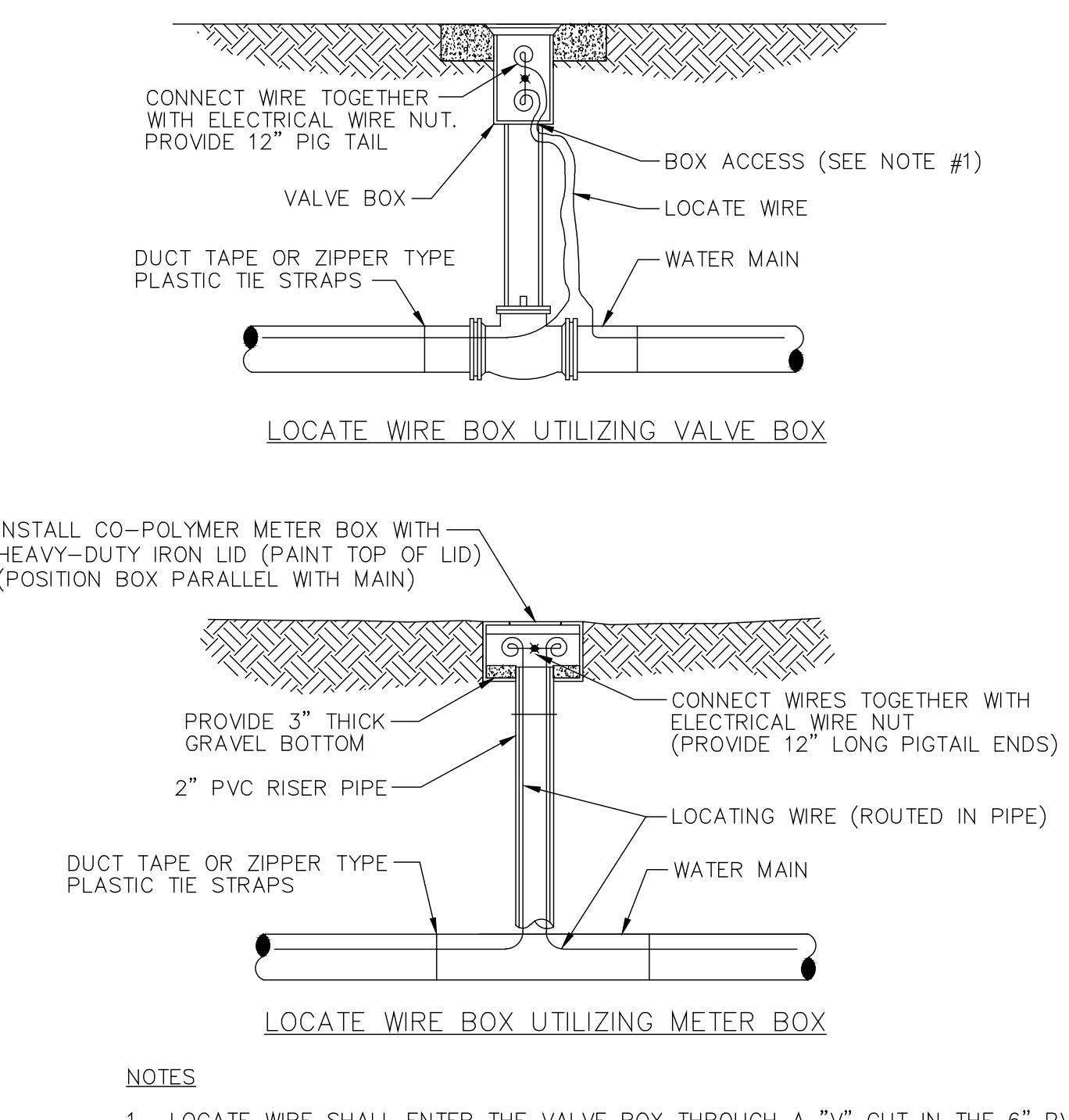
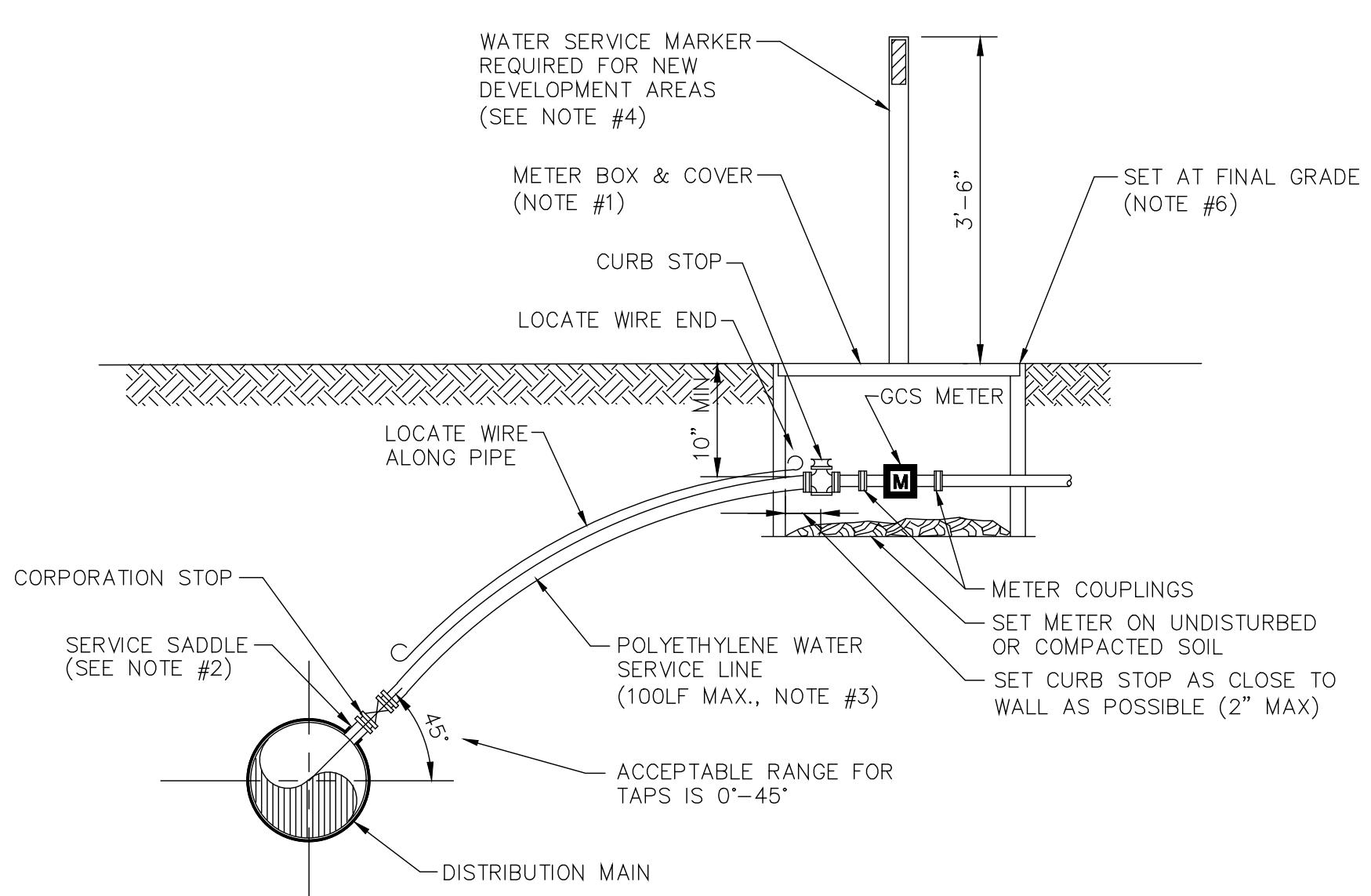


WATER SERVICE INSTALLATIONS 2" AND SMALLER METER

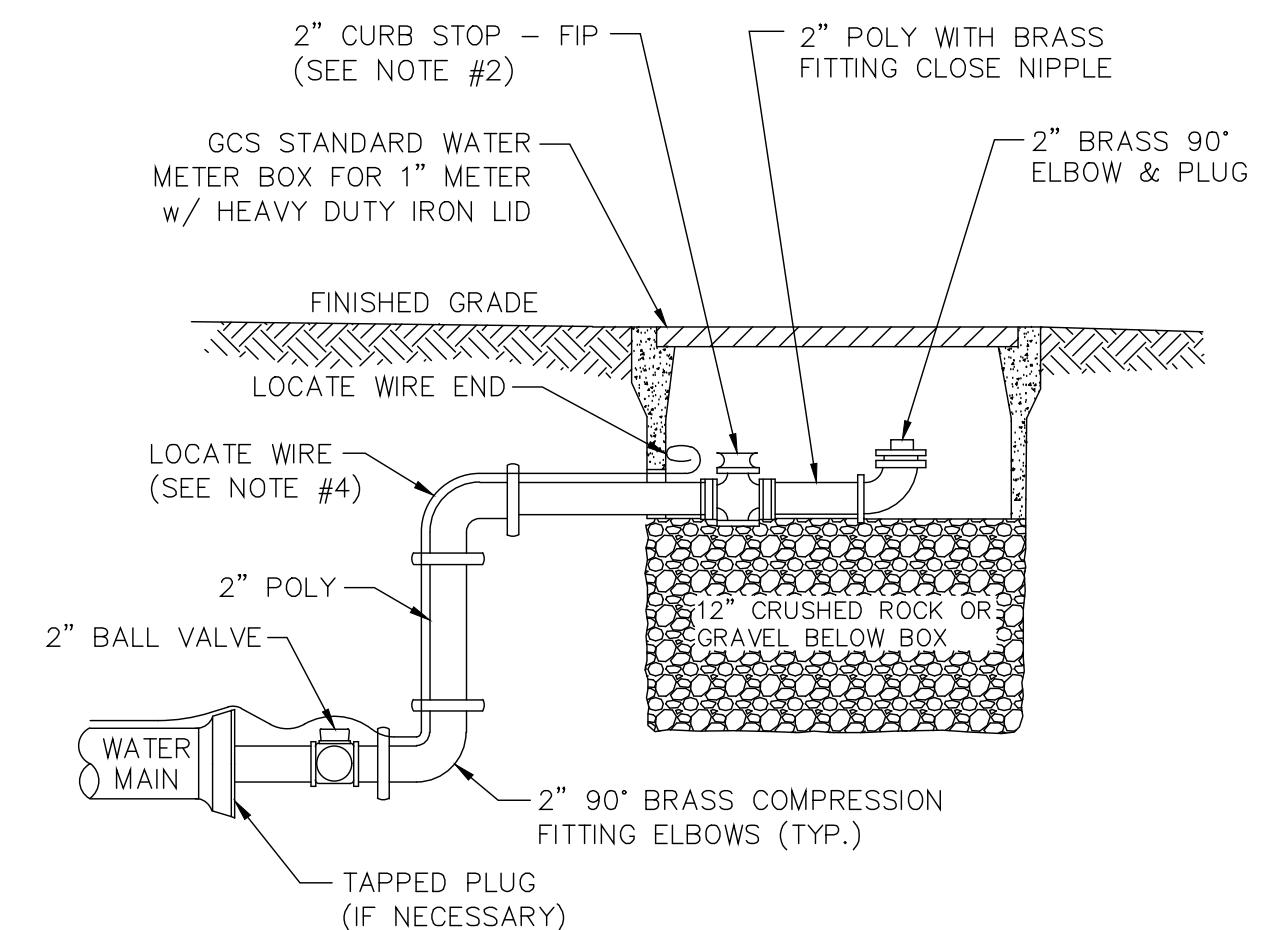


LOCATE WIRE BOX



NOTES

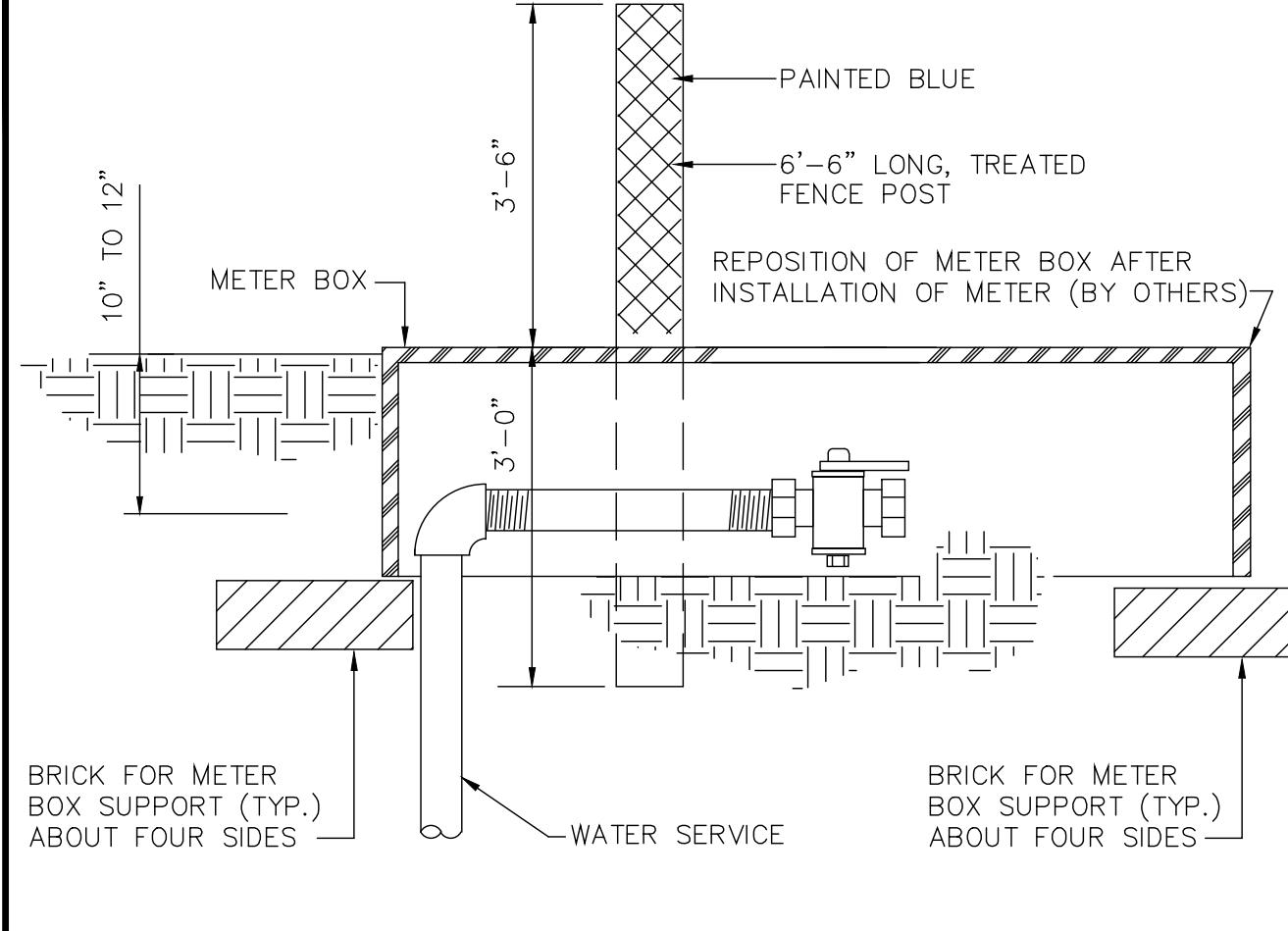
WATER SERVICE DETAIL- 2" AND SMALLER METER



NOTES

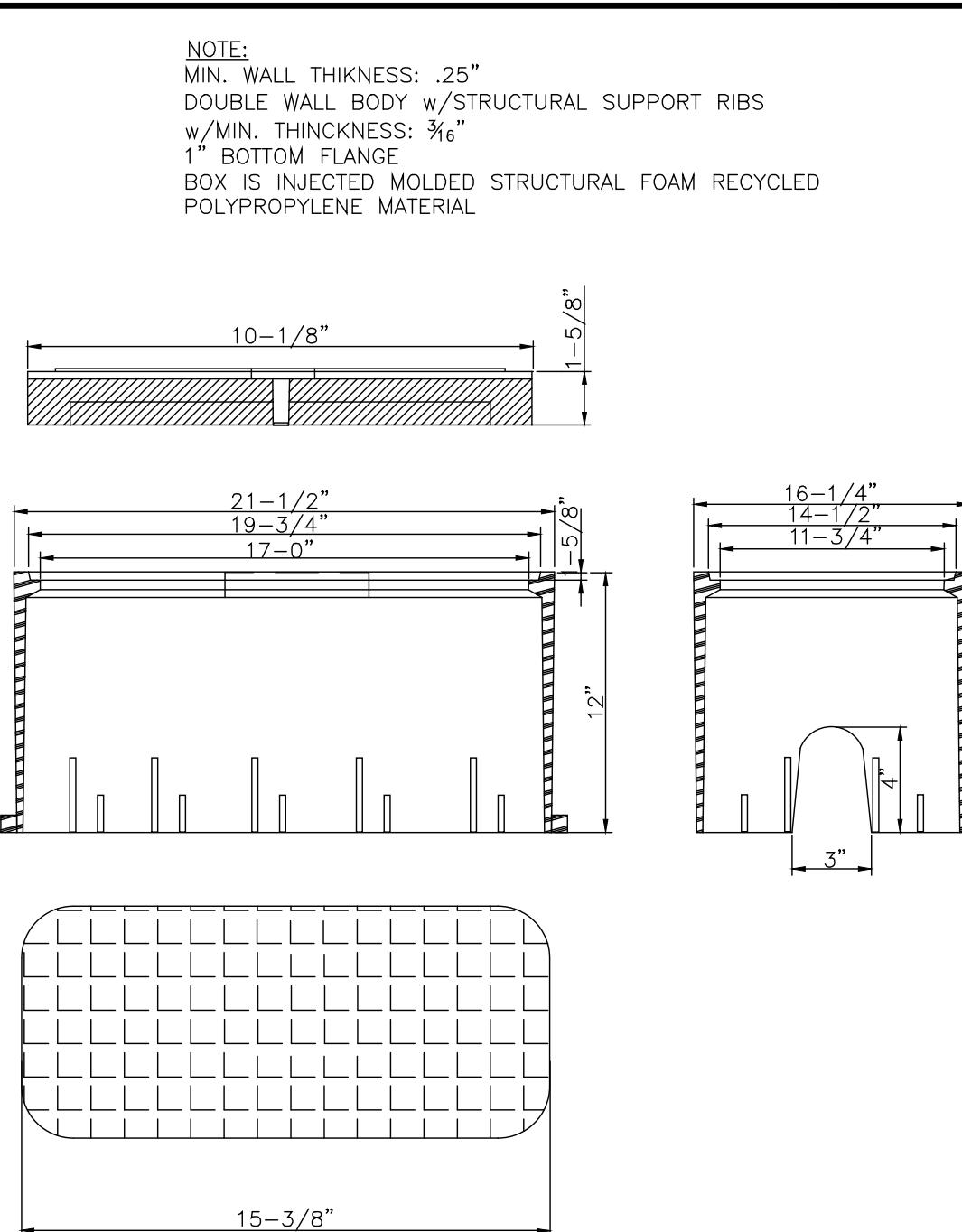
1. PIPE SHALL BE POLYETHYLENE. FITTINGS SHALL BE BRASS.
2. THE 2" CURB STOP SHALL BE ALL BRONZE. FITTINGS SHALL BE BRASS.
3. CANNOT BE PLACED UNDER CONCRETE OR PAVEMENT.
4. PLACE 2 FEET PAST LAST WATER MAIN SERVICE CONNECTION.

