (Bristoltherm CPVC 4120)

**MR 70. Resetter/Iron Yoke (5/8" x 3/4", including
locking angle, curb stop, and dual check valve);
Lead Free**

Approved Products/Manufacturers:

- (1) AY McDonalds 7170208 WD-2

**MR 71. In-Line Residential Dual Check
Valve (Cartridge Style, Straight Design, ASSE
Approved); Yoke x FIP; Lead Free**

Approved Products/Manufacturers:

- (1) Ford HHCH 91 – NL

**MR 72. In-Line Residential Dual Check (Straight
Cascading Design, ASSE Approved); Yoke x FIP;
Lead Free**

Approved Products/Manufacturers:

- (1) Ford HHS91 – NL Series
- (2) Mueller H-714247

**MR 73. Pack Joint Coupling (Female Copper
Thread by PVC); Lead Free**

Approved Products/Manufacturers:

- (1) Ford C-07 – NL Series

**MR 74. Pack Joint Coupling (Female Iron Pipe
Thread by CTS); Lead Free**

Approved Products/Manufacturers:

- (1) Ford C14 – NL Series

**MR 75. Pack Joint Coupling (Copper by Copper);
Lead Free**

Approved Products/Manufacturers:

- (1) Ford C44 – NL Series

**MR 76. Pack Joint Coupling (Male Iron Pipe
Thread by CTS); Lead Free**

Approved Products/Manufacturers:

- (1) Ford C84 - NL Series

**MR 77. Pack Joint Coupling (Male Iron Thread by
EP); Lead Free**

Approved Products/Manufacturers:

- (1) Ford C86 – NL Series

**MR 78. Brass Straight Curb Stop Ball Valve
(Full Port, PVC Compression x Yoke), Lead Free**

Approved Products/Manufacturers

- (1) Ford B-91W – NL Series with C87 Adapter (M x
PVC)
- (2) AY McDonald 76102 WY-44

**MR 79. "Cam Lock" Style Adapters, Coupler,
Fittings (1 1/2" – 6"); Lead Free**

Approved Products/Manufacturers:

- (1) P-T Coupling Company
- (2) Dixon Valve and Coupling Company

MR 80. Programmable Logic Controller (PLC) for RTU

Approved Products/Manufacturers:

- (1) Allen Bradley MicroLogix 1400 with 1766 MMI Memory Module and Analog Extension Module 1762-IF4

MR 81. RTU Battery (Lead Acid Sealed, 12V, 18 Ah)

Approved Products/Manufacturers:

- (1) Power Sonic PS-12180

MR 82. RTU Battery Charger/Power Supply

Approved Products/Manufacturers:

- (1) Allen-Bradley 1606-XLP 50B

MR 83. RTU Voltage Converter (12V to 24V)

Approved Products/Manufacturers:

- (1) Converter Concepts VT25-182-10/XX
- (2) Allen Bradley
- (3) Automation Direct PSP24-DC12-1

MR 84. RTU Solar Panel and Mounting Bracket; Note: Antenna Mast to be 2" Sch. 40 Galvanized Steel

Approved Products/Manufacturers:

- (1) Sunwize SW55A
- (2) SolarTech SPM 055 P-F with DPW Solar Panel Mounting Kit (SPM, High Wind Version, Anodized Aluminum Components with Stainless Steel mounting Hardware)

MR 85. RTU Solar Controller

Approved Products/Manufacturers:

- (1) Morningstar Sunsaver SS-12-6L

MR 86. Fire Hydrant Security Wrench

Approved Products/Manufacturers:

A. Full Size Wrench

- (1) Amercian Flow Control: Captivater Adjustable Wrench

B. Hand Wrench

- (1) American Flow Control: Captivater Hand Wrench

MR 87. Time Delay Relay-Delay on Break (1 to 1023 Second, 11 Pin Base, 24 AC Volts)

Approved Products/Manufacturers:

- (1) SSAC TDB-120ALD for 120VAC
- (2) SSAC TRDU-24A3 for 24VDC

MR 88. RTU Radio (Lift Stations)

Approved Products/Manufacturers:

- (1) Microwave Data Systems MDS SD04MD-CES-NNSN

MR 89. Complete PBC Lift Station Control Panel Package (Panel, Junction Box, Transformer, Antennae, RTU, Alarm Light, Flood Light, Receptacle, Generator Receptacle) as specified in PBCWUD Standards

- (1) Model PBCLSP75 (up to 7.5 hp)
- (2) Model PBCLSP15 (>7.5 hp and <= 15 Hp)
- (3) Model PBCLSP25 (>15 hp and <= 25hp)

Approved Products/Manufacturers:

- (1) Engineer Service Corp.
- (2) CC Control
- (3) Atlantic Environmental Systems
- (4) Unitron Controls
- (5) Curry Controls
- (6) Champion Controls

MR 90. AC Drive (Conversion of Single Phase to Three Phase Current – up to 10 HP)

Approved Products/Manufacturers:

- (1) Altivar ATV 71 HU75 MR

MR 91. Grease Solvent

Approved Products/Manufacturers:

- (1) Red Hot #616 by Goldstar Products

Note: Limited use, Issue and Monitor by I&I Superintendent.

