

EXHIBIT "D"

**SEACOAST UTILITY AUTHORITY
4200 HOOD ROAD
PALM BEACH GARDENS, FL 33410**

(PHONE: 561-627-2900)

"SHOP" SPECIFICATIONS

Project Name: _____

Concurrence of Utility Contractor: _____

Signature

Date

Firm

Concurrence of the Engineer: _____

Signature

Date

Firm

By signature above, the utility contractor and engineer for referenced project agrees to adhere to both the following product specifications and Authority's Construction Standards and Specifications (latest edition). It is understood that Authority will reject construction not in accordance with this document.

Basis: The following products and specifications have been found to be acceptable and/or desirable in their respective groups. Shop drawings need not be submitted for Authority's approval if the contractor uses products on this list. Any product that is not on this list must be approved in advance by Authority. Such approval requires the submission of sufficient copies (Authority will retain two copies) of a shop drawing for each product that has been approved by the EOR. Shop drawings will also be required for all non-standard items including, but not limited to all precast concrete structures, manholes, wet wells, grease traps, castings, pumps and electrical panels. All material for use in a potable water system shall be NSF61 certified.

CIRCLE ITEMS OF CHOICE I. MAIN LINE CONSTRUCTION

A. Pipe - All pipe must be properly labeled.

1. Water Main/Reclaimed Water Main

a. Push on and mechanical joint-DIP, Class 51 through 12" over 12" Class 350, Cement mortar lining AWWA C-151 and C-104. MJ pipe shall require ductile iron glands and Cor-Ten tee bolts.

1. American 2. U.S. Pipe 3. Griffin 4. Clow 5. McWane

b. Flanged DIP Class 53, Cement mortar lining AWWA C-151 and C-104, flanges must be ductile iron.

1. American
2. U.S. Pipe
3. Griffin
4. Clow
5. McWane

2. Sanitary Force Main

a. Push on and mechanical joint-DIP, Class 51 through 12" over 12" Class 350, polyethylene or Protecto 401 lined, AWWA C-151 and C-104. MJ pipe shall require ductile iron glands and Cor-Ten Tee Bolts.

1. American
2. U.S. Pipe
3. Griffin
4. Clow
5. McWane

b. Flanged DIP Class 53, Polyethylene Protecto 401, or Permax CTF lined AWWA C-115 and C-104. Flanges must be ductile iron.

1. American
2. U.S. Pipe
3. Griffin
4. Clow
5. McWane

c. The lining must be installed at pipe manufacturing plant.

3. Gravity Sewer Main

a. Pipe

1. PVC - ASTM D-3034, SDR 26, For 12' and deeper cut or where plans require use SDR 18 AWWA C-900. Transition from SDR 18 to SDR 26 not permitted in run between manholes, Factory color coded green.

2. DIP - Class 51 through 12" over 12" Class 350 AWWA C-151 polyethylene, Protecto 401, or Permax CTF lined must be used in areas requiring special structural integrity.

1. American
- U.S. Pipe
3. Griffin
4. McWane

b. Manhole Cover

1. U. S. Foundry Model #230-AB-M

2. Vulcan Foundry Model #VM-101

B. Valves and Fittings - All rubber and synthetic elastomeric components of products that come in contact with potable water shall be manufactured with chloramine resistant elastomers.

1. Resilient Seat Gate Valves AWWA C-509, C-515 (Wedge material to be EPDM. EPDM to be clearly stamped on wedge)

a. American

b. U.S. Pipe

c. Mueller

d. Clow

e. Kennedy

2. Butterfly Valves C-504 12 inch and larger (Ductile iron body, bi-directional, and seat material shall be EPDM. Valve shall clearly identify that seat material is EPDM and is bi-directional)

a. Mueller Linesal

b. Pratt

c. M&H 4500 12"-24" 1450-30"+

d. DeZurik RS 88

3. OS & Y Valves (Flanged - Above ground fire line use only - wedge material to be EPDM. EPDM to be clearly stamped on wedge)

a. Valves shall be resilient seat and equipped with bronze follower packing gland and bronze follower studs and nuts. (Cast iron and/or cadmium-plated steel are not acceptable). AWWA C-509.