FLUSHING VALVE BELOW GRADE

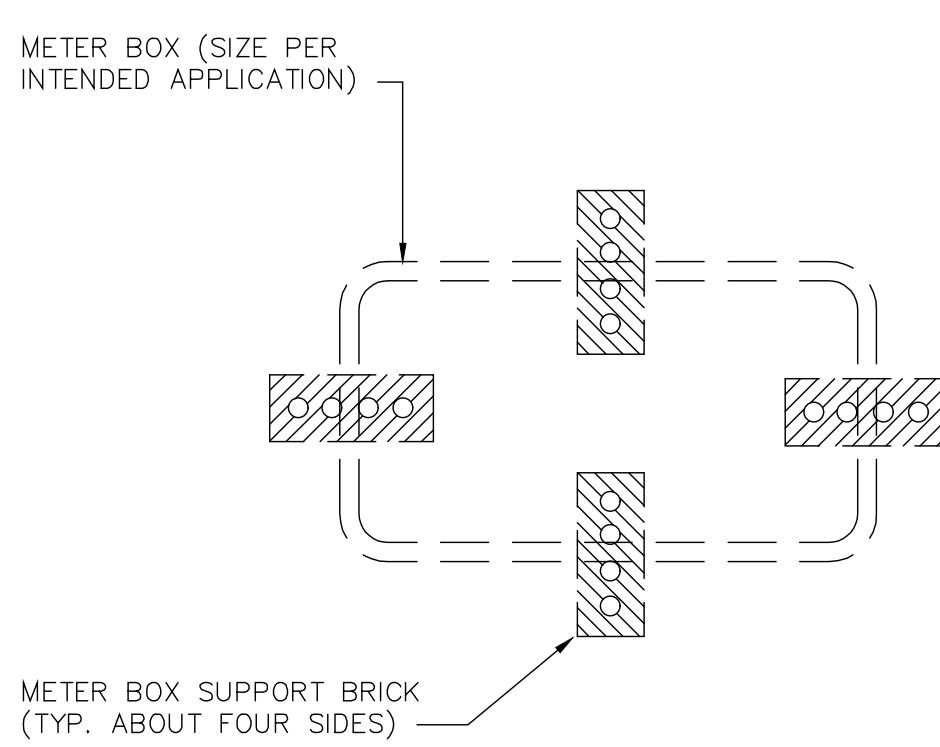


WATER SERVICE MARKER POST

NOTE:
 ALL SERVICES ARE TO BE CLEARLY MARKED BY A TREATED 6'-6" LONG MARKER POST PAINTED BLUE. ALL SERVICES ARE TO BE EXTENDED ABOVE GRADE UNTIL COMPLETION OF ALL GRADING ACTIVITIES. ONCE FINAL ROAD GRADING IS COMPLETE, LOWER SERVICES BY CUTTING OFF RISER 10" TO 12" BELOW FINAL GRADE AND INSTALL 90° BEND, NIPPLE, AND LW BALL VALVE AT THAT ELEVATION. SET METER BOX OVER ENTIRE HORIZONTAL SECTION OF SERVICE LINE FROM LAST 90° BEND TO THE END OF THE CURB STOP. BOX TO BE REPOSITIONED WHEN THE METER IS INSTALLED. MARKER POST TO BE INSTALLED ADJACENT TO AND LOCATED AT THE MID SECTION OF THE METER BOX.



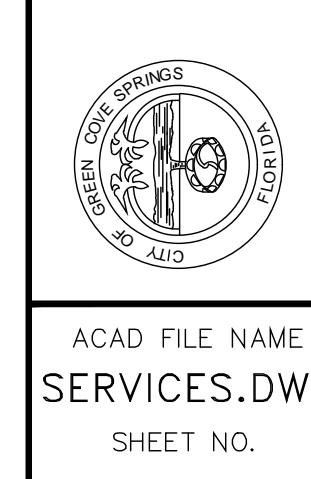
METER BOX & SOLID BLUE LID

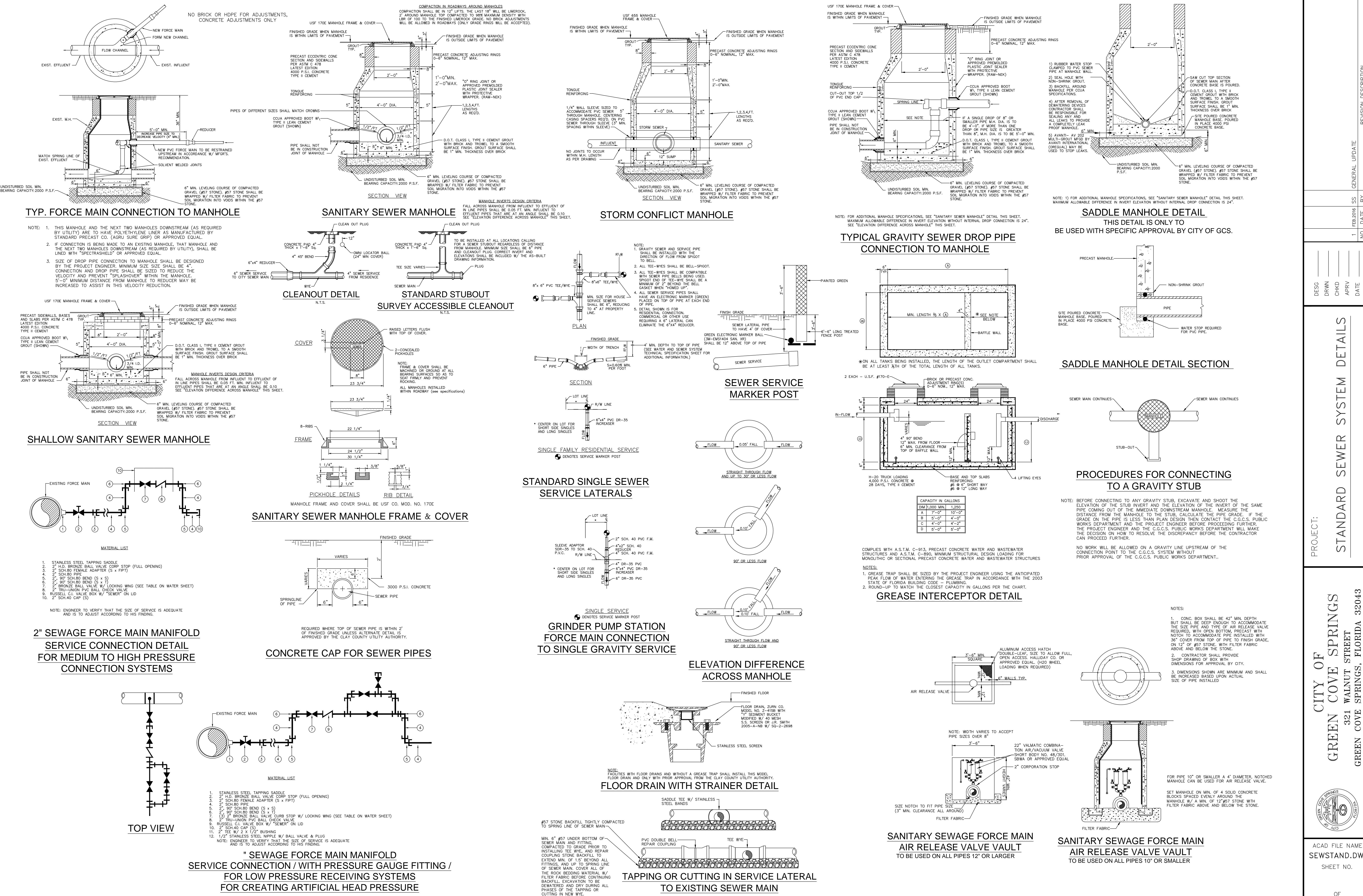


METER BOX SUPPORT DETAIL

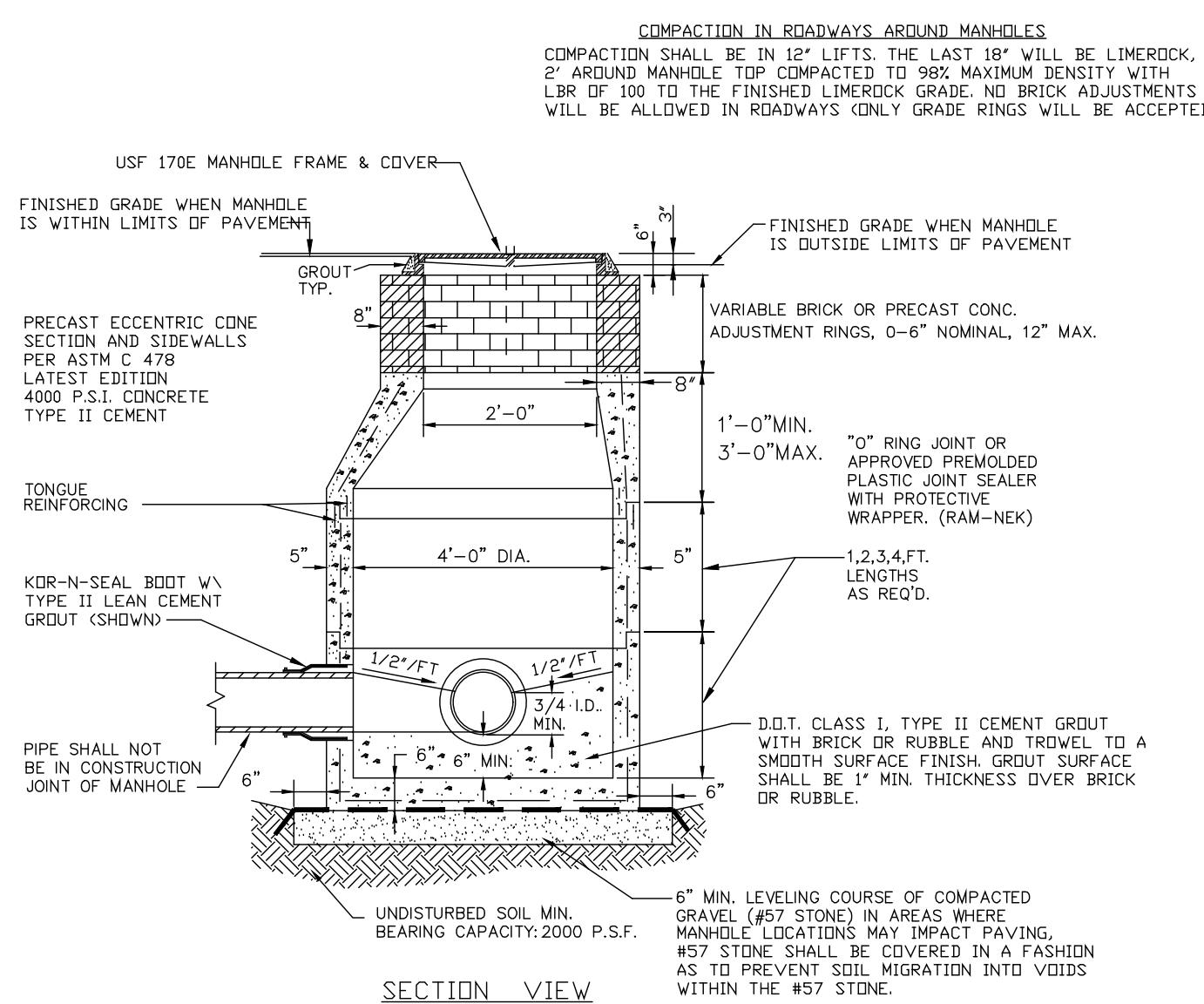
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PROJECT:	STANDARD WATER SERVICE DETAILS
CITY OF GREEN COVE SPRINGS	321 WALNUT STREET GREEN COVE SPRINGS, FLORIDA 32043