MR 92. Automatic Flushing Assembly Battery powered

Approved Products/Manufacturers:

- (1) Mueller Hydroguard HG-6 Signature, (to be bolted to a 4' by 3' by 5" Reinforced Concrete Pad)
- (2) Mueller Hydroguard HG-1 Basic S, with integrated controller and pad lock wings, Part #HG1BSS102000NFPVC00

MR 93. Insertion Valves

Approved Products/Manufacturers:

- (1) TEAM Insertion Valve

MR 94. Ultrasonic Level Transducer (with Stainless Steel Bracket)

Approved Products/Manufacturers:

- (1) Pulsar dB-10 with Black Box 130

MR 95. Corrosion Barrier System for Concrete Structures (WUD Capital Improvement Projects)

Approved Products/Manufacturers:

- A. Approved Products/Manufacturers for field applied systems:
 - (1) Madewell Corp. Mainstay System (ML-10 hydraulic cement mortar, L-72 microsilica mortar, DS-5 epoxy)
 - (2) SewperCoat by Kerneos
 - (3) Strong High Performance Mix
 - (4) Refratta HAC by Global Materials Company
- B. Approved Products/Manufacturers for cast-in Solid Liners.
 - (1) Agru SURE-GRIP Polypropylene liner with 3M sealant tape 5354 and ADEKA P-201 Waterstop
 - (2) Agru SURE-GRIP HDPE Liner with 3M sealant tape 5354 and Adeka P-201 Waterstop
 - (3) GU Systems of Florida, LLC: GU Liner System (Polypropylene Sealplate Wall Liner, Cone Liner (PP or FRP construction) and optional manhole base liner (PP or FRP) with 3M sealant tape 5354
- C. Approved Products/Manufacturers for field installed Thermo-Plastic Liner Systems:
 - (1) Agru SURE-GRIP HDPE Liner and ADEKA P-201 Waterstop
- D. Approved Products/Manufacturers for concrete structures with antimicrobial admixture (each structure must be certified by manufacturer for Admixture compliance).

Note: The use of the antimicrobial admixture must be approved in advance by utility for each application.

- (1) ConShield by US Precast

MR 96. Concrete Structure Microbial Corrosion Indicator

Approved Products/Manufacturers:

- (1) ConShield ID

MR 97. Cementitious Patching Material with Antimicrobial Additive

Approved Products/Manufacturers:

- (1) ConShield Joint Set

MR 98. Sewer Pump Station Back Up Pumping/Power/Control System (Diesel Powered Pump, Sound Attenuated Enclosure Required, Trailer Mounted)

Double wall tank, DOT Trailer, Vacuum Assisted, Steel Frame and Tank Coated with RHINO or Equal, Aluminum Enclosure, Overall Length less than 15 feet (unless preapproved otherwise)

Approved Products/Manufacturers:

- (1) Godwin Pumps
- (2) Thompson Pumps

Note: See also written specifications

MR 99. Pressure Pipe Bell Restraint for IPS O.D. PVC Pipe

Approved Products/Manufacturers:

- (1) Sigma PV Lok Series PVP-S
- (2) EBAA Iron Series 6500

MR 100. Polymer Meter Vault (with Torsion Assist Frame and Covers, 20K Rated)

Approved Products/Manufacturers:

- (1) Armorcast A 600 1506 TAX 36 MT (48" x 72" x 36")

MR 101. Sewer Lateral Cured in Place Pipe Rehabilitation (ASTM F2561)

Approved Products/Manufacturers:

- (1) T-Liner by LMK

MR 102. Gravity Sewer Main Cured in Place Sectional Pipe Lining (ASTM F2599)

Approved Products/Manufacturers:

- (1) Stephen's Technologies, Inc.: New Life System
- (2) LMK Performance Liner Sectional Repair

MR 103. Gravity Sewer Main Cured in Place Pipe Lining (MH to MH) – ASTM 1216

Approved Products/Manufacturers:

- (1) Miller Pipeline
- (2) Reynolds
- (3) SAK
- (4) Lanzo
- (5) INSITUFORM LLC

MR 104. Manhole Inside Drop Inlet Fitting

Approved Products/Manufacturers:

- (1) GU Systems of Florida, LLC Type 370
- (2) Reliner Inside Drop System

MR 105. Polybag for Ductile Iron Pipe (APWA Color Coded)

Approved Products/Manufacturers:

- (1) Trumbull Industries
- (2) Northtown Companies

MR 106. Asbestos Cement Pipe Restrainers:

Approved Products/Manufacturers:

A. Fitting Restrainers

- (1) JCM 630

B. Pipe Coupling Restrainers

- (1) JCM 631
- (2) TPS Hymax 2000 Coupling

MR 107. Adjustable Pipe Supports

Approved Products/Manufacturers:

- (1) BPGI – Guard Shack APS Series
- (2) Grinnell

MR 108. Leak Detection Equipment for Pressure Pipes:

Approved Products/Manufacturers:

- (1) Sewerin
- (2) Approved Equal

MR 109. Crimping Tool for HDPE Services

Approved Products/Manufacturers:

- (1) Timberline TR270 (Short Model)

MR 110. Portable Power Generators (up to 400 KW) diesel powered.

Approved Products/Manufacturers:

- (1) Tradewinds
- (2) Magnum

Note: Minimum Design Requirements Apply

MR 111. Force Main Flow Through Isolation Valve for pressure monitoring (1/2", stainless steel body)

Approved Products/Manufacturers:

- (1) Red Valve Series 742
- (2) WIKA
- (3) Endress & Hauser

MR 112. Universal Low Profile Tapping Saddle with integrated shut off housing for air release valves

Approved Products/Manufacturers:

- (1) H-Tec Model 371

Note: Minimum Design Requirements Apply

MR 113. Encapsulated strap for low profile pipe tapping saddles for air release valve (pipe sizes specific)

Approved Products/Manufacturers:

- (1) H-Tec Model 310

MR 114. Shut off blade for low profile tapping saddle with integrated shut off housing

Approved Products/Manufacturers:

- (1) H-Tec Model 840

MR 115. Prestressed Concrete Pipe and Fittings

Approved Products/Manufacturers

- (1) Hanson Pressure Pipe, Inc.