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|---------------|-------------|
| 1. U. S. Pipe | 2. American |
| 3. Kennedy | 4. Clow |

4. Plug Valves (80% port opening, bi-directional Ductile Iron Body)

a. Below grade - mechanical joint, side actuated with 2" square operating nut

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|------------|-------------------------|
| 1. DeZurik | 2. Milliken Millcentric |
|------------|-------------------------|

b. Above grade - flanged 4" to 8" - top activated with 2" square operating nut. Ten inch and larger, wheel operated

- | | |
|------------|-------------------------|
| 1. DeZurik | 2. Milliken Millcentric |
|------------|-------------------------|

5. Tapping sleeve and valve

a. Tapping sleeves for water mains and reclaimed mains.

1. For use on 4" to 24" cast iron, ductile iron, and cement asbestos mains. 304 or 316 stainless steel construction required, including outlet flange.

- a. Ford FTSS
- b. JCM 432
- c. Mueller H304
- d. Cascade CST-EX
- e. JCM 452

2. For use on 30" cast iron, ductile iron, or cement asbestos mains. 304 or 316 stainless steel construction required, including outlet flange.

- a. JCM 452

3. For use on 12" and larger cast iron or ductile iron mains.

- a. Mueller H-615
- b. American Series 2800-C

b. Tapping Valves

1) Water (Resilient seat - Wedge material to be EPDM. EPDM to be clearly stamped on wedge).

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|------------|-------------|
| a. Mueller | b. American |
| c. Kennedy | d. Glow |

5. U.S. Pipe

1) Sanitary Sewer Force Main (316 stainless steel body, bolts and outlet).

a. JCM 432

6. Check Valves

a. Lift Station - outside lever and weight only AWWA C-508, neoprene seat

1. Mueller 2602-6-01 3. Kennedy Style 106 LW

2. APCO 250 LW

b. Meter assembly bypass \geq 3 inch (spring loaded) with red silicone rubber seats

1. Ames 2000 SS

7. Air Release Valves

a. Potable main, Reclaimed Main 1" Inlet

1. Val-Matic Model #25

2. Crispin Model # PL10

3. APCO Model #200A

b. Force Main 2" Inlet

1. Val-Matic Model #48 A with 316 SS internal hardware

2. APCO Model #400

8. Fittings, AWWA C-104 AWWA C-110, Mechanical joint fitting to be compact ductile iron (Class 350 AWWA C-153) only. Glands for MJ fittings shall be ductile iron and tee bolts shall be Cor-Ten steel. Flange fittings AWWA C104 AWWA C110. Epoxy control fittings shall also meet or exceed ANSI/AWWA C550 and C116/AZI 116.

a. Cement lined for water main and reclaimed water main use

b. Polyethylene, Protecto 401, or Permox CTF lined for force main use

c. Full face neoprene gaskets shall be required on all flanged fittings.

d. Flange bolts on flanged connections inside lift station wet wells shall be 316 stainless steel.

1. Tyler/Union 2. Sigma

3. Star 4. Griffin

9. Transition Couplings - Ductile iron body and glands only with ductile iron or stainless steel nuts and bolts and EPDM gaskets.

a. Ford FC2A-EPDM-SH

b. Mueller Maxi-Range

10. Fire Hydrants (AWWA C-502 "traffic type" break away flange, no cut bolts; non-rising stem; dry barrel; 5-1/4 inches main valve opening; bronze to bronze seating) no drain

a. Mueller Super Centurion

b. Kennedy K-81 D (Guardian)

c. American Flow Control B-84-B

d. Clow Medallion F-2545 No Drain

11. Flushing Hydrant - post type, 3" mechanical joint connection rated working pressure of 150 PSI

a. M & H 2 -1/4".

12. Tie Rods - all valves, hydrants, tees, joints and other appurtenances which are restrained by means of tie back bolts, nuts, washers and all thread rods shall meet ASTM A-242 requirements (Cor-Ten steel or equivalent) and painted in accordance with Authority's specifications. Tie back bolts shall be Star Model SST 753 of Cor-Ten steel or approved equivalent. All tie rods shall be a minimum 3/4" diameter; the use of rebar with welded thread is prohibited. Two tie rods are required per joint for pipe sizes 4" through 10". A minimum of four tie rods are required per joint for pipe sizes 12" and larger.