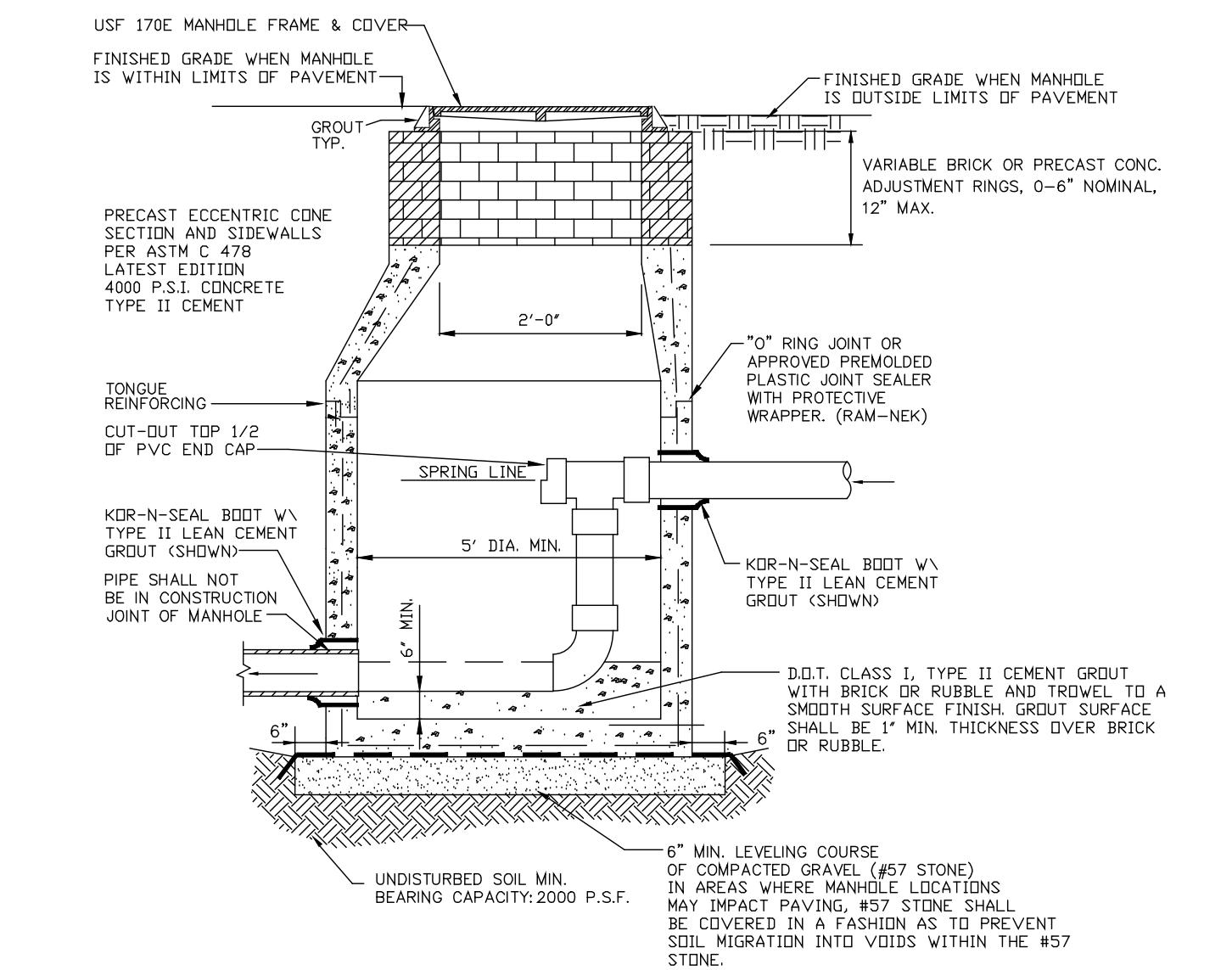




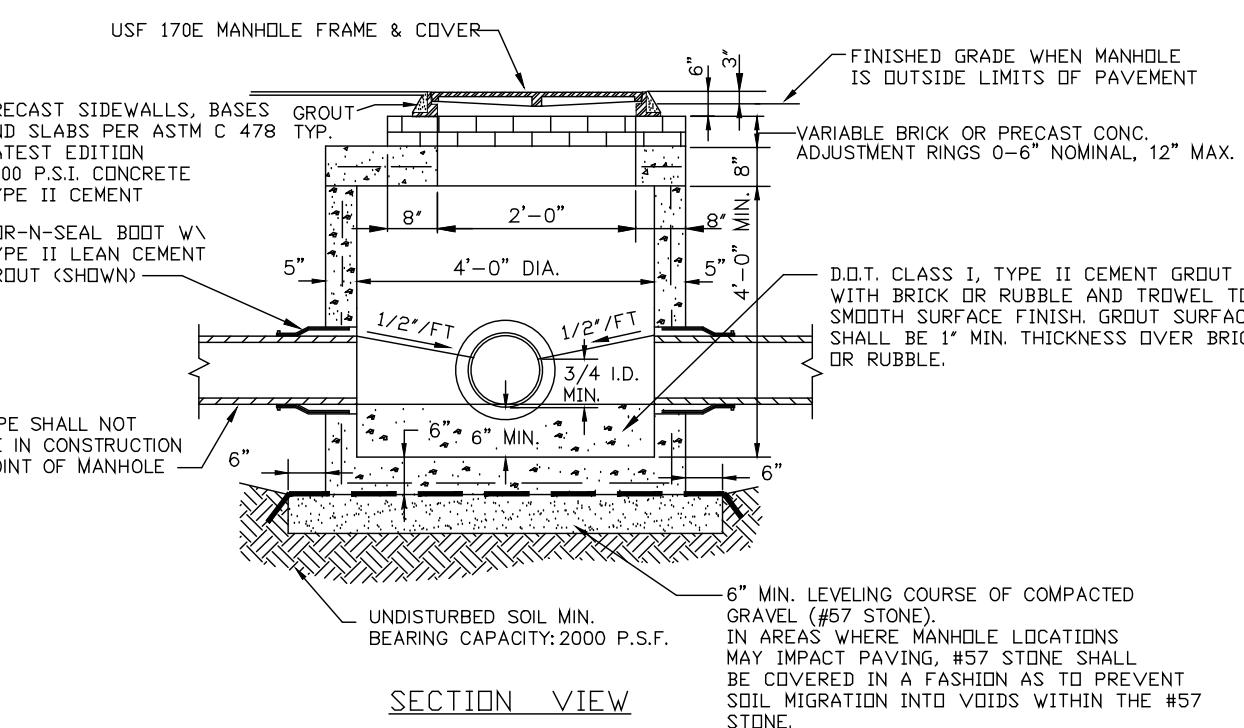
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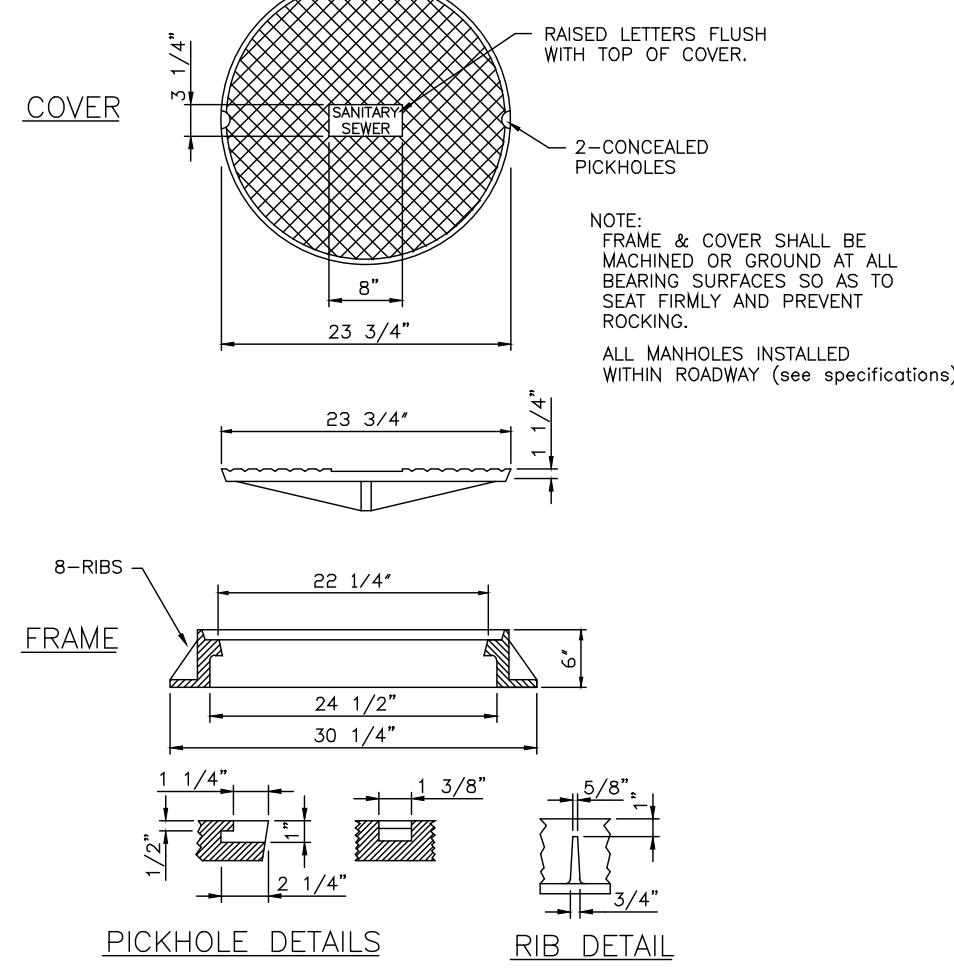
SANITARY SEWER MANHOLE



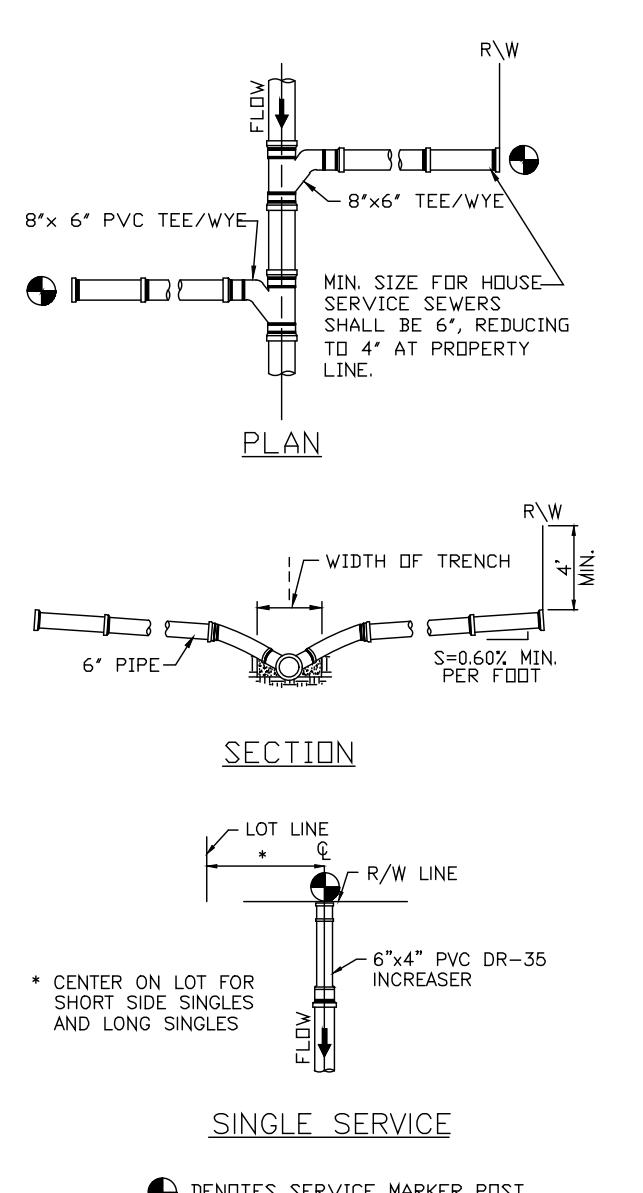
TYPICAL GRAVITY SEWER DROP PIPE CONNECTION TO MANHOLE



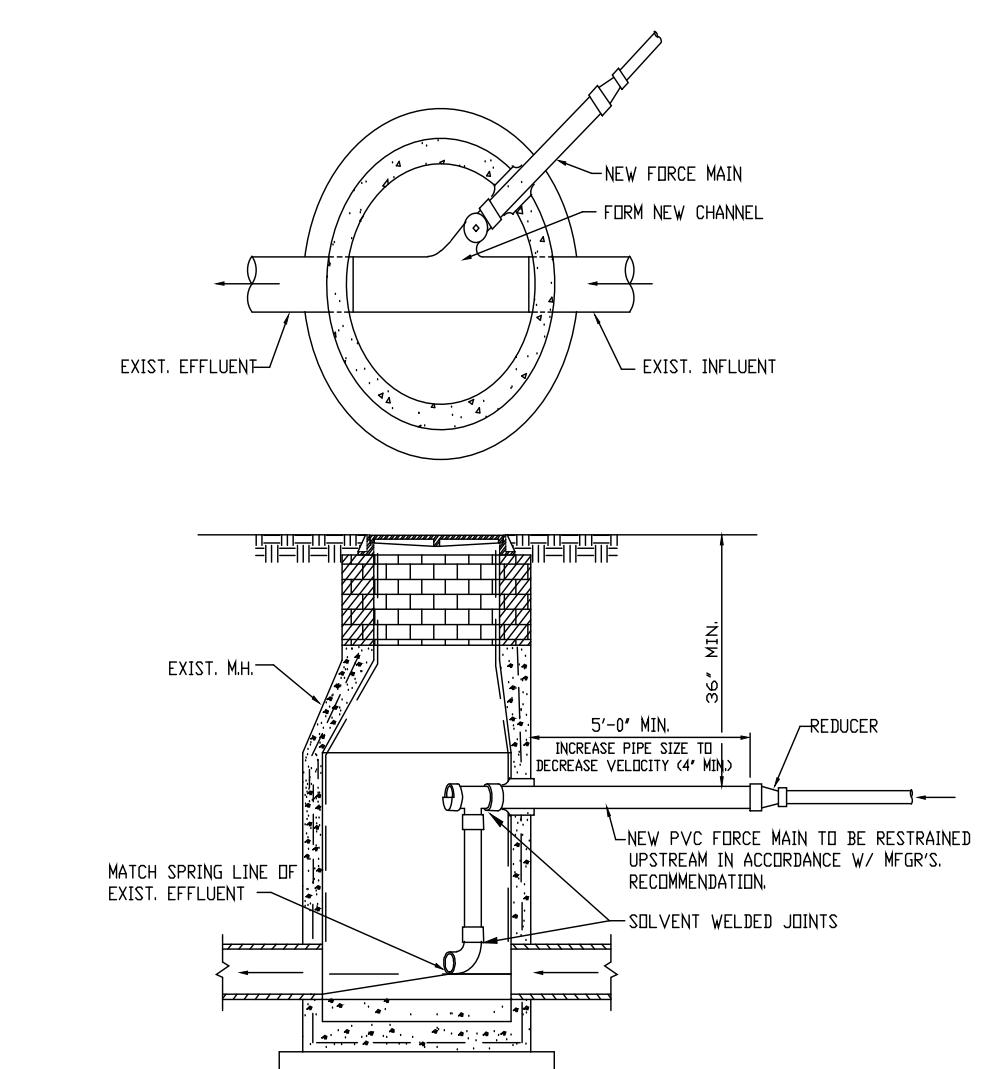
SHALLOW SANITARY SEWER MANHOLE



SANITARY SEWER MANHOLE FRAME + COVER

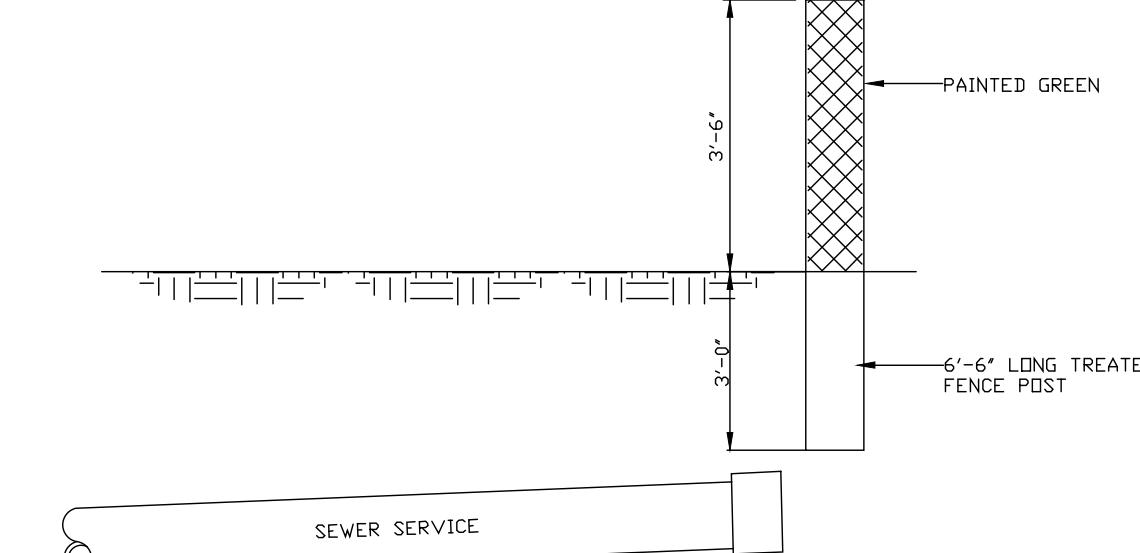


STANDARD SINGLE SEWER SERVICE LATERALS

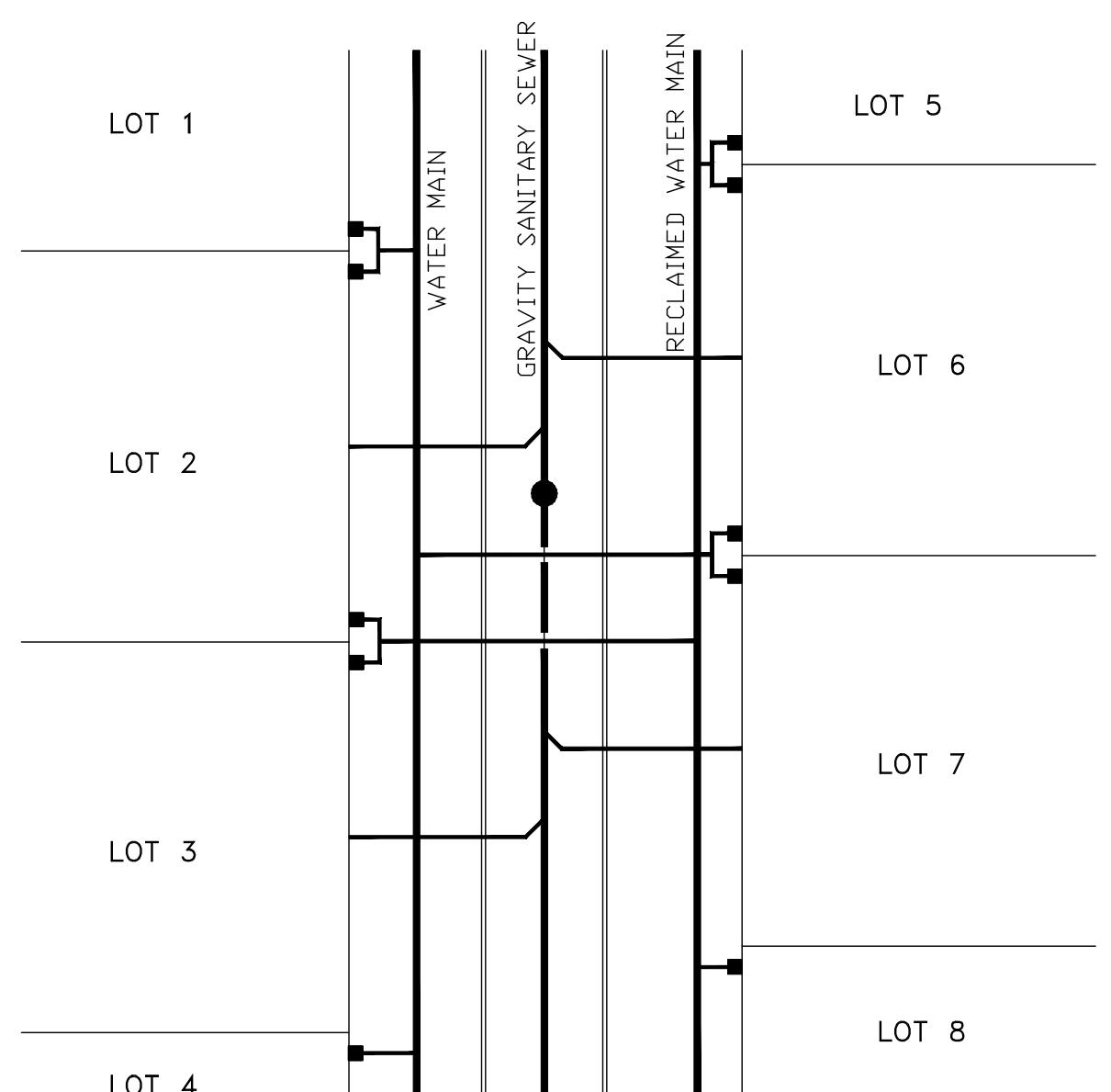


TYP. FORCE MAIN CONNECTION TO MANHOLE

NOTE: 1. THIS MANHOLE AND THE NEXT TWO MANHOLES DOWNSTREAM (AS REQUIRED BY UTILITY) ARE TO HAVE POLYETHYLENE LINER AS MANUFACTURED BY TAYLOR PRECAST CO. OR APPROVED EQUAL.
2. SIZE OF DROP PIPE CONNECTION TO MANHOLE SHALL BE DESIGNED BY THE PROJECT ENGINEER. MINIMUM SIZE SHALL BE 4". CONDUIT AND DROP PIPE SHALL BE SIZED TO REDUCE THE VELOCITY AND PREVENT "SPLASHING" IN THE MANHOLE. 5'-0" MINIMUM DISTANCE FROM MANHOLE TO REDUCER MAY BE INCREASED TO ASSIST IN THIS VELOCITY REDUCTION.



SEWER SERVICE MARKER POST



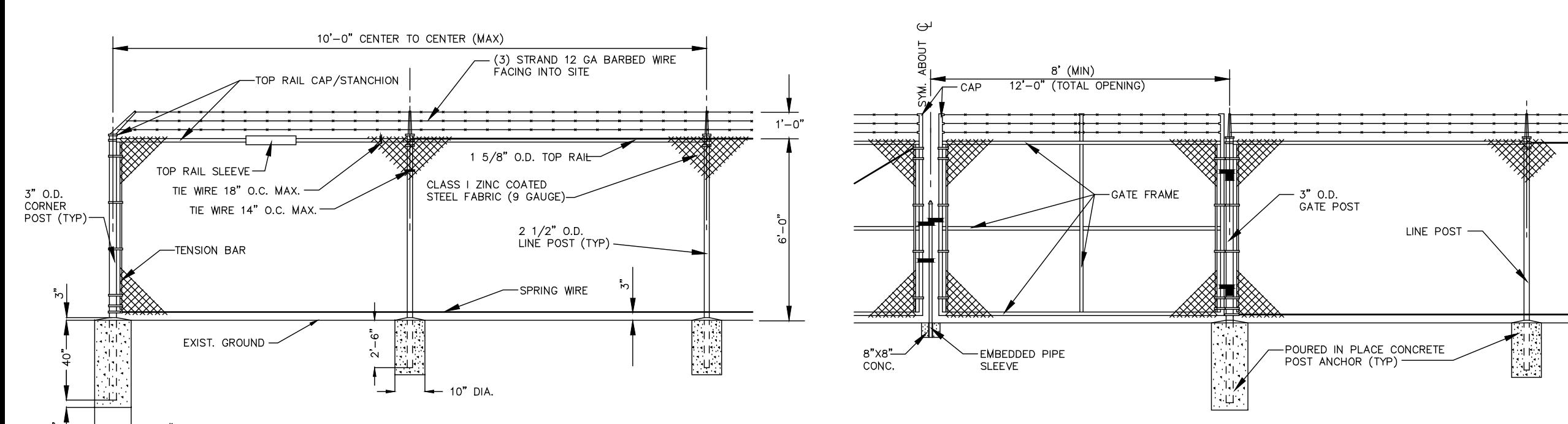
TYPICAL WATER AND SEWER SERVICE LOCATION PLAN

1. ALL WATER AND REUSE DOUBLE SERVICES ON PROPERTY LINE.
2. ANY SINGLE WATER OR REUSE SERVICE LINES ON LOT LINE.
3. ALL SEWER SERVICES ARE TO CENTER OF LOTS.