MR 116. Brass Dual Check Valve (Straight, Cascading Style); Meter Swivel Nut & MIP; Lead Free

Approved Products/Manufacturers

- (1) Ford HHA 38-323 NL
- (2) Mueller H-14272 N

MR 117. Brass Angle Ball Valve (FIP x Meter Swivel Nut); Lead Free
Approved Products/Manufacturers

- (1) Ford BA13-332W-NL; BA13-444W-NL
- (2) Mueller B-24265N -38 (5/8" x 3/4" x 3/4", 1)
- (3) AYMcdonald 7-4604B (3/4", 1)

MR 118. Chemical Grouting Material
Approved Products/Manufacturers

- (1) Avanti International

MR 119. Wastewater Mag Meters, Revenue Purpose, WUD AMR Compatible, IP68 Rated, 3" and Larger
Approved Products/Manufacturers:

- (1) ABB WaterMaster

MR 120. Circular Saw Blades for Ductile Iron Cutting
Approved Products/Manufacturers:

- (1) Desert Diamond Industries

MR 121. Polycarbonate Electrical Enclosures
Approved Products/Manufacturers:

- (1) Hoffman
- (2) Integra Enclosures

MR. 122 Restraining Plates for Flanges
Approved Products/Manufacturers:

- (1) Trumbull "Flange Lugs"
- (2) Romac "Harvest Lugs"

MR 123. General Use Mechanical Piping Products and Associated Special Tools
Approved Products/Manufacturers:

- (1) Grinnell

MR 124. Weather Station
Approved Products/Manufacturers

- (1) Columbia Weather Systems

MR 125. Gravity Sewer Main "Fold and Form" Type Lining (manhole to manhole)
Approved Products/Manufacturers

- (1) Miller Pipeline

MR 126. Hydrogen Sulfide Monitors/Loggers
Approved Products/Manufacturers

- (1) Arizona Instruments LLC – Jerome (H2S)
- (2) Apptech International OdaLog

MR 127. Combo Shower/Eye Wash Station (Stainless Steel with Cover)
Approved Products/Manufacturers:

- (1) Speakman 625-SS-CV"

MR 128. Pressure Gauge (Stainless Steel, 0-100 PSI)
Approved Products/Manufacturers:

- (1) Ashcroft Duralife 1009
(25-1009-SW-Z2L-XLL-100#)

MR 129. Pressure Recorder
Approved Products/Manufacturers:

- A. Hydrant Model
 - (1) TELOG HPR-31
- B. Line Pipe Model
 - (1) TELOG LPR-31

MR 130. Brass Angle Ball Service Valve with Pad Wing (FIT x FIT)
Approved Products/Manufacturers:

- (1) Ford BA 11 – NL Series (333W, 444W, 666W, 777W)

MR 131. Industrial Grade Metal Repair and Erosion – Corrosion Protection Compounds
Approved Products/Manufacturers:

- (1) BELZONA

MR 132. Automatic Power Transfer Switch
Approved Products/Manufacturers:

- (1) ASCO/Emerson

MR 133. Sewer Service Cleanout Installation System per ASTM F3097-15
Approved Products/Manufacturers

- (1) LMK Technologies

MR 134. Radar Level Transmitter
Approved Products/Manufacturers

- (1) VEGA
- (2) E + H FMR 20

5. WATER TREATMENT PLANT EQUIPMENT

- All components, which come in contact with potable water or with drinking water treatment chemicals, shall comply with the current NSF Standards.
- “Premium Efficiency” motors shall be used if available
- All electrical components and assemblies shall be UL listed.

WT 1. Well Pumps (Submersible, Turbine)

Approved Products/Manufacturers:

- (1) Peerless
- (2) Flowserve Ingersoll – Dresser
- (3) Weir-Floway
- (4) Flowserve-Byron Jackson
- (5) Layne/Verti-line
- (6) Goulds Water Technology Texas Turbine Operations

WT 2. Well Motors (Submersible)

Approved Products/Manufacturers:

- (1) ALSTRA-SME
- (2) Flowserve-Plugler
- (3) Franklin Electric
- (4) Hitachi
- (5) ITT Centron Pro

WT 3. Stainless Steel Membrane Feed Pumps (Vertical Turbine)

Approved Products/Manufacturers:

- (1) Peerless
- (2) Flowserve-Ingersoll – Dresser
- (3) Flowserve-Byron Jackson
- (4) Sulzer Pumps
- (5) Afton Pumps Inc.
- (6) Layne/Verti-line

WT 4. Pre-Membrane Cartridge Filters NSF Certified, Each Filter Model must be Pre-tested and Pre-approved for Each Treatment Plant)

Approved Products/Manufacturers:

- A. Five (5) micron filters
Filter Ends Configuration:
 1. Dual O-Rings- Integrated Collapsible Propylene Spring
 2. Dual O-Rings- Blank Flange
 - (1) Parker – Hannifin
 - (2) Cuno Poly Klean
 3. MGS PA 05FDP40 B 22SC (GUA LRWTP, WUD # 3, 9)
- B. One (1) micron filter
 - (1) Parker – Hannifin M 39 R40 SXC
 - (2) MGS A 01FDU40XCU

WT 5. Stainless Steel Cartridge Filter Housing

Approved Products/Manufacturers:

- (1) Cuno
- (2) Parker-Hannifan

WT 6. Sand Strainers (Automatic Self Cleaning)

Approved Products/Manufacturers:

- (1) Boll Filter
- (2) RP Adams
- (3) Hydrac Autofilt

WT 7. Membrane Elements (Nanofiltration) (NSF certified, each model must be pretested and preapproved for each treatment plant)

Approved Products/Manufacturers:

- (1) Dow FilmTec #NF90-400
- (2) GE Desalac 4040 FF
- (3) Fluid Systems TFC-SR100 (8” Element)

WT 7. Membrane Elements (Nanofiltration) (NSF certified, each model must be pretested and preapproved for each treatment plant)

