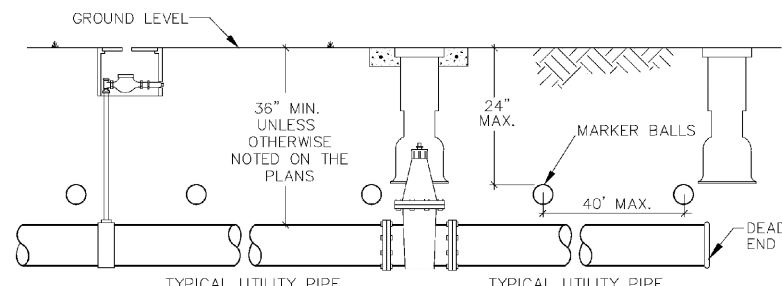


- GENERAL NOTES:**
- ALL UTILITY PIPES SHALL BE INSTALLED WITH 4" MARKING BALLS PLACED EVERY 40' AND AT EVERY FITTING FOR IDENTIFICATION AND WARNING PURPOSES. BURIED ABOVE THE PIPE AT A MINIMUM DEPTH OF TEN INCHES OR AS APPROVED BY THE OWNER. IT SHALL BE COLOR CODED AND MARKED AS FOLLOWS:
 - REUSE WATER:
 - COLOR: PURPLE (PANTONE 2220)
 - LETTERING: NON-POUTABLE WATER
 - IRREGULARITY OF MARKER BALLS SHALL BE 66.50 KHZ
 - THE MARKER BALLS CAN BE BURIED IN ANY ORIENTATION.
 - THE MARKER BALLS SHALL BE DETECTABLE BY STANDARD METAL DETECTION EQUIPMENT AND SHALL BE MANUFACTURED BY TEMPO OR 3M LOCATOR SYSTEM OR EQUIVALENT (IRREGULARITY 66.50 KHZ)
 - FOR LARGE DIAMETER PIPE INSTALLED AT DEPTHS BELOW 4'-0" MARKER BALLS SHALL BE PLACED AT A MINIMUM DEPTH OF 4'-0" BELOW GRADE.

REUSE WATER PIPE IDENTIFICATION

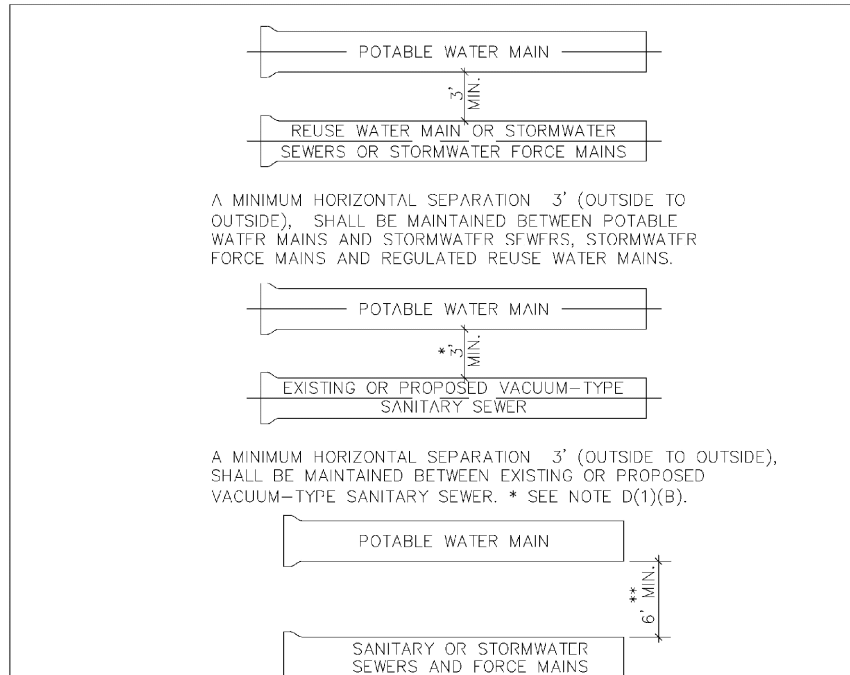
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- GENERAL NOTES:**
- ALL NONMETALLIC PIPE SHALL BE INSTALLED WITH 12 THIN SOLID CONEY TRACING WIRE.
 - THE MARKER BALLS MUST BE INSTALLED DIRECTLY ABOVE THE PIPE.
 - MARKER BALLS SHALL BE INSTALLED AT 40' O.C.
 - BALL COLOR CODING:
 - REUSE WATER SYSTEM: PURPLE