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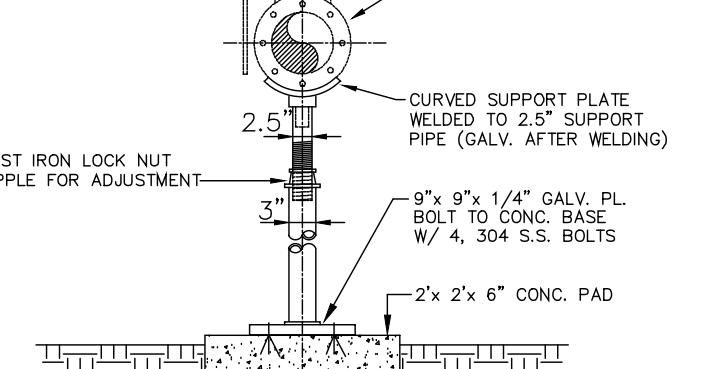
CITY OF
GREEN COVE SPRINGS
321 WALNUT STREET
GREEN COVE SPRINGS, FLORIDA 32043

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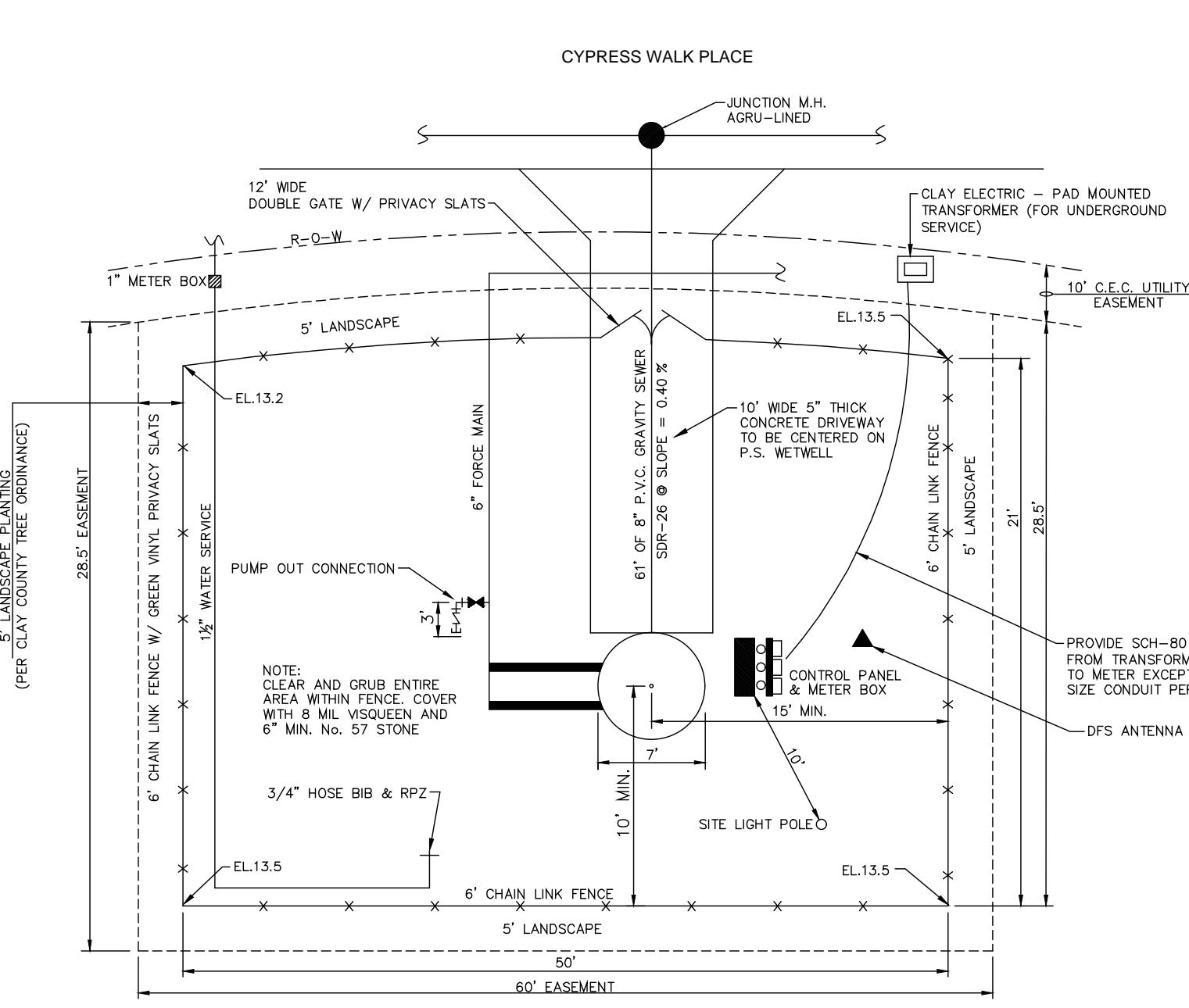


CHAIN LINK FENCE & CORNER POST DETAIL

GATE DETAIL



PIPE SUPPORT DETAIL



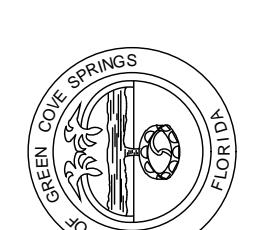
TYPICAL PERMANENT PUMP STATION SITE PLAN

GENERAL NOTES:

- PUMPS, TWO (2) OR THREE (3) TOTALLY SUBMERSIBLE FLYGT OR SIMILAR PUMPS, 100% DUTY CYCLE, 100% HEAD, 100% FLOW, DISCHARGE CONNECTION AND ELECTRICAL REQUIREMENTS AS DETERMINED.
- GAUGES SHALL BE FURNISHED WHERE SHOWN MOUNTED FACE UP. GAUGES SHALL BE 1" DIAMETER BOURDON TUBE TYPE WITH BRASS MOVEMENT. COLOCATELY SEALED UNBREAKABLE FLEXIBLE HOSE SHALL BE USED TO CONNECT GAUGES TO THE PUMP. EACH GAUGE SHALL HAVE A RANGE SUCH THAT THE NORMAL OPERATING RANGE OF THE PUMP IS WITHIN THE RANGE. GAUGES SHALL BE EQUIPPED WITH A SAFELY BLOW-OUT PLUG (SOBOP) AND A SAFELY BLOW-OUT PLUG (SOBOP) WITH A SAFELY BLOW-OUT PLUG (SOBOP) (NPT) STEEL PIPE WITH DIAPHRAGM PROTECTORS WITH STAINLESS STEEL DIAPHRAGM AND STOP COCKS BETWEEN DISCHARGE PIPES AND GAUGES. GAUGES SHALL BE EQUAL TO THOSE MANUFACTURED BY THE LENZ COMPANY.
- FENCING: ALL PARTS FOR CONSTRUCTION OF THE FENCE AND NECESSARY FENCE POSTS, BRACERS, AND GATES SHALL BE PRE-ASSEMBLED AND INSTALLED. FENCE SHALL COMPLY WITH THE A392-681 (LATEST) SPECIFICATIONS FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC AND POSTS. FENCE POSTS SHALL BE 4" X 4" X 1/2" THICK PRE-ASSEMBLED STEEL FORGINGS. ALL FERROUS MATERIALS SHALL BE HOT DIP GALVANIZED BY THE DIP METHOD.
- A. CHAIN-LINK FENCE SLATS SHALL BE 1" X 1" X 1/2" IN. (12.7MM X 25.4MM X 12.7MM) POLYTHETIC WITH A WALL THICKNESS F 0.020" (0.0032M).
- B. PRIVACY SCREENING: ENVIRONMENTAL PRIVACY SCREENING SHALL BE 86 TO 90% KNT RASHEL 100% POLYETHYLENE UV STABILIZED FABRIC. SCREEN SHALL BE 100% EPOXY COATED AND ATTACHED TO THE FENCE FABRIC WITH SUFFICIENT TIES TO SECURE THE SCREEN. ACCEPTABLE SCREEN: PRIVACY PLATE 100% EPOXY COATED.
- ALL PRECAST REINFORCED CONCRETE PRODUCTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478 (LATEST), WITH CLASS C CONCRETE UNLESS OTHERWISE NOTED. ALL CONCRETE AND PRECAST CONCRETE SHALL BE CERTIFIED BY AN ENGINEER REGISTERED WITH THE STATE OF FLORIDA.
- ALL DISCHARGE PIPE FITTINGS 6" AND LARGER (AFTER VALVE) SHALL BE DUCTILE IRON. ALL DISCHARGE PIPE FITTINGS 4" AND SMALLER SHALL BE EPOXY LINED OR POLY-LINED (40 MIL THICKNESS) DUCTILE IRON.
- PUMP STATION SITE SHALL BE COVERED (INSIDE OF FENCED AREA) WITH 6" OF 8" P.V.C. GRAVITY SEWER. 6" OF 8" P.V.C. GRAVITY SEWER SHALL BE CENTERED ON P.S. WETWELL.
- ALL DUCTILE IRON FITTINGS AND PIPE SHALL BE HOLIDAY TESTED PRIOR TO INSTALLATION.
- DUCTILE IRON PIPE, FITTINGS AND BOLTS SHALL RECEIVE A THOROUGH EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN A.N.S.I. SPECIFICATIONS A21.51.
- ALL EXTERIOR JOINTS OF PRECAST CONCRETE WETWELLS SHALL BE TIGHTLY BONDED WITH RUBBERIZED ASPHALT MEMBRANE TAPE. TAPE SHALL BE PERM-A-BARRIER BY W.R. GRACE, ELASTOLYD BY KARNAK OR EQUIVALENT.
- ENGINEERS SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WETWELL, BOTTOM OF CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB ARE ALL ABOVE THE 100% FLOOD ELEVATION. THESE DRAWINGS DO HEREBY CERTIFY THAT THE ABOVE ELEVATION HAVE BEEN MET.
- ALL PUMP STATIONS SHALL BE CONTROLLED BY DATA FLOW SYSTEMS SCADA, OR OTHERWISE APPROVED BY THE CITY OF GREEN COVE SPRINGS.

(PROFESSIONAL ENGINEERS SIGNATURE)

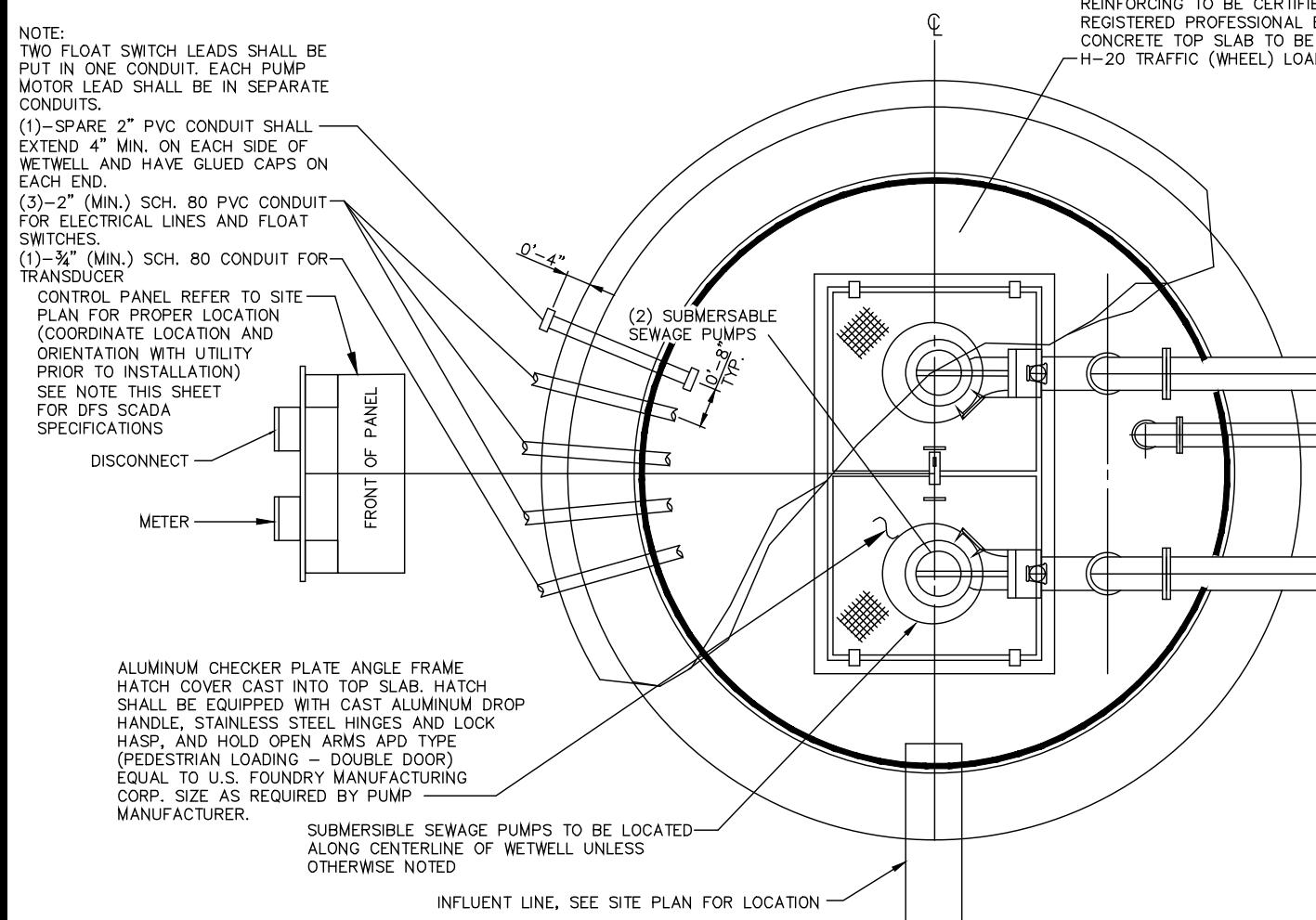
PROJECT:
CITY OF GREEN COVE SPRINGS
321 WALNUT STREET
GREEN COVE SPRINGS, FLORIDA 32043