13. Self restraining gaskets for push on DIP

a. U.S. Pipe - "Field Lok"

b. American - "Fast Grip"

c. McWane - "Sure Stop 350"

14. Restrained mechanical joint gland

a. Ebaa Iron - "Megalug" (all sizes)

b. Sigma - One Lok (all sizes)

c. Star Pipe - Stargrip 3000 (sizes through 24")

d. TUF Grip (4" through 12")

II. SERVICE LINE CONSTRUCTION

A. Pipe

1. Water Service - 1", 1 1/2", or 2"

a. Driscopipe 5100, Endot Endopoly, ADS polyethylene tubing

b. Type "K" copper tubing

2. Sanitary Sewer Service Lateral – factory color coded green

a. PVC (conforming to ASTM D3034, SDR 26)

b. SDR 18 AWWA C-900 PVC pipe shall be required for services connecting to deep sanitary sewer mains

B. Fittings

1. Water Service - Standard (Service under paving requires shop drawing submittal on corporation stop, and curb valve box, curb and corporation stops shall be same manufacturer).

a. Polyethylene tubing - "Pack-Joint" fittings, or equal with stainless steel inserts.

b. Type "K" copper tubing

1. Cast brass solder joint fittings, or equal for above ground backflow prevention device installation.

2. Both lead free solder and flux shall be used on all solder joints.

c. Service Saddles (Brass double strap saddle only, AWWA Threads)

1. Mueller

2. Ford 202B

3. Romac Style 202B

4. A.Y. McDonald 3825 Series

5. Smith-Blair 325

d. Corporation Stops (AWWA Inlet Threads x compression, lead free)

1. A.Y. McDonald Mfg. Co. Model #4101B-22

2. Ford - FB 1000 - 4 NL for 1" inlet & outlet

FB 400 - 6 NL for 1 ½"

FB 400 - 7 NL for 2"

3. Mueller Co. Model # P25008

e. Curb Stops (Locking wings & drilled meter nut, lead free)

1. Ford Straight Ball Meter Valves

2. Mueller Model #300

3. McDonald Model 6100 MW-22

2. Gravity Sewer Service Fittings – factory color coded green or white

- a. PVC injection molded conforming to, and compatible with ASTM 3034 SDR 26 or SDR 35 PVC pipe
- b. SDR 18 AWWA C-900 PVC pipe shall be required for services connecting to deep sanitary sewer mains

III. BACKFLOW PREVENTION DEVICES

1. Reduced Pressure Backflow Preventer – Non-residential, residential, greater than on story. Supply with chloramine resistant silicone rubber seal rings or disks, lead free brass.

- a. Watts Model LF 919 ¾" to 2"
- b. Ames Model LF 400B ¾" to 2"
- c. Wilkens Model 975xL2 ¾" to 2"
- d. Apollo Model RPL 4A 4" to 12"
- e. Ames Model #4000 SSI, #4000 SSR, 4" to 10"

2. Double Detector Check Valve with Bypass Valve, Check Valve and Meter Assembly – Firelines only. Supply with chloramine resistant silicone rubber seal rings or disks, lead free brass (5/8" Neptune meter required which must be purchased from Seacoast)

- a. Ames Model #3000 SSI, #3000 SSSR
- b. Watts Model 774 DCDA Series 994
- c. Apollo Model DCDA LF 4A

3. Double check valve assembly for emergency master meter bypass assembly with silicone rubber seal rings and disk.

- a. Ames 2000 SS

IV. PIPELINE MARKING TAPE

1. Vinyl plastic tape PVC backing material with rubber based adhesive, minimum 6 inch width, 0.006 inches in thickness, 20.0 lb inch Tensile strength. Wording, minimum 5/8 inch in height. Wording and color according to application.

- a. Proline Safety

V. ADJUSTABLE VALVE BOX (2 piece - 5' 4")

1. Tyler
2. Proselect