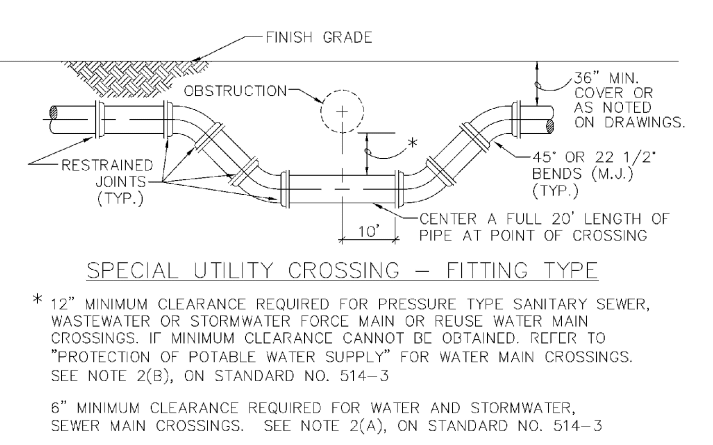
UTILITY PIPE AND MARKER BALLS LOCATION

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MINIMUM HORIZONTAL SEPARATION REQUIREMENTS FOR POTABLE WATER, REUSE, STORMWATER AND SEWER LINES

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- GENERAL NOTES:**
- THE DETECTION TYPE CROSSING SHALL BE USED WHEREVER POSSIBLE. ONLY UNDER SPECIFIC CIRCUMSTANCES THE ENGINEER SHALL PERMIT THE CROSSING BE ALLOWED BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CARRYING POTABLE WATER NOT RECALCULATED UNDER PART III OF CHAPTER 62-610 F.A.C.
 - NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET AND PREVIOUSLY 10 FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CARRYING POTABLE WATER NOT RECALCULATED UNDER PART III OF CHAPTER 62-610 F.A.C.
 - FOR POTABLE WATER MAINS, REFER TO "PROTECTION OF POTABLE WATER SUPPLY."

UTILITY CROSSINGS

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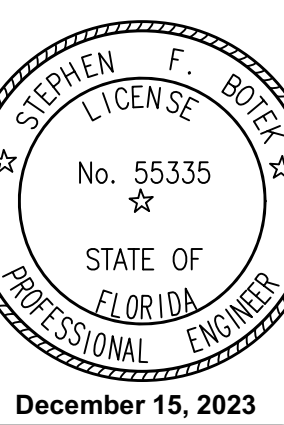
PROTECTION OF POTABLE WATER SUPPLY NOTES