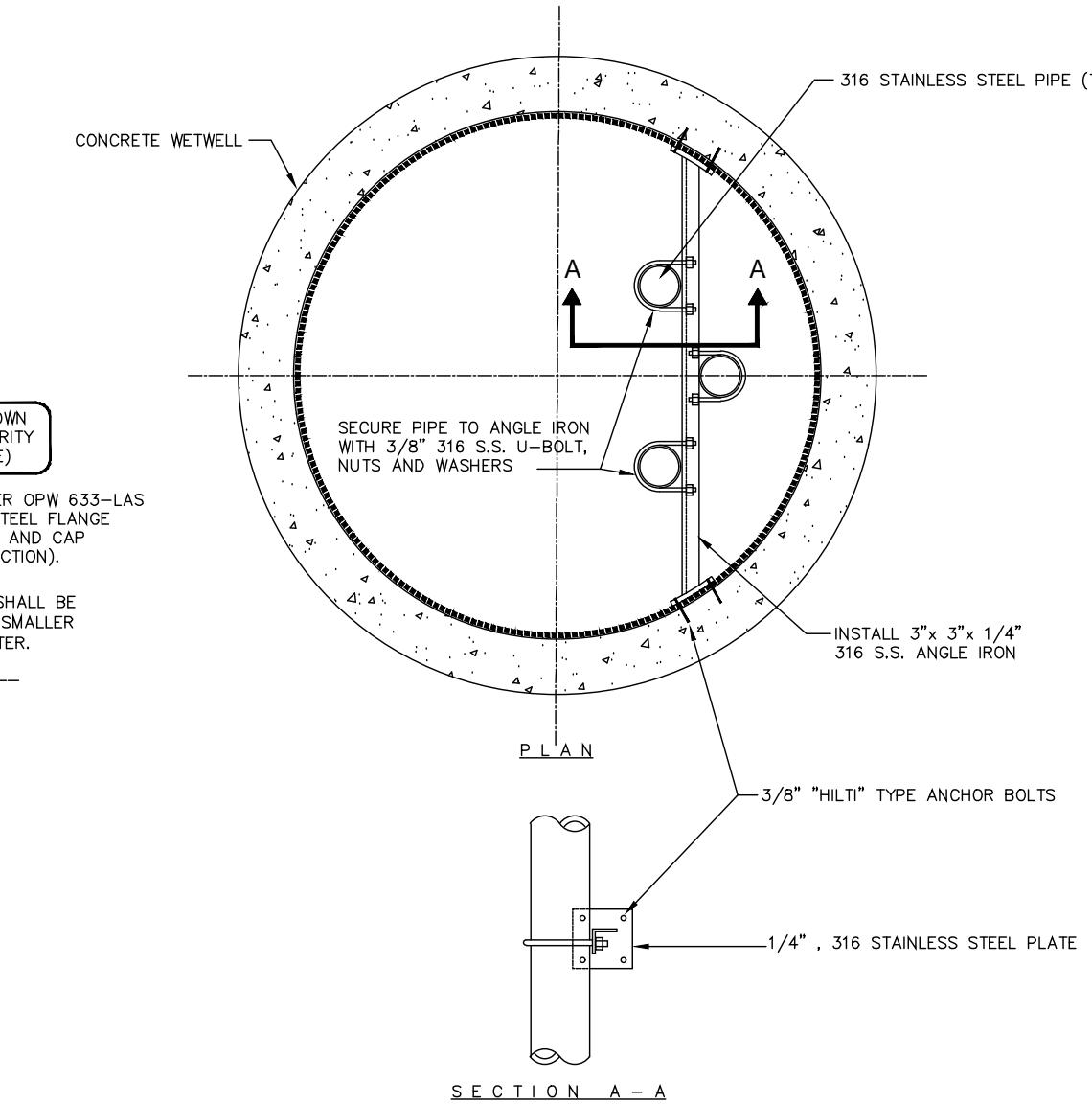
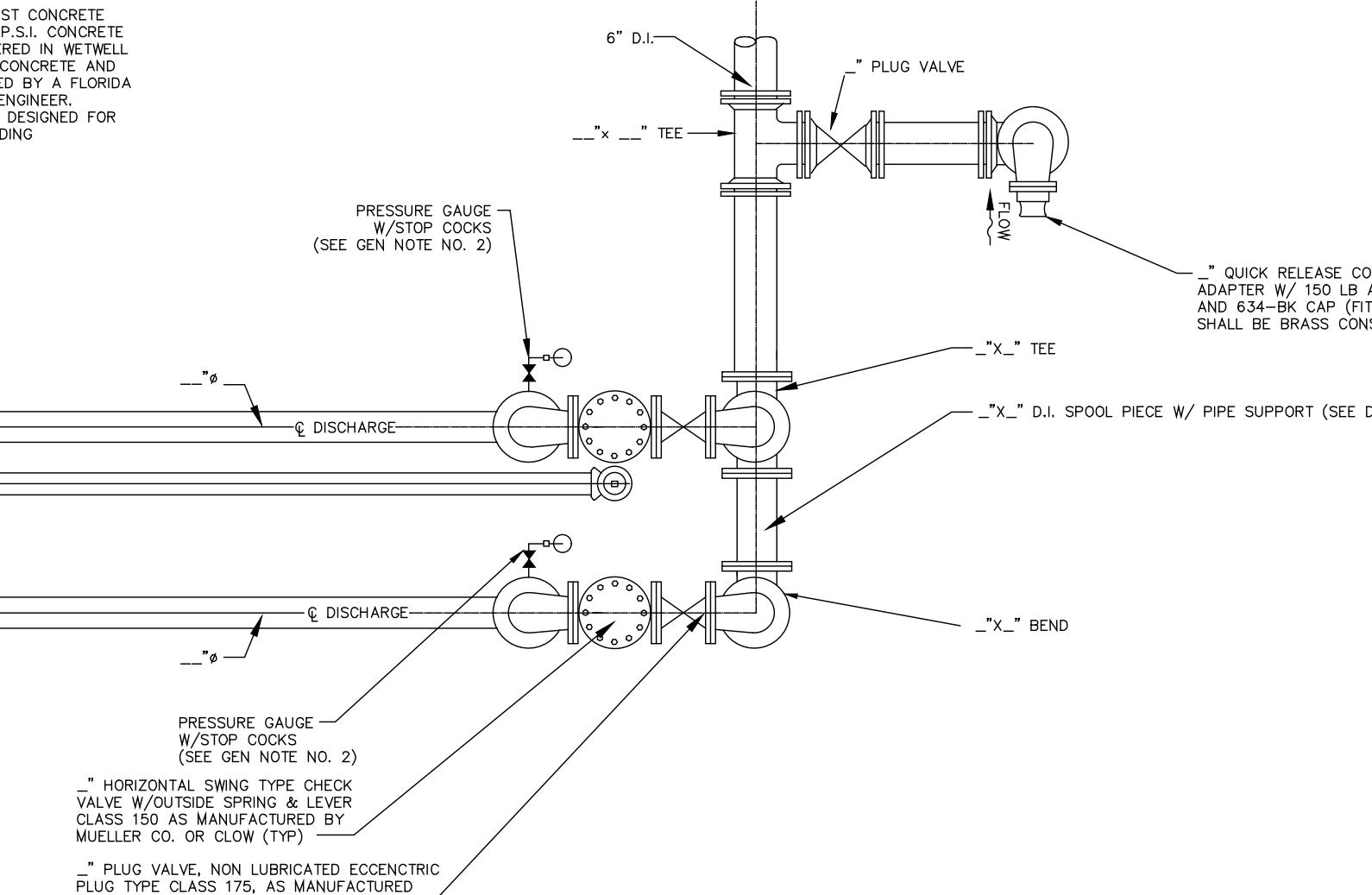
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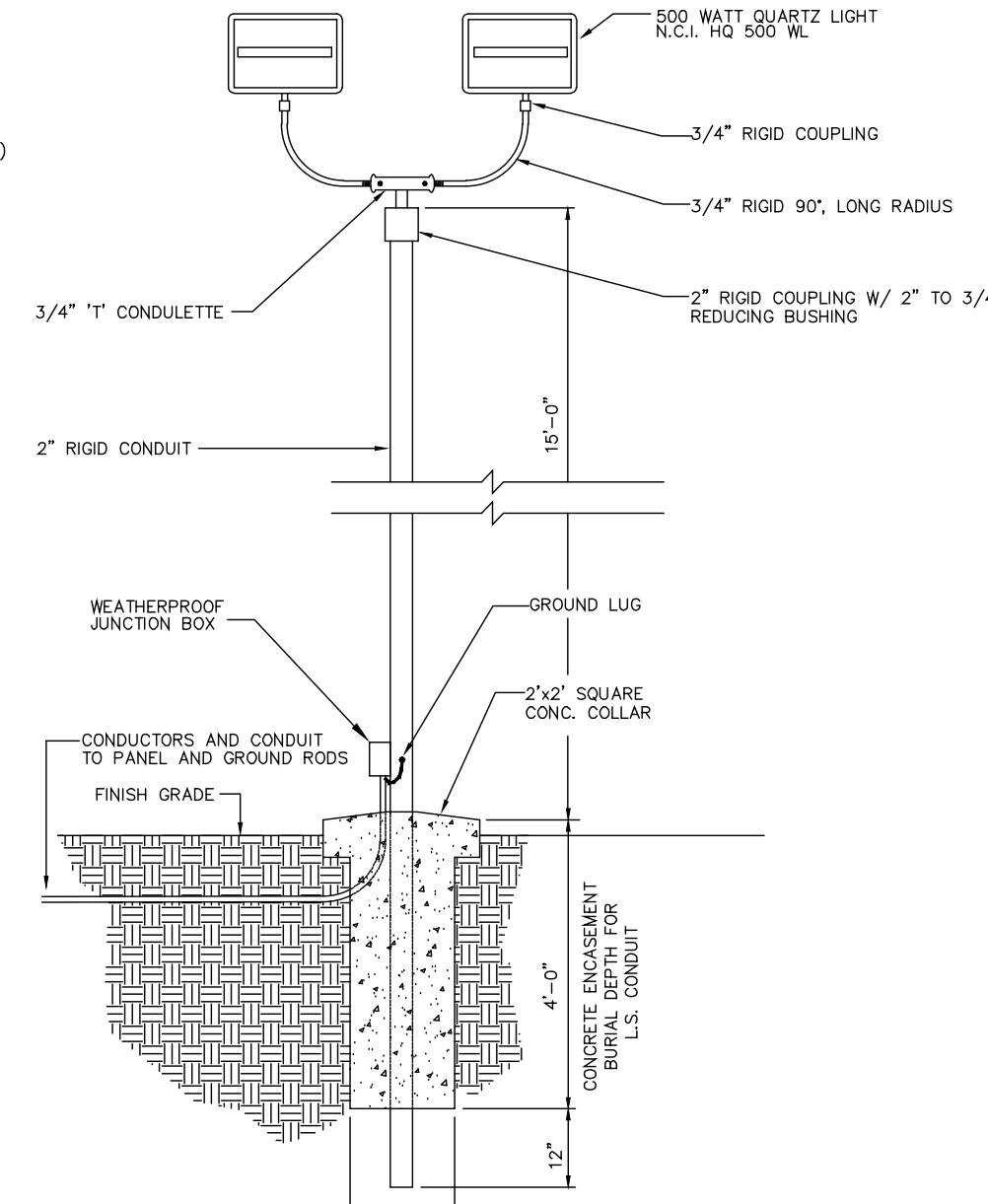
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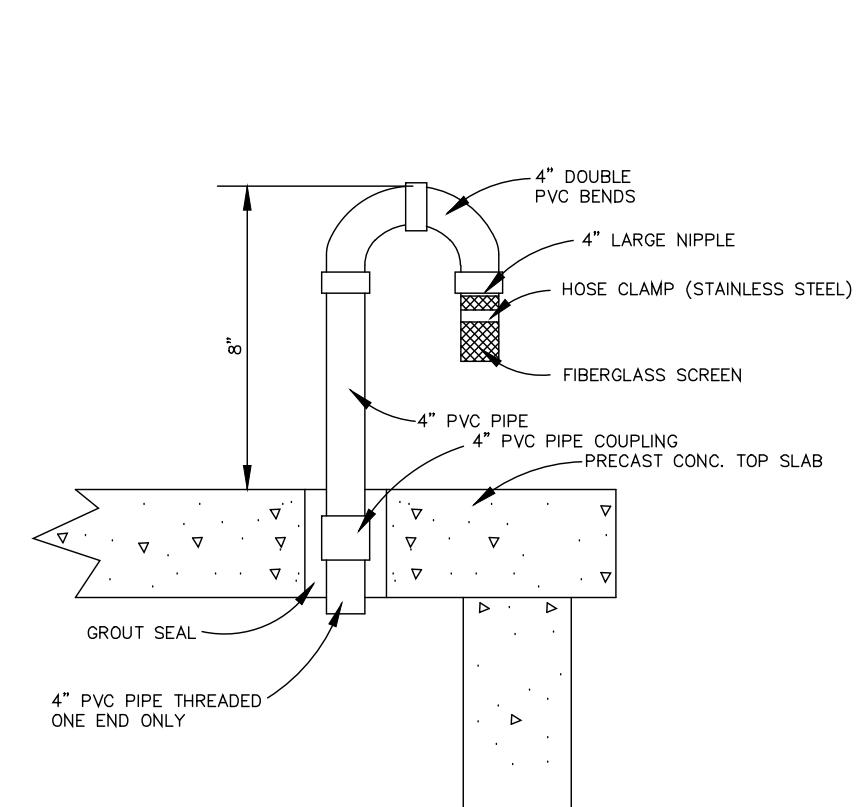
WETWELL AND VALVE VAULT PLAN VIEW