Approved Products/Manufacturers:

- (1) Dow FilmTec #NF90-400
- (2) GE Desalac 4040 FF
- (3) Fluid Systems TFC-SR100 (8” Element)
- (4) Hydranautics ESPA4-LD and ESNA1-LF2-LD

WT 8. Membrane Train Pressure Vessel

Approved Products/Manufacturers:

- (1) Codeline
- (2) Protec

WT 9. Concentrate Booster Pumps (Horizontal, Split Case, Centrifugal)

Approved Products/Manufacturers:

- (1) Flowserve-Ingersoll – Dresser
- (2) Peerless
- (3) urora
- (4) ITT Goulds

WT 10. Degasifiers

Approved Products/Manufacturers:

- (1) Duall Division
- (2) Delta Cooling Towers
- (3) Indusco

WT 11. Blowers

Approved Products/Manufacturers:

- (1) Gardner Denver, Inc.
- (2) New York Blowers

WT 12. Transfer Pumps (Vertical Turbine)

Approved Products/Manufacturers:

- (1) Peerless
- (2) Flowserve-Ingersoll – Dresser
- (3) Flowserve-Byron Jackson
- (4) Sulzer Pumps
- (5) Layne/Verti-line
- (6) Goulds Water Technologies Texas Turbine Operation

WT 13. Transfer Pumps (Horizontal, Split-Case, Centrifugal)

Approved Products/Manufacturers:

- (1) Flowserve-Ingersoll – Dresser
- (2) Peerless
- (3) Aurora
- (4) ITT Goulds

WT 14. High Service Pumps (Horizontal, Split Case, Centrifugal)

Approved Products/Manufacturers:

- (1) Flowserve-Ingersoll – Dresser
- (2) Peerless
- (3) Aurora
- (4) ITT Goulds

WT 15. Sump Pumps

Approved Products/Manufacturers:

- (1) Zoeller M98-B

WT 16. High Efficiency Pump Motors

Approved Products/Manufacturers:

- (1) GE Water
- (2) Teco-Westinghouse
- (3) US Motors
- (4) Reliance
- (5) Marathon

WT 17. Variable Frequency Drives

Approved Products/Manufacturers:

- (1) Square D
- (2) Allen-Bradley
- (3) ABB
- (4) Yaskawa
- (5) Cuttler Hammer (Eaton)
- (6) ITT PumpSmart PS200

WT 18. Sodium Hydroxide Metering Pumps

Approved Products/Manufacturers:

- (1) Milton Roy
- (2) US Filter/Wallace & Tiernan
- (3) Pulsafeeder
- (4) Prominent

WT 19. Sulfuric Acid Metering Pumps

Approved Products/Manufacturers:

- (1) Milton Roy
- (2) US Filter/Wallace & Tiernan
- (3) Pulsafeeder
- (4) Prominent

WT 20. Ammonia Feed Systems

Approved Products/Manufacturers:

- (1) US Filter/Wallace & Tiernan
- (2) Capital Controls

WT 21. Sodium Hypochlorite Metering Pumps

Approved Products/Manufacturers:

- (1) Milton Roy
- (2) US Filter/Wallace & Tiernan
- (3) Pulsafeeder
- (4) Prominent

WT 22. Chlorine Gas Feed Systems (Including Pressure Reducing Valves)

Approved Products/Manufacturers:

- (1) US Filter/Wallace & Tiernan
- (2) Capital Controls

WT 23. Lime Softening Treatment Units

Approved Products/Manufacturers:

- (1) InFilco Degremont (Accelerator)

WT 24. In-Line Static Mixers

Approved Products/Manufacturers:

- (1) Komax Systems, Inc.
- (2) Chemineer Company

WT 25. Air Compressors

Approved Products/Manufacturers:

- (1) Quincy
- (2) Ingersoll-Rand
- (3) Kellogg-American

WT 26. Diesel Storage Tanks

Approved Products/Manufacturers:

- (1) Con Vault
- (2) Tramont Corp.
- (3) Simplex
- (4) Modern Welding

WT 27. Stationary Emergency Diesel Powered Generators (Skid mounted, larger than 240 KW)

Approved Products/Manufacturers:

- (1) Caterpillar
- (2) Cummins

WT 28. Motor Control Centers

Approved Products/Manufacturers:

- (1) Cutler Hammer/Westinghouse
- (2) General Electric
- (3) Square D

WT 29. Electrical Switchgear

Approved Products/Manufacturers:

- (1) Cutler Hammer/Westinghouse
- (2) General Electric
- (3) Square D
- (4) Russ Electric

WT 30. Data Acquisition and Control Systems (Remote Telemetry Units)

Approved Products/Manufacturers:

- (1) Curry Controls
- (2) Engineer Service Corporation (ESC)

WT 31. Programmable Logic Controllers

Approved Products/Manufacturers:

- (1) Allen-Bradley

WT 32. Flow Meters (Magnetic Type) (Ground rod required for transmitter)

Approved Products/Manufacturers:

- (1) ABB
- (2) Rosemount
- (3) Krohne

WT 33. Flow Meters (Orifice Plate Type)

Approved Products/Manufacturers:

- (1) Flow-Lin Corp.
- (2) Tri-Flo Tech

WT 34. Flow Meters Ultrasonic In-Line Style)

Approved Products/Manufacturers:

- (1) ABB
- (2) Allen Bradley
- (3) GE Panametrics
- (4) Thermo Fisher Scientific

WT 35. Flow Meters (Venturi Type)

Approved Products/Manufacturers:

- (1) Primary Flow Signal
- (2) BIF
- (3) ABB

WT 36. Pressure Sensing Transmitters

Approved Products/Manufacturers:

- (1) Yokogawa
- (2) Rosemount

WT 37. Ozone System Air Compressors

Approved Products/Manufacturers:

- (1) Nash
- (2) Ingersoll-Rand

WT 38. Ozone System Refrigerators/Dryers

Approved Products/Manufacturers:

- (1) General Air
- (2) DIV/PSB Industries

WT 39. Ozone System Desiccant Dryers

Approved Products/Manufacturers:

- (1) General Air
- (2) DIV/PSB Industries

WT 40. Ozone System Generators

Approved Products/Manufacturers:

- (1) WEDECO
- (2) Praxair—Trailigaz Ozone Compass
- (3) Fuji Electric
- (4) Ozonia

WT 41. Ozone System Off-gas Demister

Approved Products/Manufacturers:

- (1) Koch Glitsch
- (2) Trailgaz

WT 42. Ozone System Pressure/Vacuum Relief Valves

Approved Products/Manufacturers:

- (1) L&J Technologies
- (2) Emerson Process Management.

WT 43. Ozone System Destructor Units

Approved Products/Manufacturers:

- (1) WEDECO
- (2) Ozocan Corporation

WT 44. Ozone System Gas Blowers

Approved Products/Manufacturers:

- (1) New York Blower
- (2) Spencer Turbine Co.

WT 45. Ball Valves, PVC (Chemical Treatment Process)

Approved Products/Manufacturers:

- (1) Asahi/America
- (2) Hayward
- (3) Plast-O-Matic

WT 46. Check Valves (Lever and Weight Type) AWWA C508

Approved Products/Manufacturers:

- (1) APCO
- (2) Georgia-Alabama Valve & Controls
- (3) Valmatic 7800 Series

WT 47. Stainless Steel Pipe and Fittings (Type 316L, Schedule 10S)

Approved Products/Manufacturers:

- (1) Aerex Industries
- (2) Douglas Brothers
- (3) Felker Fabricators

WT 48. Oxygen Reduction Potential (ORP) Meter

Approved Products/Manufacturers:

- (1) Yokogawa
- (2) Rosemount
- (3) HACH/GLI DRD1P5

WT 49. Conductivity Meter

Approved Products/Manufacturers:

- (1) Yokogawa, SC402G
- (2) Rosemount
- (3) HACH/GLI 3422 Series

WT 50. PH-Meter Analyzer

Approved Products/Manufacturers:

- (1) ECD (Electric Chemical Devices)
Model T21 - Probe shall be sodium
chemical resistant Model: 2005130VIT
- (2) Yokogawa, PH402G
- (3) Rosemount
- (4) HACH SC 200 Controller with HACH/GLI
DPD 1P1 Sensor

Approved Products/Manufacturers:

WT 51. Chlorine Residual Analyzer

Approved Products/Manufacturers:

- (1) Prominent Model DICA
WIC10002G010E
- (2) HACH CL17 (with DPD)
- (3) Chem Scan
- (4) HACH CLT 10 (Reagentless)

WT 52. Online Dissolved Oxygen Meter

Approved Products/Manufacturers:

- (1) Yokogawa
- (2) Rosemount
- (3) HACH LDO (0.1-20 ppm)
- (4) HACH Orbisphere (ppb)

WT 53. Online Turbidity Meter

Approved Products/Manufacturers:

- (1) HACH 1720E (0.001-100 NTU)
- (2) HACH Filter Trak 660 (0.0005-5
NTU)

WT 54. Fluoride Analyzer

Approved Products/Manufacturers:

- (1) Wallace and Tiernan (for pH up to 10)
- (2) Prominent (for pH up to 8.5)
- (3) HACH CA 610 (for pH up to 10)

WT 55. Odor Control System

Approved Products/Manufacturers:

- (1) New York Blowers
- (2) Heil Process Equipment
- (3) US Filter/Siemens
- (4) Indusco
- (5) Ceilcote
- (6) Duall Division

WT 56. Stainless Steel Air/Vacuum Valve

Approved Products/Manufacturers:

- (1) Vent-O-Mat (International Valve Marketing)

WT 57. Polymer Pump

Approved Products/Manufacturers:

- (1) Wallace and Tiernan

WT 58. Polymer Mixer

Approved Products/Manufacturers:

- (1) Cleveland Eastern Mixers
- (2) Lightnin

WT 59. Hexametaphosphate Pump

Approved Products/Manufacturers:

- (1) Wallace and Tiernan / Penwalt

WT 60. Corrosion Inhibitor Pump

Approved Products/Manufacturers:

- (1) Milton Roy

WT 61. Alkalinity System

Approved Products/Manufacturers:

- (1) Cal-Flo

WT 62. Carbon Dioxide System

Approved Products/Manufacturers:

- (1) TOMCO2

WT 63. Fluoride Metering Pump

Approved Products/Manufacturers:

- (1) Grundfos
- (2) Milton Roy

WT 64. Ferric Metering Pump

Approved Products/Manufacturers:

- (1) Milton Roy

WT 65. Ammonia Analyzer

Approved Products/Manufacturers:

- (1) Chem Scan
- (2) HACH APA6000 Ammonia/Mono CL

WT 66. Ion Exchange System

Approved Products/Manufacturers:

- (1) Tonka Equipment Co.
- (2) MIEX

WT 67. Chemical Tanks (fiberglass, high density cross linked polyethylene)

Approved Products/Manufacturers:

- (1) Plas-Tank Industries Inc.
- (2) PolyProcessing
- (3) Snyder Industries, Inc.