- A. GENERAL:**
- IN ADDITION TO THESE REQUIREMENTS, ALL POTABLE WATER MAINS CONSTRUCTED IN THE VICINITY OF STORM SEWERS, SANITARY SEWERS OR FORCE MAINS SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF FLORIDA ADMINISTRATIVE CODE, CHAPTER 62-610, GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD OF STATE SANITARY ENGINEERS (GLUMRB) RECOMMENDED STANDARDS FOR WATER WORKS, AND CLARKE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.
- B. DETAILING:**
- FOR THE PURPOSES OF THIS SPECIFICATION, THE WORDS "OTHER PART" OR "OTHER PARTS" SHALL MEAN SANITARY SEWER MAIN, SEWAGE FORCE MAIN, STORMWATER MAIN OR ANY COMBINATION THEREOF.
- C. CROSS CONNECTIONS PROHIBITED:**
- THERE SHALL BE NO PHYSICAL CONNECTIONS BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND ANY OTHER TYPE OF APPROPRIATE PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM OR ANY WASTEWATER, POLLUTED WATER, OR ANY OTHER WATER INTO THE POTABLE WATER SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SANITARY SEWER MAIN OR STORMWATER MAIN.
- D. RELATION OF OTHER LINES TO POTABLE WATER MAINS:**
- 1. HORIZONTAL SEPARATION:**
- A NEW OR RELOCATED UNDERGROUND WATER MAIN SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CARRYING POTABLE WATER NOT RECALCULATED UNDER PART III OF CHAPTER 62-610 F.A.C.
- 2. NEW OR RELOCATED UNDERGROUND WATER MAINS:**
- NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET AND PREVIOUSLY 10 FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CARRYING POTABLE WATER NOT RECALCULATED UNDER PART III OF CHAPTER 62-610 F.A.C. THE MINIMUM HORIZONTAL SEPARATION SHALL BE 10 FEET BETWEEN WATER MAINS AND GRAVITY TYPE SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.

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BTE REF DATE: 12-15-2023

REVISIONS	DATE	#



December 15, 2023

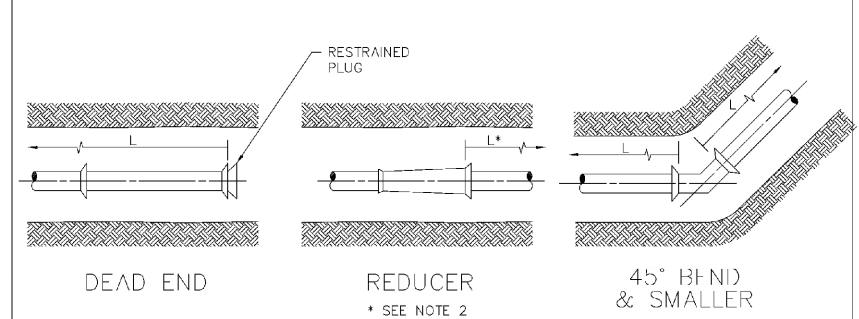
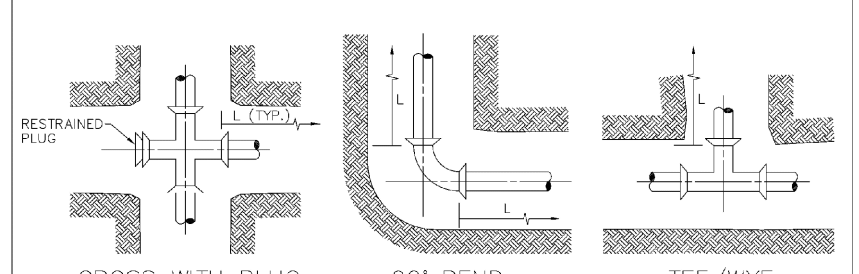
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Celebrating 15 Years

WATER AND SANITARY SEWER DETAILS
POMPANO HOTEL
101 SOUTH OCEAN BOULEVARD
POMPANO BEACH, FL

- D. NEW OR RELOCATED UNDERGROUND WATER MAINS:**
- SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM."
- E. VERTICAL SEPARATION:**
- A NEW OR RELOCATED UNDERGROUND WATER MAIN CROSSING ANY EXISTING OR PROPOSED GRAVITY-OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID TO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES AND PREVIOUSLY 10 FEET FROM THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
- F. NEW OR RELOCATED UNDERGROUND WATER MAINS:**
- CROSSING ANY EXISTING OR PROPOSED GRAVITY-OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORM WATER FORCE MAIN, OR PIPELINE CARRYING POTABLE WATER SHALL BE LAID TO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES AND PREVIOUSLY 10 FEET FROM THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
- G. AT THE UTILITY CROSSINGS:**
- RECOMMENDED IN PUMPING STATION (AS AND (B) ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE TYPES SHALL BE ANCHORED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORM WATER FORCE MAINS, OR PIPELINES CARRYING REUSE WATER. REUSE WATER MAINS SHALL BE LAID TO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY-OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CARRYING REUSE WATER NOT RECALCULATED UNDER PART III OF CHAPTER 62-610 F.A.C.
- H. WHERE THE HORIZONTAL CAN BE LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS:**
- THE ENGINEER SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION OF THE RESTRAINING LENGTHS SHOWN ON THE DRAWINGS. THE LONGEST RESTRAINING LENGTH SHALL BE USED.