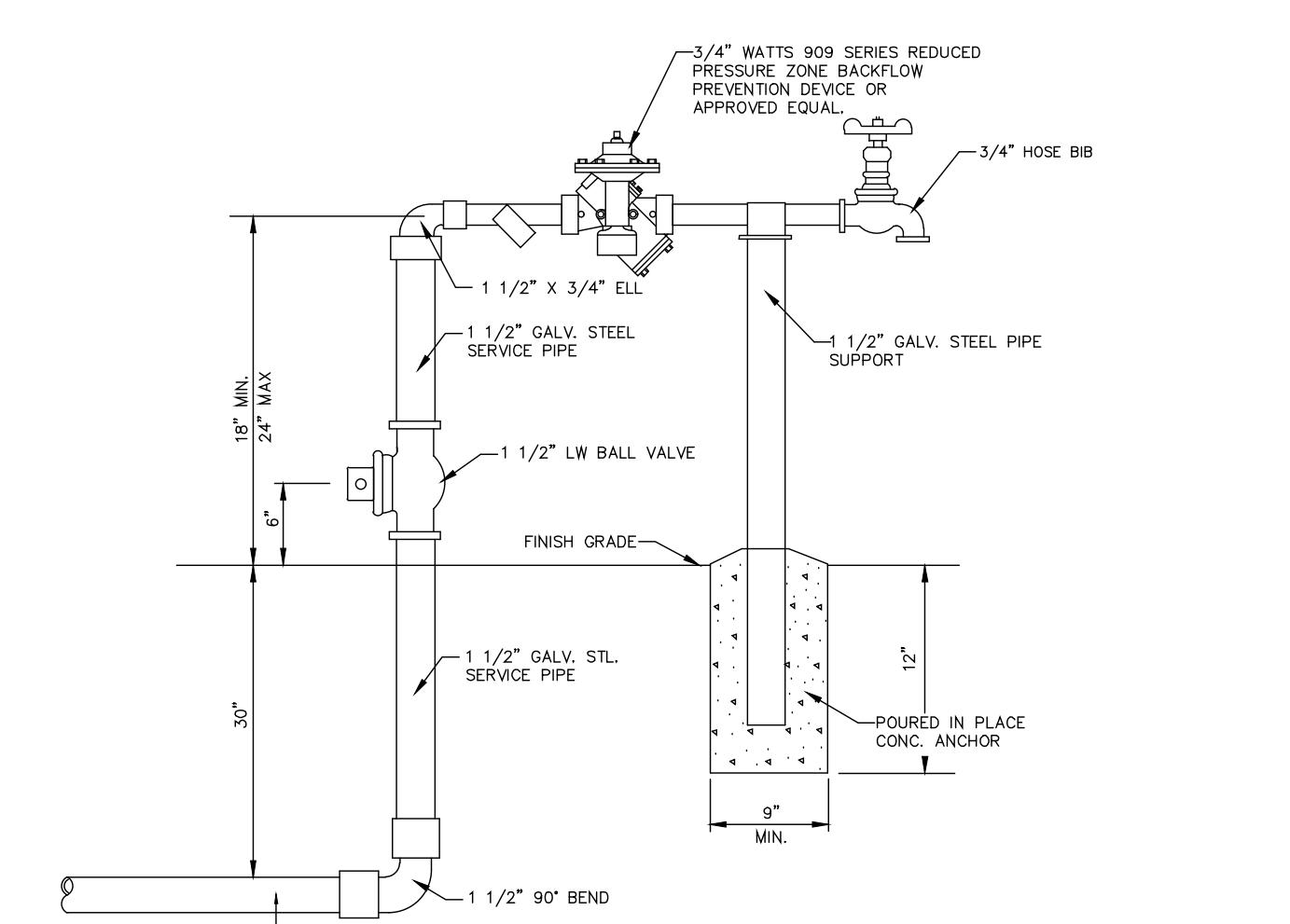
PIPE ATTACHMENT TO WALL DETAIL



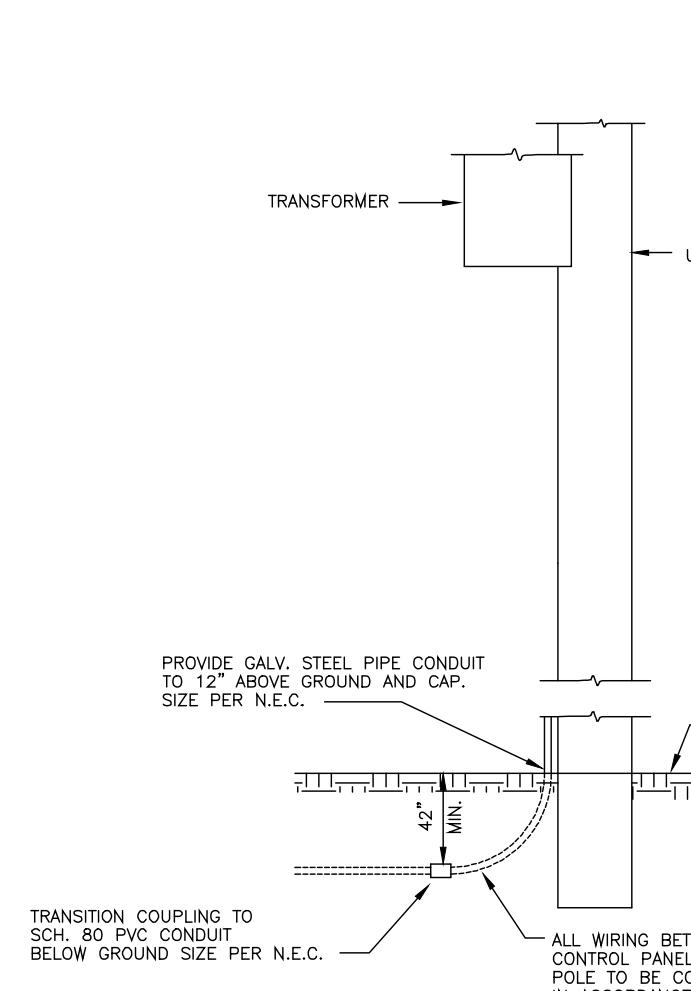
SITE LIGHT STANDARD DETAIL



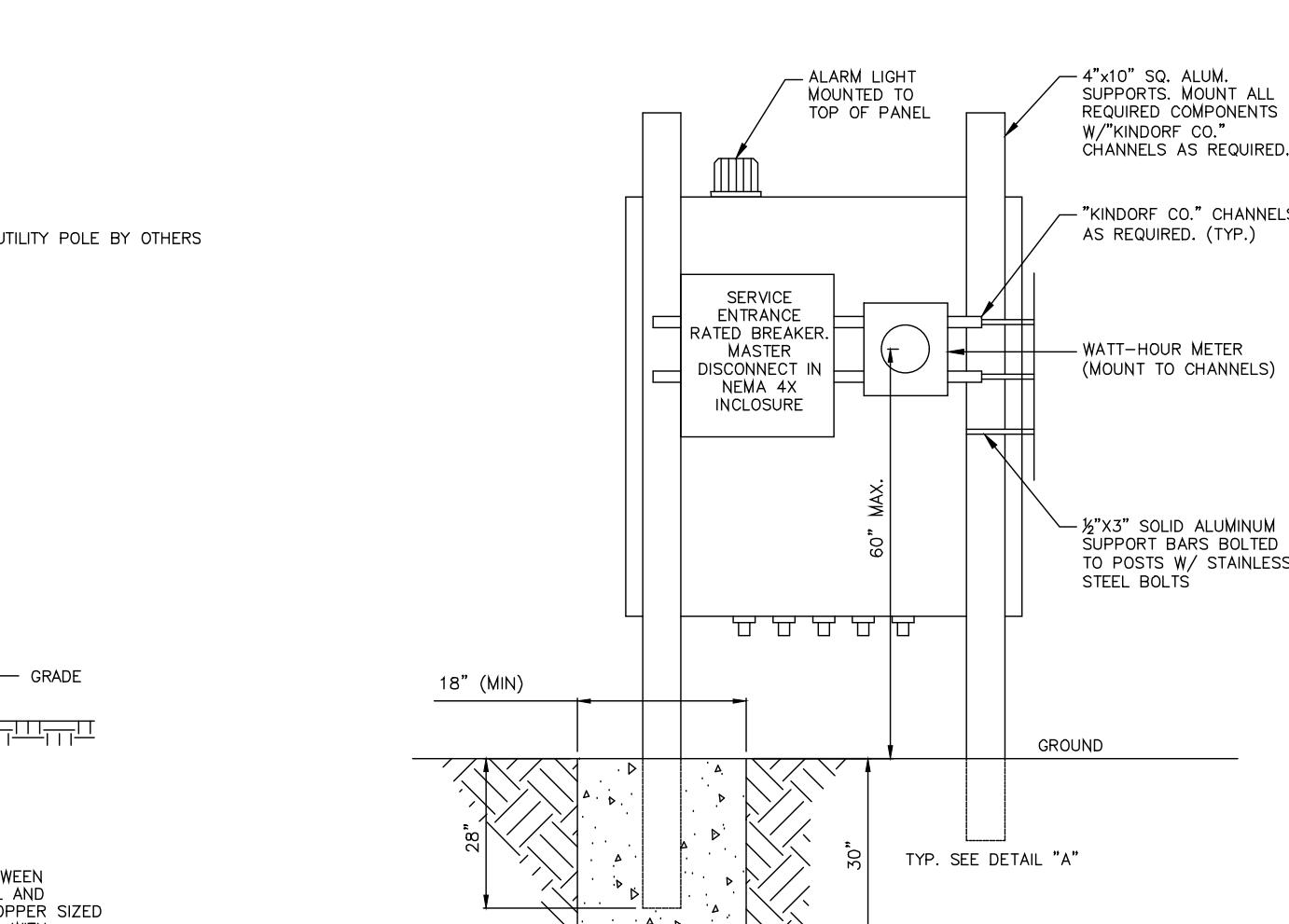
VENT PIPE DETAIL



WATER SERVICE



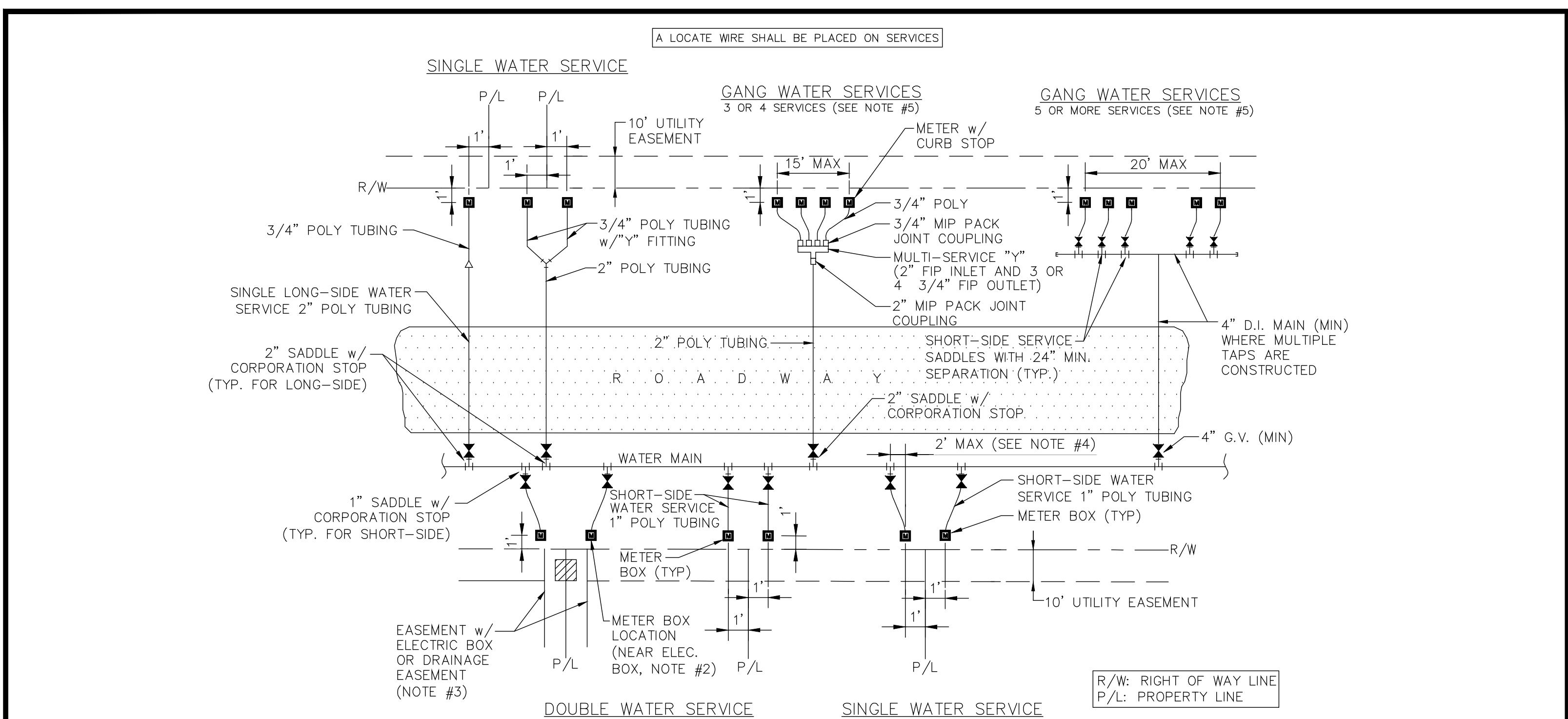
POWER RISER DETAIL



TYPICAL DISCONNECT PANEL

PERMANENT POLYETHYLENE LINED SUBMERSIBLE PUMP STATION WITH VALVE PIT - ELEVATION

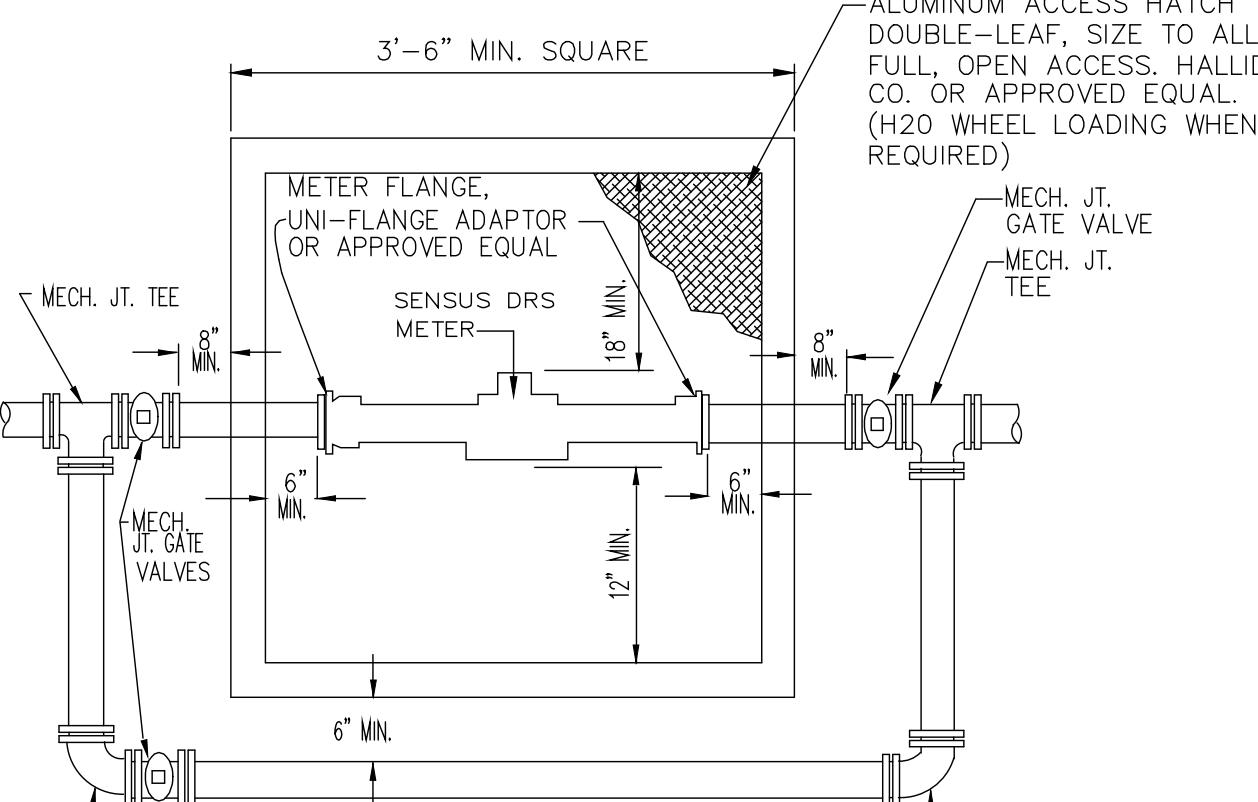
(NOTE: PIPE SIZES, WETWELL SIZES AND INSIDE DIMENSIONS OF VALVE PIT TO BE VERIFIED BY ENGINEER AND MODIFIED AS NECESSARY.)



NOTES

1. THE SKETCHES ABOVE INDICATE TYPICAL RECLAIMED WATER SERVICE AND METER BOX LOCATIONS. ACTUAL LOCATIONS OF BOXES MAY VARY SLIGHTLY ACCORDING TO FIELD CONDITIONS ENCOUNTERED. TYPICALLY, THE METER BOX SHALL BE LOCATED 1.0' OFF OF THE R/W LINE.
2. UNLESS SPECIFIED OTHERWISE BY THE CITY OF GREEN COVE SPRINGS, THE METER BOX SHALL BE LOCATED 1.0' OFF OF THE R/W LINE, AND 1.0' FOOT INSIDE OF THE PROLONGATION OF ONE OF THE SIDE PROPERTY LINES. IF A CONFLICT EXISTS WITH OTHER UTILITIES, THE METER BOX MAY BE ADJUSTED TO FOUR FEET (MAX.) INSIDE PROPERTY LINES (IN LIEU OF 1.0' FEET). UNLESS APPROVED OTHERWISE BY THE CITY, THE RECLAIMED WATER METER BOX SHALL BE LOCATED IN NON-TRAFFIC AREAS (NOT IN SIDEWALKS OR DRIVEWAYS). IF AN UNAPPROVED METER BOX IS IDENTIFIED BY THE CITY, THEN THE CONTRACTOR OR CUSTOMER SHALL BE RESPONSIBLE FOR THE COST OF RELOCATING ANY METER BOX WHICH IS LOCATED IN THE SIDEWALK OR DRIVEWAY OR THE COST TO PROVIDE THE CORRECT METER BOX. THE CITY SHALL APPROVE ALL DEVIATIONS TO THE ABOVE PRIOR TO CONSTRUCTION.
3. IF DRAINAGE OR OTHER EASEMENT IS LOCATED BETWEEN LOTS, METER BOXES SHALL BE LOCATED AT THE EASEMENT LINE BUT OUTSIDE THE EASEMENT AREA.
4. FOR SINGLE SERVICES, THE HORIZONTAL DISTANCE (PERPENDICULAR TO THE MAIN) BETWEEN THE SERVICE'S SADDLE AND THE METER BOX SHALL BE 2 FEET MAXIMUM. FOR DOUBLE 3/4" SERVICES, THE 2" POLY MAIN SHALL BE LOCATED CENTERED BETWEEN THE TWO METER BOXES. LOCATE WIRE IS REQUIRED ON ALL SERVICES. THE WIRE SHALL RUN FROM THE METER BOX TO THE MAIN (WITH NO CONNECTION TO MAIN WIRE WITH THE LAST 24 INCHES STRIPPED OF INSULATION/BARE WIRE AS GROUND). ALL EXCEPTIONS TO THIS REQUIREMENT MUST BE APPROVED BY THE CITY OF GREEN COVE SPRINGS. THIS WILL ASSIST IN LOCATING EXISTING SERVICE LINES IN THE FUTURE.
5. GANG RECLAIMED WATER SERVICES: FOR 3 OR 4 SERVICES IN ONE AREA, A DUCTILE IRON PIPE (D.I.P.) RECLAIMED WATER MAIN EXTENSION W/LOCATE WIRE MAY BE UTILIZED ON EITHER SHORT-SIDE OR LONG-SIDE SERVICES WHERE SHOWN ON THE DRAWINGS. LOCATE WIRE SHALL EXTEND FROM ONE METER BOX TO CURB STOP AT RECLAIMED WATER MAIN. FOR 5 OR MORE SERVICES IN ONE AREA, A RECLAIMED WATER MAIN EXTENSION W/LOCATE WIRE MAY BE UTILIZED ON EITHER SHORT-SIDE OR LONG-SIDE SERVICES WHERE SHOWN ON THE DRAWINGS (TAPS STAGGERED AND AT 2 FEET ON CENTER (MIN.) FOR WATER SUPPLY HEADERS WHERE 5 OR MORE TAPS ARE CONSTRUCTED, THE HEADER PIPE SHALL BE 4" AT A MINIMUM. EXAMPLE: CONSTRUCT A 4" MAIN D.I.P. CROSSING THE STREET FOR 5 RESIDENTIAL CUSTOMERS, UTILIZING 4" G.V., 4" PIPE, 4" X 1" SADDLES AND 1" CURB STOPS (NO GLUED TEE FITTINGS). THE 4" OR LARGER D.I.P. RECLAIMED WATER MAIN MUST BE SIZED AND DESIGNED BY THE ENGINEER.
6. ALL COMMERCIAL WATER SERVICES SHALL BE 2" POLYETHYLENE PIPING CONNECTED TO 2" CURB STOP IN METER BOX, UNLESS OTHERWISE APPROVED BY THE CITY.

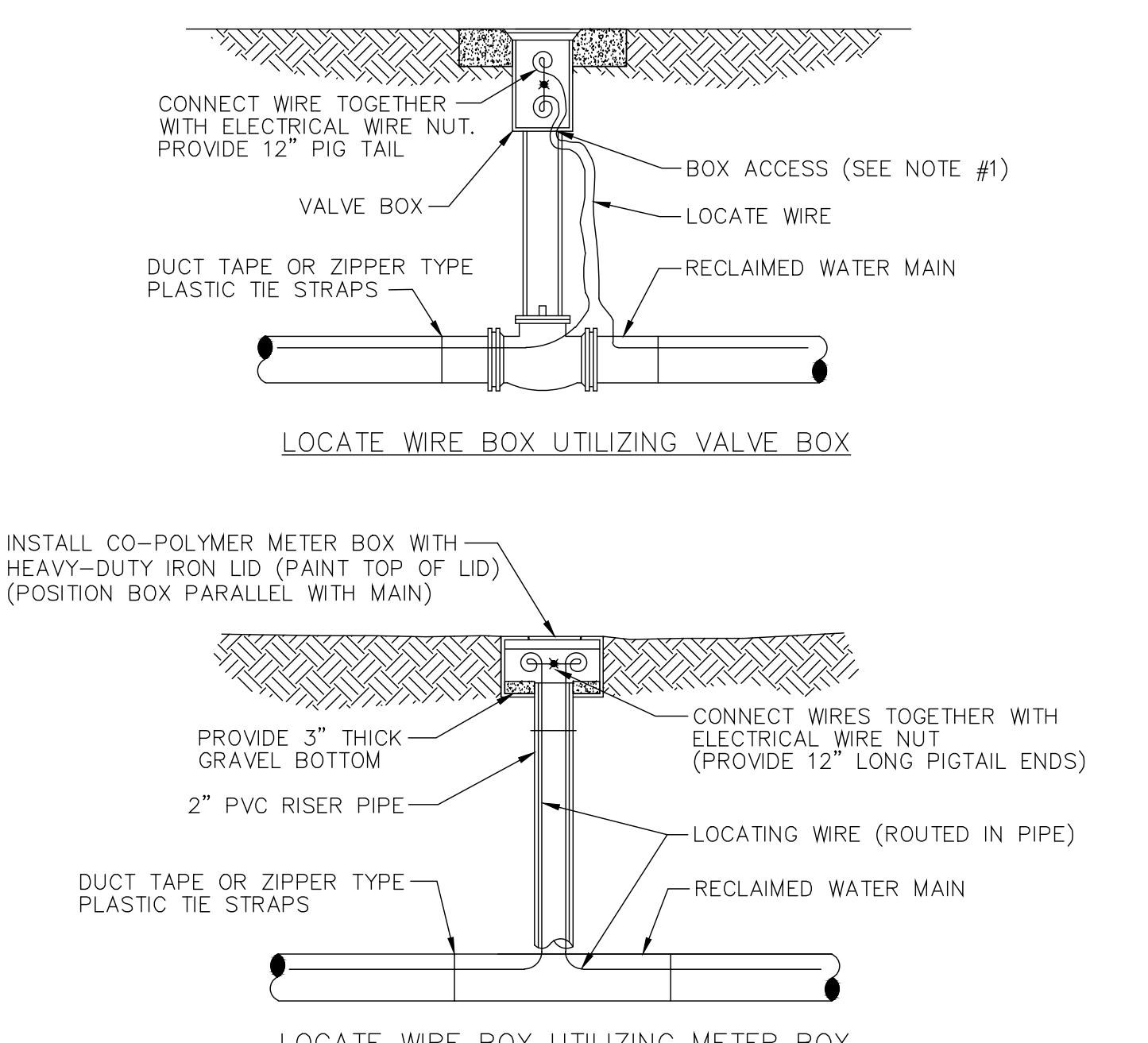
RECLAIMED WATER SERVICE INSTALLATIONS 2" AND SMALLER METER



NOTES:

1. ALL PIPE TO BE D.I.
2. ALL VALVES & FITTINGS TO BE DUCTILE IRON.
3. MINIMUM LENGTH OF 8 DIAMETERS OF STRAIGHT PIPE TO BE INSTALLED ON INLET SIDE OF METER.
4. ALL PIPE AND FITTINGS TO BE SAME SIZE AS METER.
5. CON. BOX SHALL BE 42" DEEP WITH OPEN BOTTOM, PRECAST CON. NOTCH TO ACCOMODATE PIPE INSTALLED 36" DEEP, INSTALLED ON 12" OF #40 STONE.
6. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF BOX WITH DIMENSIONS FOR APPROVAL BY C.C.U.A.
7. DIMENSIONS SHOWN ARE MINIMUM AND SHALL BE INCREASED BASED UPON ACTUAL SIZE OF METER PROVIDED.