WT 68. Pressure Control Valves (Sustaining, Reducing, Flow Rate)

Approved Products/Manufacturers:

- (1) Keystone
- (2) Control Valve Technology
- (3) Toro
- (4) Cla-Val
- (5) OCV Control Valves

WT 69. Sodium Hypochlorite Pump (Hose Pumps)

Approved Products/Manufacturers:

- (1) Verderflex
- (2) Bredel

WT 70. Deep Injection Well Tubing (Fiberglass Reinforced Plastic – FRP)

Approved Products/Manufacturers:

- (1) Red Box by Future Pipe Industries

WT 71. Deep Injection Well Packer

Approved Products/Manufacturers:

- (1) THS Retrievable Mechanical Packer by Texas Iron Works
- (2) TAM International
- (3) YBI Packer

WT 72. Sodium Hypochlorite Pump (Magnet Drive Centrifugal Pump)

Approved Products/Manufacturers:

- (1) March
- (2) PeriFlo ChemXFR

WT 73 Fluoride Transfer Pump (Magnet Drive Centrifugal Pump)

Approved Products/Manufacturers:

- (1) March
- (2) PeriFlo Chem XFR

WT 74. Production Wells Acid (Minimum 28% Hydrochloric Acid)

Approved Products/Manufacturers:

- (1) Various

WT 75. Production Wells Screen (Stainless Steel Well Screen, V-Wire Wrap, Slot Size Varies by Well Site, Rated for 1500 Feet and Deeper.)

Approved Products/Manufacturers:

- (1) Johnson

WT 76. Monitoring Wells Screen (2 inch Schedule 80 PVC with 0.010 inch Slots)

Approved Products/Manufacturers:

- (1) Various

WT 77. Monitoring Wells Sand Pack (20/40 Grade Silica Sand – 98% Pure Silica Sand per ASTM D 5092-90)

Approved Products/Manufacturers:

- (1) Various

WT 78. Monitoring Well Secondary Filter Pack (30/65 Grade Sand Seal)

Approved Products/Manufacturers:

- (1) Various

WT 79. Monitoring Well Cement Grout (ASTM C 150 Type 1 Portland Cement)

Approved Products/Manufacturers:

- (1) Various

WT 80. Monitoring Well Protective Riser (Painted Green, Locking 4” X 4” Square Aluminum Riser)

Approved Products/Manufacturers:

- (1) Various

WT 81. Production Well Fast Closing Check Valve

Approved Products/Manufacturers:

- (1) Valmatic “Surge Buster”

WT 82. Electric Valve Actuators

Approved Products/Manufacturers:

- A. Standard on-off Operation
 - (1) Rotork
 - (2) AUMA
 - (3) Limitorque/Flowserve

- B. Precision Modulating Operation

- (1) Harold Beck and Sons

WT 83. Scale Inhibitor with Fluorescing Tracer

Approved Products/Manufacturers:

- (1) NALCO Perma Treat PV 191T
- (2) American Water Chemicals (AWC) AWCA A-102 Plus

WT 84. Odor Scrubber Packing

Approved Products/Manufacturers:

- (1) Jaeger Tri-Pack

WT 85. Well Level Transducer/Monitoring Well Probes

Approved Products/Manufacturers:

- A. Level/Temperature Sensors (Range 5-1000 psi)

IN-SITU INC: Aqua Troll 100

- B. Level/Temperature/Conductivity Sensors (Range 5-1000 psi)

IN-SITU Inc.: Aqua Troll 200

- C. Level/Temperature Sensor (Range 13-108 psi)

(1) IN-SITU Inc.: Rugged Troll 200

WT 86. Well Level Tapes and Meters

Approved Products/Manufacturers:

- (1) In-situ Inc.: Rugged Water Level Tape

WT 87. RTU Radio (Well Field Applications)

Approved Products/Manufacturers:

- (1) Microwave Data Systems
MDS iNET9000ENI

WT 88. Flow Meter (Magnetic Type; Full Pipe Insertion Style)

Approved/Products/Manufacturers

- (1) McCrometer FPI

WT 89. Submersible Mixing System (with Residual Control System)

Approved Products/Manufacturers

- (1) PAX Water Technologies

6. WASTEWATER TREATMENT PLANT EQUIPMENT

ST 1. Fine Mechanical Screen

Approved Products/Manufacturers:

- (1) Parkson
- (2) Infilco Degremont

ST 2. Flume Meter

Approved Products/Manufacturers:

- (1) Drexel.
- (2) Primary Flow Signal (PFS)

ST 3. Grit Tank Equipment

Approve Products/Manufacturers:

- (1) EIMCO.

ST 4. Grit Cyclones

Approved Products/Manufacturers:

- (1) Krebs Engineers

ST 5. Grit Classifiers

Approved Products/Manufacturers:

- (1) EIMCO
- (2) Parkson

ST 6. Grit Blowers

Approved Products/Manufacturers:

- (1) Gardner Denver

ST 7. Screening Press

Approved Products/Manufacturers:

- (1) Parkson Corp.

ST 8. Sluice Gates (Stop Gates & Slide Gates)

Approved Manufacturers:

- (1) Davis Process
- (2) Waterman Industries
- (3) Dezurik
- (4) Hydro Gate Corp.
- (5) Plastic – Fab

ST 9. Blowers

Approved Products/Manufacturers:

- (1) Gardner/Denver (Multi-stage)
- (2) Turblex (Single-stage)

Note: “Premium Efficiency” Motors shall be used if available; electrical components and assemblies shall be UL Listed.

ST 10. Diffusers

Approved Products/Manufacturers:

- (1) Siemens
- (2) Parkson Corporation
- (3) Aerostrip Corp.