- GENERAL NOTES:**
- VALUES IN TABLE ARE BASED ON 3" OF COVER, 100 PSI INTERNAL PRESSURE, FOR FORCE MAINS, 150 PSI REUSE WATER LINES, 400/400 GDS & 400/400 GDS LAYING CONDITION, A 50% (24/24) SAND, 50% OF SOIL TYPE, AND SAFETY FACTOR OF 2.0. RESTRAINED LENGTHS WERE COMPUTED FOR SPIRA "THIRST RESTRAINT DESIGN FOR EXISTING IRON PIPE" AND PVC PIPE "THIRST RESTRAINT DESIGN HANDBOOK," EBA IRON, INC.
 - CONFIRM THE EXACT LENGTH OF RESTRAINING REQUIRED FOR REDUCERS, PIPE ENCASED IN POLYETHYLENE AND ENDORSEMENT RESTRAINING LENGTHS WITH THE MANUFACTURER.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROPER INSTALLATION OF THE RESTRAINING JOINTS TO PREVENT MOVEMENT OF THE PIPE & FITTINGS.
 - IN THE EVENT OF A CONFLICT BETWEEN RESTRAINING LENGTHS SHOWN ON THE TABLE AND RESTRAINED LENGTHS SHOWN ON THE DRAWINGS, THE LONGEST RESTRAINED LENGTH SHALL BE USED.

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PVC HORIZONTAL BENDS AND VERTICAL UP BENDS			
PIPE SIZE (IN.)	RESTRAINED JOINT LENGTH (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)	BENDS	MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY
12"	90'	45'	22.5'
18"	25'	11'	6'
24"	33'	14'	7'
30"	45'	19'	10'
36"	53'	22'	11.25'

PVC VERTICAL DOWN BEND			
PIPE SIZE (IN.)	RESTRAINED JOINT LENGTH (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)	BENDS	MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY
12"	90'	45'	22.5'
18"	25'	11'	6'
24"	33'	14'	7'
30"	45'	19'	10'
36"	53'	22'	11.25'

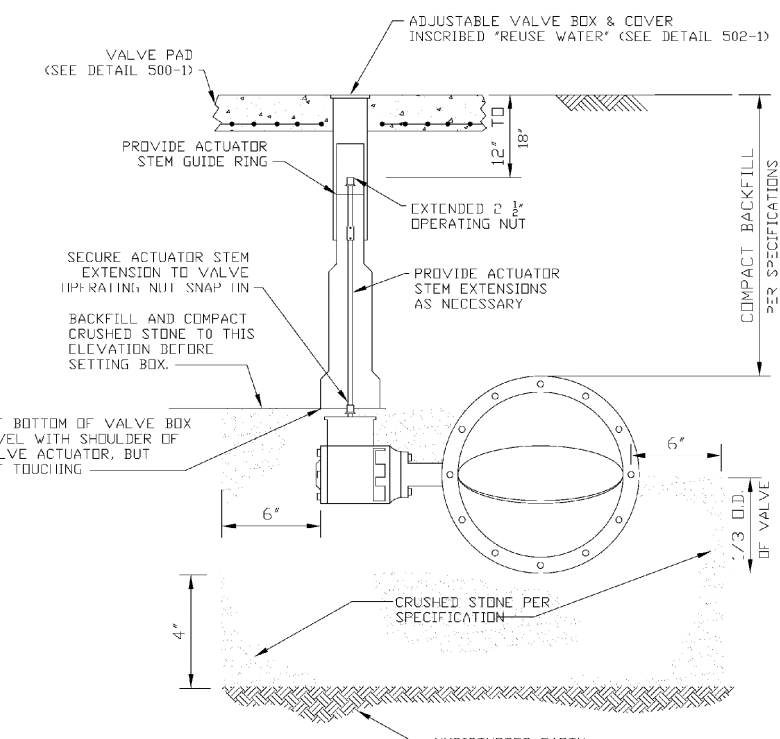
DIP HORIZONTAL BENDS AND VERTICAL UP BENDS			
PIPE SIZE (IN.)	RESTRAINED JOINT LENGTH (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)	BENDS	MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY
12"	90'	45'	22.5'
18"	25'	11'	6'
24"	33'	14'	7'
30"	45'	19'	10'
36"	53'	22'	11.25'