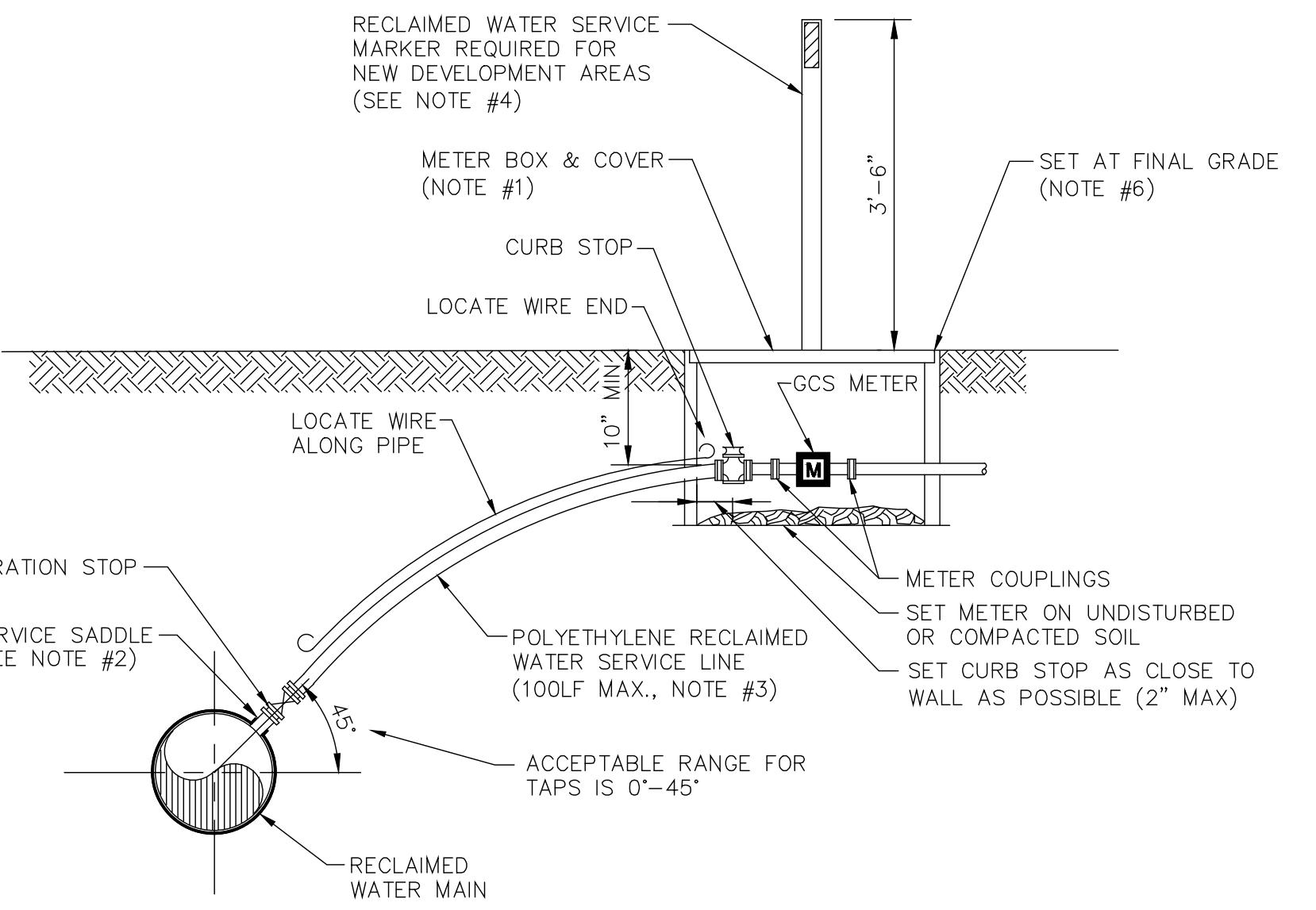
METER VAULT 3" AND LARGER METERS



NOTES

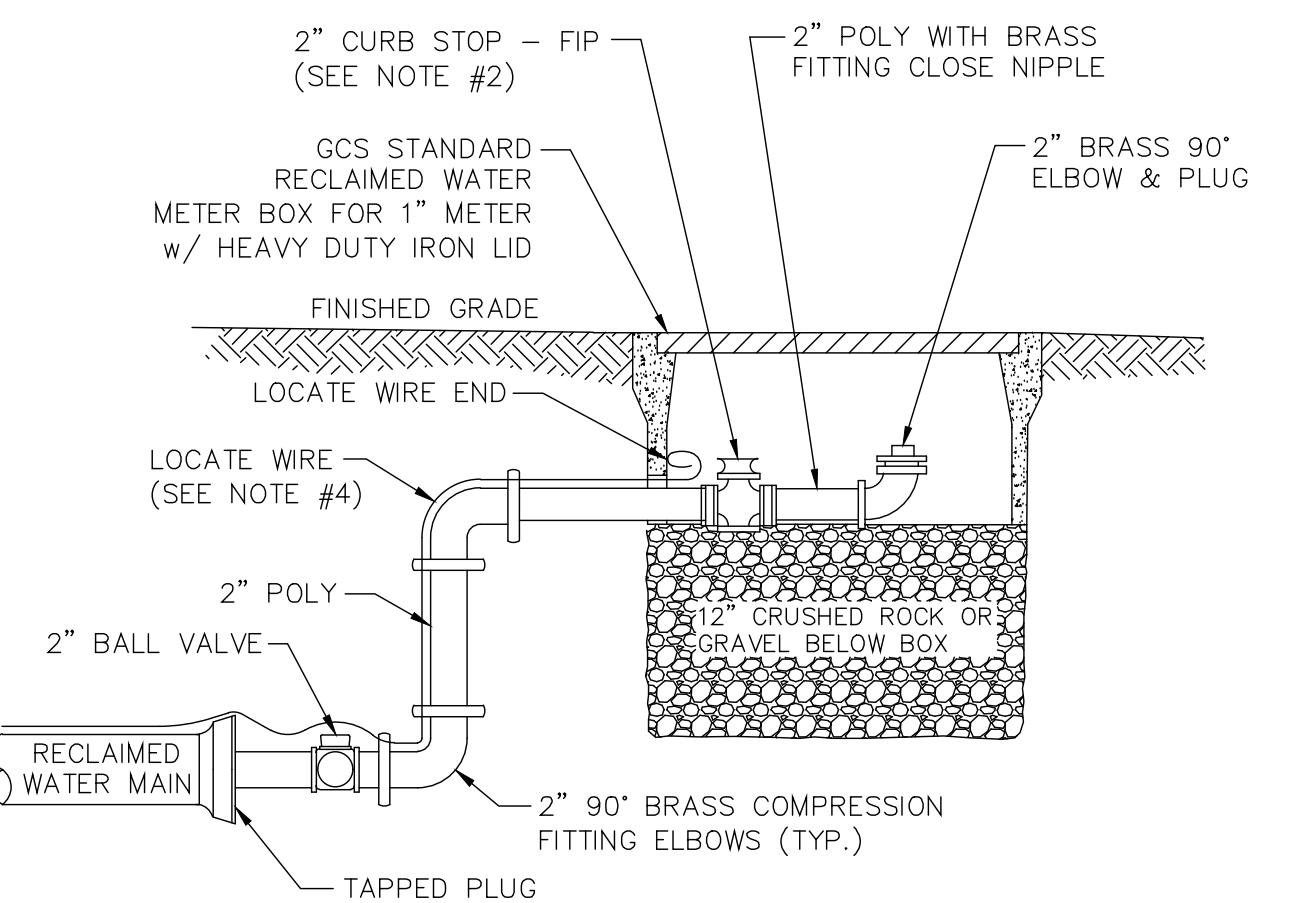
1. LOCATE WIRE SHALL ENTER THE VALVE BOX THROUGH A "V" CUT IN THE 6" PVC RISER PIPE.

LOCATE WIRE BOX



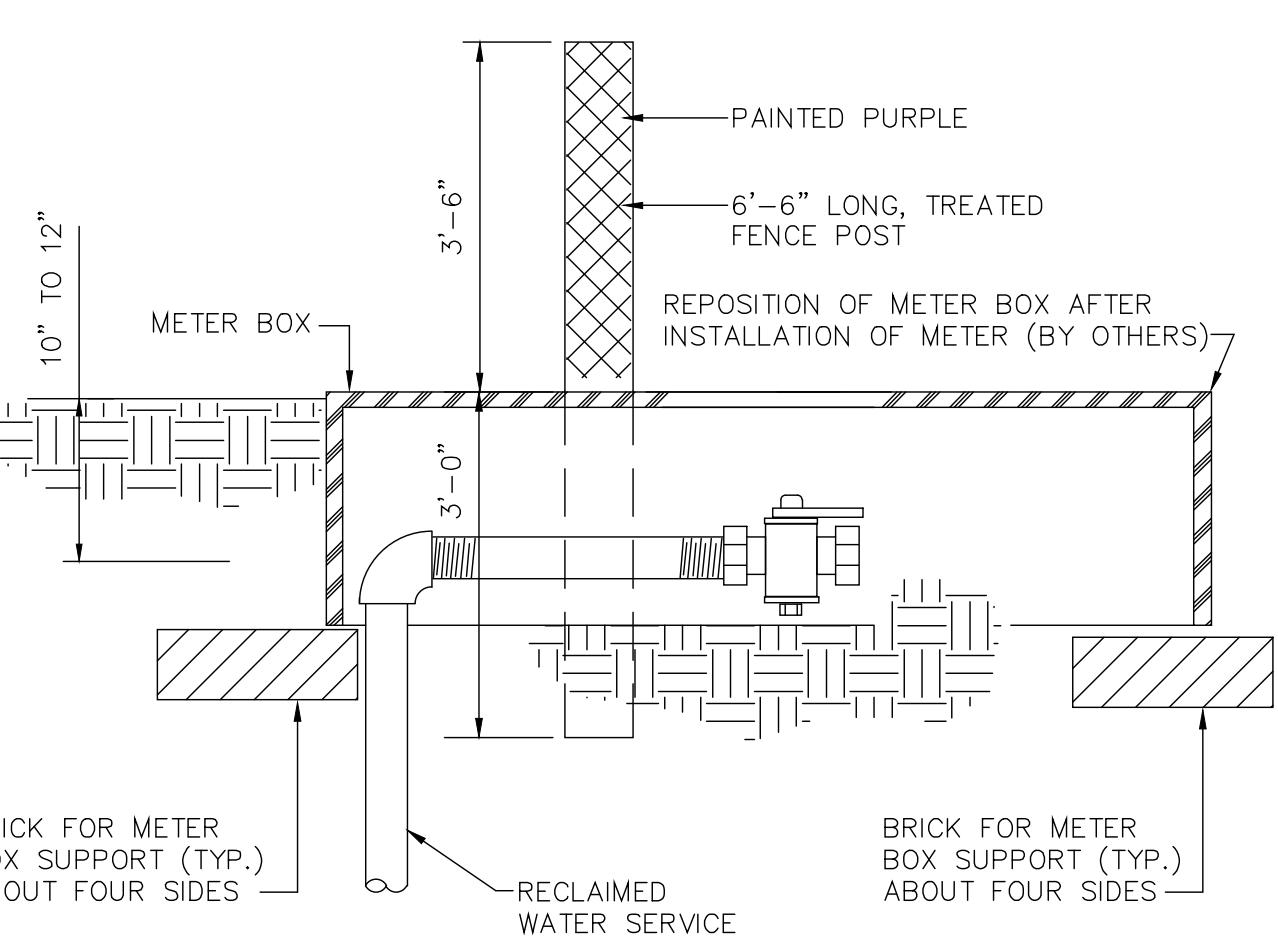
NOTES

RECLAIMED WATER SERVICE DETAIL 2" AND SMALLER METER



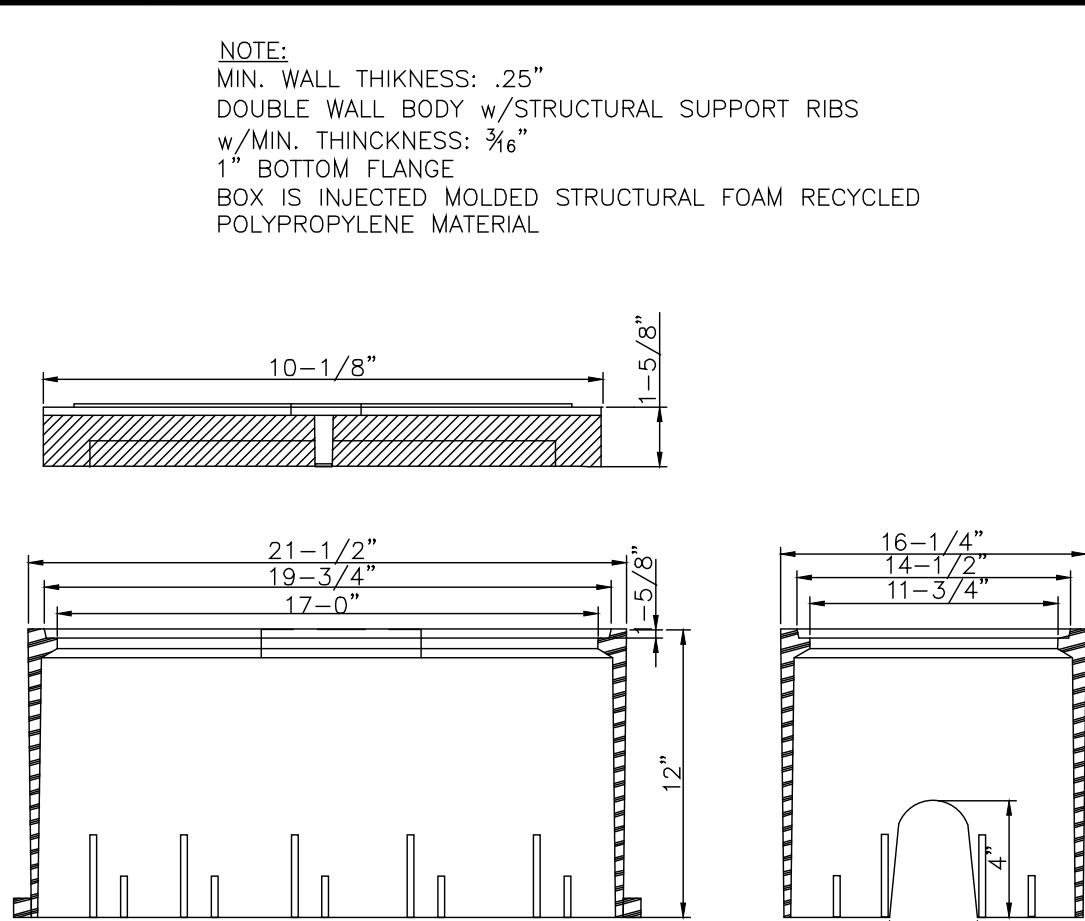
NOTES

FLUSHING VALVE BELOW GRADE

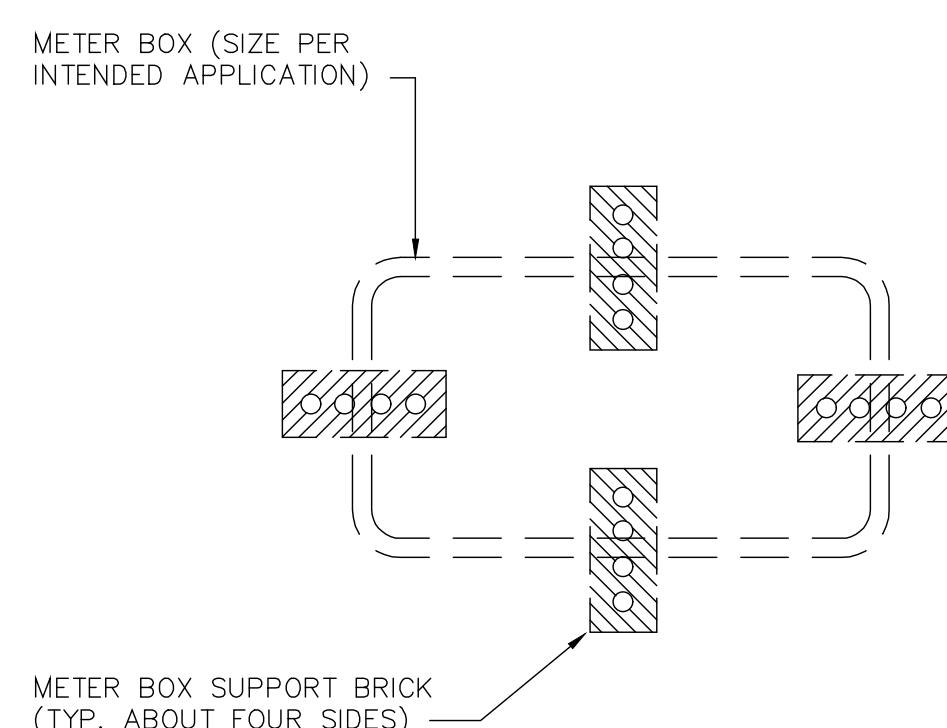


RECLAIMED WATER SERVICE MARKER POST

NOTE:
ALL SERVICES ARE TO BE CLEARLY MARKED BY A TREATED 6'-6" LONG MARKER POST PAINTED PURPLE. ALL SERVICES ARE TO BE EXTENDED ABOVE GRADE UNTIL COMPLETION OF ALL GRADING ACTIVITIES. ONCE FINAL ROAD GRADING IS COMPLETE, LOWER SERVICES BY CUTTING OFF RISER 10" TO 12" BELOW FINAL GRADE AND INSTALL 90° BEND, NIPPLE AND LW BALL VALVE AT THAT ELEVATION. SET METER BOX OVER ENTIRE HORIZONTAL SECTION OF SERVICE LINE FROM LAST 90° BEND TO THE END OF THE CURB STOP. BOX TO BE REPOSITIONED WHEN THE METER IS INSTALLED. MARKER POST TO BE INSTALLED ADJACENT TO AND LOCATED AT THE MID SECTION OF THE METER BOX.



PURPLE METER BOX & SOLID PURPLE LID



CITY OF GREEN COVE SPRINGS
321 WALNUT STREET
GREEN COVE SPRINGS, FLORIDA 32043



ACAD FILE NAME
REUSE.DWG
SHEET NO.

DESIGN	DRAWN	CHECKED	APPROVED	DATE	GENERAL UPDATES	REVISION DESCRIPTION
				1 FEB 2016	SS BY	

STANDARD RECLAIMED WATER SYSTEM DETAILS

PROJECT:

OUTLINE SPECIFICATIONS FOR CONSTRUCTION OF RECLAIMED WATER DISTRIBUTION SYSTEM

01. INTENTION. It is the declared and acknowledged intention to secure a new reclaimed water distribution system, complete, in accordance with the plans and specifications, and contract documents. All new work shall be in accordance with Green Cove Springs Details and Specifications and Approved Materials Manual.

02. GENERAL. All materials shall be new and unused. Materials shall be warranted by the Contractor as to materials, workmanship and accuracy of As-Built drawings for a period of two years from the date of completion of the work or beneficial use of the facilities. Workmanship shall be of good quality; i.e., mains shall be laid in a uniform alignment, fittings shall be properly restrained, trenches shall be properly excavated and backfilled, valve boxes shall be adjusted to finished grade.

03. SURVEYS. The Utility Contractor shall provide all surveys necessary for the layout and construction of the work of his contract.

04. EARTHWORK. Earthwork shall include all excavation, fill and backfill (hand/machine), compaction and rough grading of materials encountered. No unsuitable materials clay, muck, or peat removed from pipe trenches are to be used for backfill. All fill or backfill shall be either sand or sandy clay, free of roots, trash or other debris. All backfill alongside of and to a height twenty-four inches above all pipe shall be free of clay or organic material, compacted by either hand or machine operation carefully to 98%. All other backfill shall be compacted by either hand or machine operation carefully to 95% (outside of paving), 98% (under paving) of its optimum moisture content as determined by ASTM D698, latest.

05. JOINT RESTRAINT. All fittings shall be properly and adequately restrained against lateral movement of all reclaimed water main tees, crosses, valves, bends and fire hydrants. Restrainers shall be Uni-Flange Series 1300, 1350, 1390 or approved equal installed per manufacturer's recommendations and GCS Details and Specifications.

06. DUCTILE IRON PIPE. Ductile iron pipe shall conform to ANSI Specification A21.50 (AWWA C150) latest, "Thickness Design of Ductile Iron Pipe", Table 50.5, laying condition Type 2, internal operating pressure 250 p.s.i. for an 8-foot depth of cover, Class 51 minimum and shall be ANSI A21.51 (AWWA C151), latest, centrifugally cast pipe. Laying lengths shall be 20 feet or less, each length clearly marked with pressure rating, thickness class, height of pipe without lining, length, and manufacturer. Ductile iron pipe for reclaimed water service shall be furnished with cement lining per AWWA C110, C115 and C151. The pipe shall have design values of 60,000 PSI minimum tensile strength, and 42,000 P.S.I. minimum yield strength. Ductile iron pipe for reclaimed water service shall be used only with prior approval of the city of GCS. All ductile iron piping shall be wrapped with purple tape and stamped "Reclaimed Water" on at least two sides @ 12" o.c. along pipe barrel.

07. DUCTILE IRON FITTINGS shall be C153 cement lined and suitable for the type and class of pipe to which connected. Gaskets shall be suitable for reclaimed water service. Minimum working pressure shall be 150 P.S.I.