ST 11. Alkaline Monitoring

Approved Products/Manufacturers:

- (1) HACH APA6000 ALK

ST 12. Odor Control System

Approved Products/Manufacturers:

- (1) Heil Process Equipment
- (2) Siemens
- (3) Duall Division
- (4) Ceilcote
- (5) Indusco

ST 13. Clarifier Mechanism

Approved Products/Manufacturers:

- (1) EIMCO Process Equipment

ST 14. Low Solids Content Centrifugal Sludge Pump

Approved Products/Manufacturers:

- (1) Ingersoll-Dresser (Flowserve)
- (2) Goulds
- (3) Gorman Rupp

ST 15. Aeration Basin Aluminum Covers

Approved Products/Manufacturers:

- (1) TEMCOR

ST 16. Chlorination Systems (Chlorine Gas Feed System)

Approved Products/Manufacturers:

- (1) US Filter/Wallace & Tiernan
- (2) Capital Control

ST 17. Evaporators

Approved Products/Manufacturers:

- (1) Wallace & Tiernan
- (2) Capital Control

ST 18. Injectors

Approved Products/Manufacturers:

- (1) US Filter/Wallace & Tiernan
- (2) Capital Control

ST 19. Rota Meters

Approved Products/Manufacturers:

- (1) US Filter/Wallace & Tiernan
- (2) Blue-White Industries. Ltd.

ST 20. Chlorine Scrubber

Approved Products/Manufacturers:

- (1) Siemens
- (2) Northeast Control

ST 21. Polymer Feed System

Approved Products/Manufacturers:

- (1) Siemens

ST 22. Gravity Belt Thickener

Approved Products/Manufacturers:

- (1) Andritz Ruthner, Inc.

ST 23. Belt Filter Press

Approved Products/Manufacturers:

- (1) Andritz Ruthner, Inc.

ST 24. Strainers

Approved Products/Manufacturers:

- (1) Amiad
- (2) SP Kinney

ST 25. Digester Covers (Fixed/Floating)

Approved Products/Manufacturers:

- (1) EIMCO

ST 26. Waste Gas Burner

Approved Products/Manufacturers:

- (1) Varec Biogas
- (2) Coen

ST 27. Hot Water Pump

Approved Products/Manufacturers:

- (1) Goulds
- (2) Grundfos Group

ST 28. High Solids Content Positive Displacement Sludge Pump

Approved Products/Manufacturers:

- A. Progressing Cavity Pump
- (1) Moyno/Robbins & Myers

- B. Lobe Rotary Pump

- (1) Vogelsang
- (2) Lobe Pro
- (3) Boerger

ST 29. Mechanical Sludge Mixer

Approved Products/Manufacturers:

- (1) EIMCO
- (2) Aeration Industries

ST 30. Boilers

Approved Products/Manufacturers:

- (1) Clever Brooks

ST 31. Heat Exchangers

Approved Products/Manufacturers:

- (1) Alfa Laval

ST 32. Grinders

Approved Products/Manufacturers:

- (1) JWC Environment (Muffin Monster)
- (2) Moyno/Robbins & Myers
- (3) Vogelsang

ST 33. Gas Monitoring

Approved Products/Manufacturers:

- (1) Mine Safety Appliance

ST 34. Reclaimed Water Effluent Disk Filtration

Approved Products/Manufacturers:

- (1) Aqua Aerobics: Aquadisk
- (2) Nova Water Technologies, LLC
- (3) Kruger

ST 35. Reclaimed Water Distribution Pumps (Vertical, Turbine Style)

Approved Products/Manufacturers:

- (1) Layne/Verti-Line
- (2) Flowserve-Ingersoll-Dresser
- (3) Peerless
- (4) Goulds
- (5) Flowserve

ST 36. Reclaimed Water Transfer Pumps (Horizontal, Split-Case Centrifugal Style)

Approved Products/Manufacturers:

- (1) Flowserve-Ingersoll-Dresser
- (2) Aurora
- (3) Peerless

ST 37. Pressure Control Valves (Sustaining, Reducing, Flow Rate)

Approved Products/Manufacturers:

- (1) Keystone
- (2) Control Valve Technology
- (3) Toro
- (4) Cla-Val
- (5) OCV Control Valves

ST 38. Electric Valve Actuators:

Approved Products/Manufacturers:

- A. On-off Application
 - (1) Rotork
 - (2) Auma
 - (3) Limitorque/Flowserve
- B. Precision Modulating Operation
 - (1) Harold Beck and Sons

ST 39. Ductile Iron Body Check Valves (AWWA)

Approved Products/Manufacturers:

- (1) APCO
- (2) Georgia-Alabama Valve & Controls
- (3) Val-Matic

ST 40. High Efficiency Electric Pump Motors

Approved Products/Manufacturers:

- (1) US Motors
- (2) Reliance
- (3) Marathon
- (4) GE Water
- (5) Teco Westinghouse

ST 41. Chemical Feed Pumps

Approved Products/Manufacturers:

- (1) Prominent
- (2) Siemens-Stranco

ST 42. Metering Pumps (Diaphragm Type)

Approved Products/Manufacturers:

- (1) Milton Roy
- (2) Prominent
- (3) LMI

ST 43. Blowers

Approved Products/Manufacturers:

- (1) New York Blower
- (2) Air Cure Dynamics

ST 44. Vacuum Pumps

Approved Products/Manufacturers:

- (1) Beckers Pumps Corp

ST 45. Submersible Sump Pump

Approved Products/Manufacturers:

- (1) Zoeller M98-B

ST 46. Submersible Wastewater Pumps (NEC Class 1, Group D, Division 1, Compliant)

Approved Products/Manufacturers:

- (1) Flygt
- (2) WILO-EMU
- (3) HOMA (up to 60 HP)

ST 47. Fire Protection Systems

Approved Products/Manufacturers:

- (1) Fire Master Safety
- (2) SimplexGrinnell
- (3) Amerex Corp.
- (4) Notifier

ST 48. Variable Frequency Drives

Approved Products/Manufacturers:

- (1) ABB
- (2) Allen Bradley
- (3) Square D
- (4) Yaskawa
- (5) Cuttler Hammer (Eaton)

**ST 49. Programmable Logic
Controllers**

Approved Products/Manufacturers:

- (1) Allen Bradley

ST 50. Remote Telemetry Units (PLC Based)

Approved Products/Manufacturers:

- (1) Curry Controls
- (2) Engineer Service Corp. (ESC)
- (3) Atlantic Environmental Systems, Inc.
- (4) CC Control
- (5) Unitron
- (6) Champion Control

ST 51. Level Control Switches

Approved Products/Manufacturers:

- (1) Delta Controls Corp.
- (2) Whitman Controls Corp.