DIP VERTICAL DOWN BEND			
PIPE SIZE (IN.)	RESTRAINED JOINT LENGTH (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)	BENDS	MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY
12"	90'	45'	22.5'
18"	25'	11'	6'
24"	33'	14'	7'
30"	45'	19'	10'
36"	53'	22'	11.25'

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MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED			
PIPE SIZE (IN.)	RESTRAINED JOINT LENGTH (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)	BENDS	MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY
12"	90'	45'	22.5'
18"	25'	11'	6'
24"	33'	14'	7'
30"	45'	19'	10'
36"	53'	22'	11.25'

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- NOTES:**
- EXTENSION OF VALVE BOX SHALL BE SET AS TO RESERVE BOX TO BE USED FOR ALL BURIED VALVES.
 - TO BE USED FOR ALL BURIED VALVES.

BUTTERFLY VALVE

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APPROVED PRODUCT LIST

- Valve Boxes:** Valve boxes shall either be a **Tyler** or **Turnbull** riser specified or an **& Riser**. Approved equal which shall meet the following standards:
- The gap between the cover/lid and the ring that is visible when installed must be no greater than 0.11 inches.
 - The wall thickness of the ring that encircles the cover/lid shall have a wall thickness of no less than 0.65 inches.
 - The valve box top shall weigh no less than 22 pounds.
 - The valve box bottom shall weigh no less than 22 pounds.
 - The valve box lid shall weigh no less than 11 pounds.
 - The 1" riser shall weigh 6 pounds, 2" 9.5 pound, 3" 14 pounds and 4" 20 pounds.
 - The valve box lid shall be a non-locking design with two indentations to allow for easy removal.
 - The brand of valve box lid shall have an option extensometer. The weight of the extension kits shall be +/- 29 lbs for 14 inches, +/- 30 lbs for 18 inches and +/- 37 lbs for 24 inches.
 - Recognizing that some manufacturers may make conforming and non-conforming boxes, or risers vendors bidding such a manufacturer are advised to avoid shipping the incorrect part. The City reserves the right to return *at any time* any box delivered that is non-conforming. If the non-conforming box was installed, the vendor will be responsible for the cost of removal and installation of the conforming box. Depending on the severity and frequency of this type of oversight bidders may be restricted from future bids.

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DIP Fittings: Mega lugs and their accessory kits shall be as manufactured by **EBAA Iron, Inc.** or an approved equal which shall meet the following Standards:

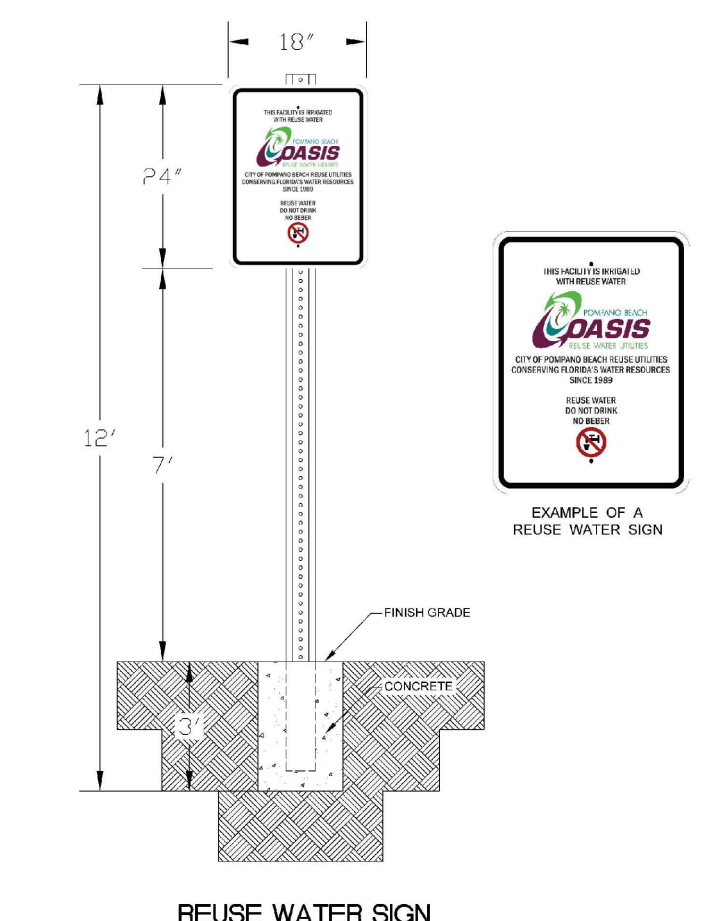
- Each gland shall include one mechanical restraining gland as manufactured by EBAA Iron, Inc. Series 1100, or equal, sacrificial zinc anode hex head caps of one-half of the number of T-head bolts in each gland pack, one rubber gasket and the proper number of T-head bolts and nuts for the mechanical joint sizes shown on the order.
- For sizes 4 to 12 inches, package all gland materials to make one joint and mark each package to specify its weight and contents.
- Each gland shall be clearly marked with a "batch serial number." The "batch serial number" will allow the utility to identify the date of manufacture, plant and identify what ladle of metal was used to cast the gland. The vendor must be able to provide metallurgical reports for any specific fitting based on the "batch serial number" that must be cast into the gland. The "batch serial number" must not be encoded and easily converted using common methods, such as the Julian Day.
- Each restraining gland shall have the following weights and have no less than the number wedges listed below. All wedges will be "auto-torquing" or designed such that the nut on the actuating bolt will separate at the manufacturers intended torque for to properly set the wedge. After being set, the actuating bolts will have a smaller remaining head that will allow for the disassembly of the joint.

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Offsets, Couplings etcetera shall be as manufactured by **Tyler Products** Or an approved equal which shall meet the following standards:

- The equivalent to the ELLS, 45, offsets, couplings, etcetera that are called for in various bids shall be the Tyler Product line. Equivalents shall have the same dimensions, bolt counts and certifications as the Tyler product line.
- Flange Adapters shall be as manufactured by Unifluting or EZ Flange or An approved equal which shall meet the following standards:
- Each fitting shall be clearly marked with a "batch serial number." The "batch serial number" will allow the utility to identify the date of manufacture, plant and identify what ladle of metal was used to cast the gland. The vendor must be able to provide metallurgical reports for any specific fitting based on the "batch serial number" that must be cast into the gland. The "batch serial number" must not be encoded and easily converted using common methods, such as the Julian Day.
 - Each restraining fitting shall have the weights listed below.
 - Set bolts will be "auto-torquing" or designed such that the nut on the actuating bolt will separate at the manufacturers intended torque for to properly set the wedge. After being set, the actuating bolts will have a smaller remaining head that will allow for the disassembly of the joint.

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Digitally signed by Stephen Botek Date: 2023.12.15 16:03:22 -05'00'

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www.botekthurlow-eng.com P: 954-568-8888 F: 954-568-0757

BTE PROJECT #: 23-0701

PROJECT DATE: 09-05-2023

SHEET #: C-7

DRC

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