08. POLYVINYL CHLORIDE PIPE. Polyvinyl chloride pipe for reclaimed water mains 4 inch in diameter and larger, shall be P.V.C. C-900, DR-18, conforming to ASTM D-1784, D-2241, D-3139 and F-477, latest, and shall bear the seal of the National Sanitation Foundation. Pipe shall be purple color and marked on at least 2 sides with the word "RECLAIMED WATER" and at every 12" along the barrel of the pipe. Couplings shall be rubber gasketed, push-on type conforming to ASTM D-2122.

09. STEEL CASING PIPE. Steel casing pipe shall be of size indicated on the Drawings and shall conform to ASTM A139, with a minimum yield strength of 35,000 p.s.i.

10. POLYVINYL CHLORIDE (PVC 1120, SCHEDULE 40) PIPE shall conform to the requirements of ASTM D 1785. Fittings and threaded nipples shall be Sch. 80 PVC. All piping smaller than 4" shall be Sch. 80 PVC, shall be purple in color and stamped "Reclaimed Water".

11. GATE VALVES AND BOXES. Gate valves shall be non-rising stem type and shall be suitable for a 200 p.s.i. non-shock working pressure. Gate valves shall be mechanical joint, flanged or screwed. Gate valves shall have a 2" operating nut and open left. Gate valves shall have joints suitable for the type of main on which installed. Valves 2" & 3" shall be bronze (distribution mains only). Gate valves 4" and larger shall be iron body, bronze fitted with resilient seat. Valves shall be of domestic (American) manufacture and shall be A.F.C., M&H, Mueller or approved equal. Valves 16" and larger shall be AWWA C-509, M&H Valve Co. Valve boxes with screw extensions shall be provided for all gate valves. Boxes shall be of cast iron construction, 7/32" minimum wall thickness and shall be nontacky tar enamel coated. The word "RECLAIMED WATER" shall be cast in the cover. Other gate valves 2" and smaller shall be heavy-duty bronze, wheel operated gate valves. Box covers to be primed and painted purple.

12. RECLAIMED WATER METER BOXES. Reclaimed water meter boxes for 5/8" x 3/4", 3/4" and 1" meters shall be DFW D1200 w/ purple lids. Meter boxes for flushing hydrants and 1" meters shall be Russell D-112, 1 1/2" and 2" meter boxes shall be DFW D1500. Developer shall be responsible for installation of meter boxes on all reclaimed water services as part of the reclaimed water main installation. All curb stops shall be adjusted to the proper elevation and shall be accessible for the installation of the reclaimed water meter. The contractor shall be required to open all boxes for the City's inspector at the final inspection. A treated 6' - 6" long treated fence post marker shall be installed at the side of and centered on the meter box and painted purple for identification. The box lid shall be painted purple.

13. CURB STOPS. Curb stops shall be cast bronze, no lead, inverted key stop roundway, with check, lock wing type, for locking in the closed position. Curb stops shall be Ford Ball Valve or Mueller, with F.I.P.T.

14. CORP STOPS. Corp stops shall be cast bronze, no lead, inverted key stop roundway, with check. Corp stops shall be Ford Ball Valve or Mueller with F.I.P.T.

15. PRESSURE REDUCING VALVES (when and where required) The pressure reducing valve shall maintain a constant delivery pressure as part of the service to each residential irrigation system. Pressure reducing valves shall conform with the standard requirements of the ASSE (Std. 1003) and WPOA Uniform Plumbing Code. Approved model: Watts Series USB or equal.

16. INSTALLATION. The minimum cover over top of reclaimed water main shall be 36" minimum. All lines and appurtenances shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of plugs or other approved methods. All pipe shall be checked for defects before being lowered into the trench. Defective pipe shall not be used. Pipe found to be defective, after installation, shall be removed and replaced with sound pipe at no additional expense to the Owner. The full length of each section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate the bells and joints. All pipe that has the grade or joint disturbed after laying shall be taken up and reinstalled. The pipe shall not be laid in water, or, when trench or weather conditions are unsuitable for the work. All joints shall be cleaned of all foreign matter before making the joint. Fittings at bends in the pipe shall be properly restrained with joint restrainers adequately sized to prevent movement and dislocating or blowing off when the line is under pressure. Service laterals shall terminate at the point noted in the details.

17. SEPARATION OF RECLAIMED WATER MAINS. Maximum separation of reclaimed water lines and potable water lines shall be practiced. A minimum horizontal separation of six feet, center-to-center, or five feet, outside-to-outside, shall be maintained between reclaimed water mains and either potable water mains or sewage collection lines. Reclaimed water lines crossing under water mains shall be laid to provide a minimum vertical separation of 18 inches between the invert of the upper pipe and the crown of the lower pipe. Where the minimum separation cannot be maintained, the crossing shall be arranged such that the reclaimed water main pipe joints and water main joints are equidistant from the point of crossing with no less than ten feet between joints. Alternatively, the reclaimed water main shall be placed in a sleeve to obtain the equivalent of the required ten feet separation. Where there is no alternative to reclaimed water pipes crossing over a water main, the criteria for minimum separation between lines and joints shall be required.

18. PIPE FLUSHING. All reclaimed water system piping shall be flushed with clean water utilizing full pipe diameter flushing for all piping up to and including 8" diameter.

19. TESTS. After the pipe is laid, the joints completed, and the trench backfilled, the newly laid pipe and appurtenances shall be subjected to a Hydrostatic and Leakage test of 150 pounds per square inch for a period of at least two hours. During this period, all joints shall be inspected to determine water tightness of the system. Any leaks detected shall be corrected. Tests shall be in accordance with the City of Green Cove Springs requirements and specifications. Curb andimerock may be installed after construction of the reclaimed water mains, however,imerock priming cannot proceed until such time as the C.C.U.A. inspector approves the reclaimed water distribution system pressure test. This will be strictly enforced. If the reclaimed water system is damaged during any of the operations prior to paving, a follow up test may be required by the City of Green Cove Springs.

20. CURB MARKING. After installation, reclaimed water main valves and service lateral locations shall be scribed in the face of the concrete curb with the appropriate marking (RW=reclaimed service, RV=reclaimed main valve, etc.). Markings shall be a minimum of 3" high.

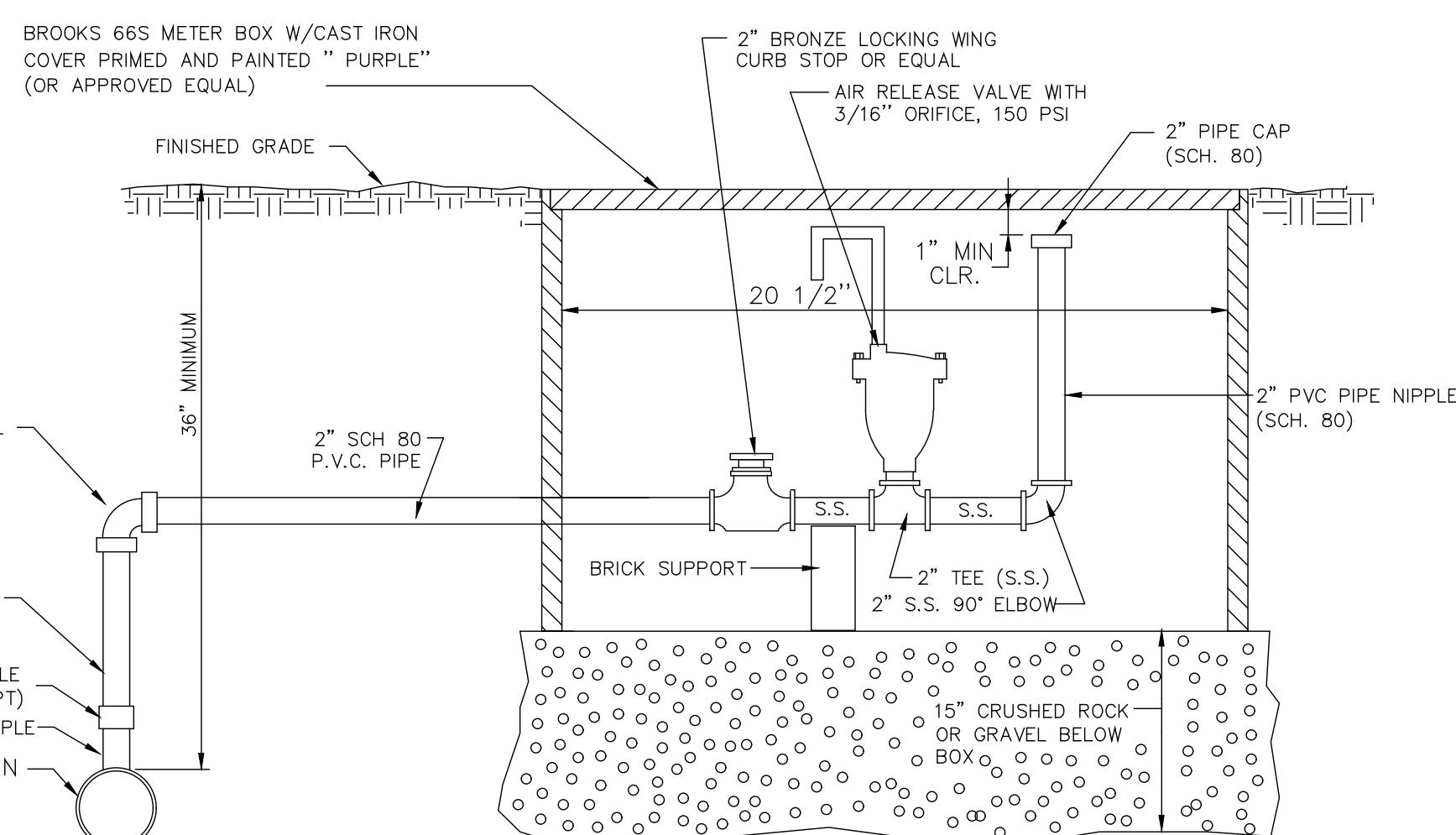
FINAL INSPECTION PROCEDURES

PRIOR TO FINAL INSPECTION, THE FOLLOWING MUST BE COMPLETED:

1. Pressure test and flushing report.
2. The Engineer of Record Certification to FDEP. This can be done w/ preliminary as-builts.
3. Water services must be lowered and meter boxes installed, valve boxes must be set on all gate valves.
4. As-built drawings shall have been updated to accommodate the C.G.C.S. comments and the final elevation of the manhole tops must be included.
5. All valves, locate wire boxes, sewer, water and reclaimed services shall be scribed in curb and painted the correct color.
6. As-builts, must be accepted and approved by the City of Green Cove Springs Public Works.

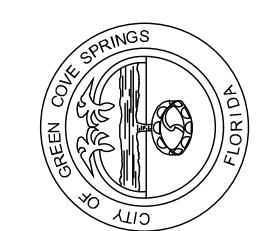
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				1 FEB 2016	BY	NO DATE

PROJECT:	STANDARD RECLAIMED WATER	SYSTEM SPECIFICATIONS & DETAILS
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AIR RELEASE VALVE DETAIL

NTS



ACAD FILE NAME
REUSE.DWG
SHEET NO.

OUTLINE SPECIFICATIONS FOR CONSTRUCTION OF SEWAGE COLLECTION SYSTEM

01. INTENTION. It is the declared and acknowledged intention to secure a new sewerage system, complete, in accordance with the plans and specifications and contract documents. All new work shall be in accordance with C.G.C.S. Standards and Details and Approved Materials Manual and C.G.C.S. Public Works Department Details and Specifications and any other Government Regulatory Agency. All work shall conform to the above whether or not specifically called out or noted on the plans.

02. GENERAL. All materials shall be of those listed in the C.G.C.S. Approved Materials Manual. The installation shall be warranted by the Contractor as to the period of two years from the date of completion of the work or beneficial use of the facilities. Workmanship shall be of good quality; i.e., sewers shall be laid true to grade and grade, fittings shall be properly installed and restrained, trenches shall be properly excavated and backfilled, manholes shall be installed at locations and to elevations shown on the plans.

02.1 CONTRACTOR LICENSE AND APPROVAL. Utility reserves the right to approve or deny approval of contractor prior to construction of any work. All work shall be performed under a State of Florida Under Contractors license, that named contracting company being the one doing the work on project, and demonstrate acceptable experience in the field of utility construction.

03. SURVEYS. The Utility Contractor shall provide all surveys necessary for the layout and construction of the work of his contract.

04. EARTHWORK. Earthwork shall include all excavation, fill and backfill (hand/machine), compaction and rough grading of materials encountered. No unsuitable materials clay, mud, or peat, removed from pipe trenches shall be used for fill or backfill. All backfill alongside of and to a height twenty-four inches above all pipe shall be free of clay or organic material, compacted in lifts, the first of which shall be to the spring line of the pipe by either hand or machine operation carefully to 98%. All other backfill shall be compacted by either hand or machine operation to 98% moisture content of 10% (under paving) of its optimum moisture content as determined by ASTM D698, latest. Copies of compaction density test reports from a licensed testing agency shall be made available to C.G.C.S. if requested.

05. MANHOLES. Manhole bases, sections and cones shall conform to the requirements of ASTM C478, Specifications for Precast Reinforced Concrete Manhole Sections. Cement shall meet the requirements of ASTM C150, Specifications for Portland Cement, Type II. Concrete shall meet the minimum requirements for Class "A" Concrete Producer. Minimum wall thickness shall be 1/2 the inside diameter in inches plus one (1") inch. Bases and cones shall be cast integrally with the body of the manhole. All contact surfaces shall be formed by machined castings; they shall be exactly parallel with a 2 degree slope and nominal 1/16 inch clearance with the tongue equipped with a proper recess for the installation of an O-ring rubber gasket, conforming to ASTM C443. Joints for circular Concrete sewer and Culvert pipes using Rubber gasket, or RAM-NEK premolded Plastic Joint Seal, with adjustable joints, shall be used. Precast concrete adjustment rings only are manufactured by Taylor Precast Co. for liquid. Precast manhole walls shall not be coated, unless otherwise noted. Cement grout for manhole bottoms shall be a stiff rich mix of Type II Portland Cement and sharp plaster sand. Calcium chloride may be added (maximum of 2%) to aid in obtaining a faster set. At permanent pump station locations, the first upstream manhole from the station shall be lined with a polyethylene liner as manufactured and installed by Taylor Precast Co. or approved equal.

05.1. CAST IRON MANHOLE FRAMES AND COVERS. Cast iron manhole frames and covers shall be as detailed on drawings. Castings shall meet the requirements of ASTM A48, Specifications for Gray Iron Castings, Class No. 30, or Grade 65-42. Ductile Iron meeting the requirements of ASTM A536, Standard Specification for Ductile Iron Castings. In either case, manhole frame and cover shall be

designed to withstand on HS20-44 loading defined in the AASHTO Specifications. Frames and covers shall be machined or ground at touching surfaces so as to seat firmly and prevent rocking.

05.2 FLEXIBLE MANHOLE CONNECTOR. All connections between sewer pipe and pre-cast concrete manholes shall be accomplished by a Flexible Connector, "Kor-N-Seal", as manufactured by National Pollution Control Systems, Inc. or approved equal.

05.3 FLOW CHANNELS. Flow channels in manhole base shall be formed of D.O.T. Class I, Type II cement grout with brick or rubble and trowel to a smooth surface. Grout surface shall be 1" min. thickness over brick or rubble. While the manholes are under construction, cut off pipes or inside face of manholes shall be laid true to the spring line of the pipe or as indicated. All invert shall provide a constant gradient from influent pipe to effluent pipe through manhole. Changes in direction of the sewer and entering branch or branches shall be laid out in smooth curves of the longest possible radius which is tangent to the center lines of adjoining pipelines.

05.4 DROP INLETS. Where shown on the drawings, drop inlets to the manholes shall be constructed as shown on the drawings and specified herein.

06. POLYVINYL CHLORIDE PIPE. Polyvinyl Chloride Sewer Pipe shall conform to the requirements of ASTM D-3034, SDR 26. The PVC compound conforming to ASTM D-1784. Pipe shall be clearly marked in 5 ft. intervals or less, indicating manufacturers name, nominal size, cell classification and legend. Joints shall be push-on rubber gaskets conforming to ASTM D-3034. Pipe and fittings shall be marked in accordance with the requirements of ASTM D-2321. Maximum depth of gravity sewer without prior approval shall be 15' feet. Sewers over 15' in depth shall be DR-18 PVC pipe and shall have C.G.C.S. approval prior to design or installation of said sewer.

07. PIPE BETWEEN MANHOLES. All piping installed between manholes shall be the same material and class. No dissimilar pipe material will be allowed anywhere within a single run of pipe.

08. SANITARY SERVICE LATERALS. Sanitary service laterals shall be Polyvinyl Chloride Pipe conforming to the requirements of ASTM D-3034, SDR 26, where the top of the lateral is notched. Where the top of the pipe is less than 36" inches, specific construction conditions shall be directed by the City of Green Cove Springs. All sanitary service laterals shall be a minimum of 4"-0" deep at the right-of-way line to top of pipe. Any sanitary service lateral which must be more than 5"-0" deep shall not be installed prior to obtaining permission from the C.G.C.S. field inspector or C.G.C.S. engineer. During construction, service laterals shall be of inch diameter from the top to the right-of-way line with a minimum slope of 0.60% (0.6 feet per hundred feet). In single family residential developments, services shall reduce to 4" in size and terminated at the property line with a cleanout constructed of a PVC wye and bend with a maximum angle of 45 degrees (see Standard Sewer System Cleanout Detail) utilizing the proper fittings for the type of pipe specified.

09. FORCE MAINS. Force mains shall be C300 DR-18 PVC and conform to the requirements of ASTM D-1784, D-2241, D-3139 and F-477. Pipe shall be color coded and marked "FORCE MAIN" on at least two sides and at every 12" along the barrel of the pipe. Ductile iron pipe for force main service shall be polylined. Ductile iron pipe is not to be used without prior approval of the Clay County Utility Authority. Fittings shall be 110# gray iron and shall be polylined. Force mains less than 3" shall be SCH-80 PVC. All force mains shall be installed with tracer wire per C.G.C.S. standard location wire details.

09.1. LIFT STATION VALVES. Plug valves shall be Dezurik, Clow or M&H, with full port opening. Check valves shall be Mueller or American Darling.

09.2. FORCE MAIN VALVE. Gate valve, resilient seated, as specified in Water Distribution System Specifications Section 12 below. Except valve bodies shall be gray iron. Valve box shall have the word "SEWER" cast into the cover.

09.3. FORCE MAIN JOINT RESTRAINT. All fittings shall be properly and adequately restrained against lateral movement at all force main tees, crosses, valves and bends. Restrainers shall be Uni-Flange Series 1300, 1350, 1390 or approved equal installed per manufacturer's recommendations and C.G.C.S. standard details and specifications.

09.4. FORCE MAIN PIPE FLUSHING. All force main piping shall be flushed clean with water utilizing full pipe diameter flushing for all piping up to and including 8" diameter.

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