ST 52. Level Indicators

Approved Products/Manufacturers:

- (1) AMETEK Drexelbrook
- (2) Miltronics, 7ML10161AA110AB
- (3) Siemens
- (4) Endress + Hauser

ST 53. Pressure Transmitters

Approved Products/Manufacturers:

- (1) Rosemount
- (2) Yokogawa
- (3) Endress + Hauser

ST 54. Temperature Transmitters

Approved Products/Manufacturers:

- (1) Fluid Components
- (2) Yokogawa, YTA110
- (3) Rosemount, 3144PD1A1E5B5M5
- (4) HACH SC200 w/pH or ORP

**ST 55. Ball Valves, PVC (Chemical Treatment
Process)**

Approved Products/Manufacturers:

- (1) Asahi/America
- (2) Hayward
- (3) Plast-O-Matic

ST 56. Online Turbidity Meter

Approved Products/Manufacturers:

- HACH 1720E (Low NTU)
HACH Surface Scatter 7 (High NTU)

ST 57. Generator Controls

Approved Products/Manufacturers:

- (1) Russelectric

ST 58. Hose Pumps

Approved Products/Manufacturers:

- (1) Verderflex
- (2) Bredel

ST 59. Online Dissolved Oxygen Meter

Approved Products/Manufacturers:

- (1) Hach LDO
- (2) Royce

ST 60. Online Total Suspended Solids Meter

Approved Products/Manufacturers:

- (1) Royce
- (2) HACH Solitax TSS
- (3) Cerlic

ST 61. Online Chlorine Analyzer

Approved Products/Manufacturers:

- (1) Prominent
- (2) HACH CL17
- (3) HACH CLT

ST 62. Electric Switch Gear

Approved Products/Manufacturers:

- (1) Cuttler Hammer
- (2) GE
- (3) Square D
- (4) Russelectric

ST 63. Harmonic Filter

Approved Products/Manufacturers:

- (1) Square D

ST 64. Pinch Valve

Approved Products/Manufacturers:

- (1) Red Valve

ST 65. Expansion Flexible Pipe Joints

Approved Products/Manufacturers:

- (1) Red Valve

ST 66. PH Meter

Approved Products/Manufacturers:

- (1) HACH/GLI DPD 1P1
- (2) Prominent

ST 67. Chemical Tanks (fiberglass, high density cross linked polyethylene)

Approved Products/Manufacturers:

- (1) Plas-Tank Industries, Inc.
- (2) PolyProcessing
- (3) Snyder Industries, Inc.

ST 68. Air/Vacuum Valves – Stainless Steel

Approved Products/Manufacturers:

- (1) Vent-O-Mat – Series RGZX stainless steel

ST 69. Gear Drive for Clarifier

Approved Products/Manufacturers:

- (1) SEW-Eurodrive

ST 70. Deep Injection Well Tubing (Fiberglass Reinforced Plastic – FRP)

Approved Products/Manufacturers:

- (1) Red Box by Future Pipe Industries

ST 71. Deep Injection Well Packer

Approved Products/Manufacturers:

- (1) THS Retrievable Mechanical Packer by Texas Iron Works
- (2) TAM International
- (3) YBI Packer

ST 72. Deep Injection Well Corrosion Inhibitor

Approved Products/Manufacturers:

- (1) BARACOR 100 by Exxon

ST 73. Deep Injection Well Cement Grout (ASTM C150 Type II Portland Cement)

Approved Products/Manufacturers:

- (1) Various

ST 74. Monitoring Wells Screen (2 inch Schedule 80 PVC with 0.010 inch Slots)

Approved Products/Manufacturers:

- (1) Various

ST 75. Monitoring Wells Sand Pack (20/40 Grade Silica Sand – 98% Pure Silica Sand per ASTM D 5092-90)

Approved Products/Manufacturers:

- (1) Various

ST 76. Monitoring Well Secondary Filter Pack (30/65 Grade Sand Seal)

Approved Products/Manufacturers:

- (1) Various

ST 77. Monitoring Well Cement Grout (ASTM C 150 Type 1 Portland Cement)

Approved Products/Manufacturers:

- (1) Various

ST 78. Monitoring Well Protective Riser (Painted Green, Locking 4” X 4” Square Aluminum Riser)

Approved Products/Manufacturers:

- (1) Various

ST 79. Gas Monitoring – Portable Style

Approved Products/Manufacturers:

- (1) Environmental Monitoring Systems (EMS)

ST 80. Sodium Hypochlorite Pump (Magnet Drive Centrifugal Pump)

Approved Products/Manufacturers:

- (1) March
- (2) PeriFlo ChemXFR

ST 81. Flow Meters Magnetic Type (IP-68 Rated for Submersible Service)

Approved Products/Manufacturers:

- (1) ABB
- (2) Rosemount
- (3) Krohne

(Note: Flow meters used for account billing purposes must be compatible with PBCWUD’s used AMR technology)

ST 82. Odor Scrubber Packing

Approved Products/Manufacturers:

- (1) Jaeger Tri-Pack

ST 83. Stationary Emergency Diesel Powered Generators (Skid mounted, larger than 240KW)

- (1) Caterpillar
- (2) Cummins