GENERAL NOTES

1. INTENTION. It is Clay County Utility Authority's (CCUA) `intention to secure a new utility infrastructure system, complete, in accordance with the plans, specifications, and contract documents. All new work shall be in accordance with CCUA Engineering Department Details and Specifications and any other Govenment Regulatory Agency. All work shall conform to the above, whether or not specifically called out or noted on the plans.

2. GENERAL. All materials shall be of those listed in the CCUA Approved Materials Manual. The installation shall be warranted by the Contractor as to materials, workmanship and accuracy of the asbuilt 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., gravity mains shall be laid true to line 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. CCUA Approved Material Manual can be found at the following weblink: https://www.clayutility.org/engineering /materials_manual.aspx

2.1 CONTRACTOR LICENSE AND APPROVAL. Utility reserves the right to approve or deny selected Contractor prior to construction of any on-site or off-site utility facilities. Contractor must hold a State of Florida Underground Utility Contractors license, that named contracting company being the one doing the utility work on the project, and demonstrate acceptable experience in the field of utility construction.

3. CCUA SHOP DRAWING AND SUBMITTAL PROCESS. A signed acknowledgment by the Contractor and the Material Supplier, on the "Shop Drawings and CCUA's Approved Materials List Form", that all materials will be in accordance with CCUA's Specifications, CCUA's Details and CCUA's Approved Materials Manual, is the only submittal CCUA will require for each item of materials with the following exception: any alternate materials requested by the Engineer; any materials not listed in the CCUA Materials Manual; and materials associated with pumping stations and plant installations. Those exceptions shall have an individual shop drawing submitted for CCUA's review and approval prior to any installation of said materials. This is CCUA's procedure and it does not preclude the Design Engineer from requiring additional submittals and shop drawings as he deems necessary for the project.

4. JOBSITE SAFETY. While on the job site, the Contractor shall at all times observe all Federal, State and local safety rules, regulations and laws. This includes, but is not limited to, confined spaces and excavation protection systems as per O.S.H.A. standards.

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

6. AS-BUILT DRAWINGS AND ASSOCIATED COSTS. All records pertaining to the water, reclaim and sewer facilities being transferred to the Utility shall be provided by applicant at no cost to the Utility. Prior to acceptance of any extension to the Utility's system that is completed by a licensed State of Florida underground utility Contractor, the Utility will require that the applicant's Contractor provide the Utility, to retain for its permanent records, all field as-built data which shall be provided in accordance with the Utility's `As-built Specifications Standards Manual`, which can be obtained from the Utility's website (https://www.clayutility.org/engineering/development_permitting.aspx).

7. CONSTRUCTION WARRANTY AND WARRANTY SECURITY PERIOD. Developer/Contractor shall secure a written and fully assignable warranty that the system installed will be and remain free from all defects, latent or otherwise, with respect to workmanship. materials, installation, and accuracy of their as-built drawings in accordance with the Utility approved plans and specifications for a minimum period of two years from the date of the system acceptance by the Utility and immediately assign the same and the right to enforce the same to Utility on or before the date of the Utility's acceptance of the system for Ownership and maintenance.

8. RESTORATION. New Water, Sewer and Reclaimed construction in earthen areas shall be restored, in accordance with the permitting agency having jurisdiction. In locations where existing grassed (sodded) areas are disturbed, sod shall be replaced to preconstruction condition and to limits of construction or placed where directed by the engineer of record.

9. PERMITS. The Contractor/Developer shall be responsible for obtaining and providing construction records of all permits required for performing work.

10. 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, rock, 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 in lifts, the first of which shall be to the spring line of the pipe by either hand or machine operation carefully to 98% of maximum density. 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. Copies of compaction density test reports from a licensed testing agency shall be made available to CCUA if requested.

11. EXCAVATION must meet OSHA requirements and Contractor shall conform to the guidelines set forth in the Trench Safety Act throughout the duration of the project. Contractor shall provide written assurance that the trench excavation will comply with the applicable trench safety standards.

12. PIPE BEDDING. In the event unsuitable or unstable bedding material is encountered at or below the limits of the excavation required for installation, such material shall be removed and replaced with ASTM D2487 A3 soil material specified by the Design Engineer and approved by the Utility to provide a stable trench bedding surface suitable for proper pipe installation.

12.1 PIPE BEDDING (ROCK BEDDING MATERIAL) Rock material used for pipe bedding shall be ASTM #57 stone or crushed concrete (crush-crete) in a #57 size. Rock bedding material shall be completely wrapped in a heavy filter fabric material, overlapped a minimum of one foot. Rock bedding shall be installed to the correct grade and compacted to a density which will prevent any settlement, either by mechanical tamping equipment or other methods approved by the Engineer of Record The compaction method shall be accepted by the Utility.

13. DEWATERING. The Contractor shall at all times during construction provide ample means and equipment to promptly remove and dispose of all water entering the trench and structure excavations and shall keep said excavations acceptably dry until the piping and / or structures to be built therein are completed. All water pumped or drained from the work area shall be disposed of in a manner as to not damage sewer, water, electrical or any other piping, structures, or property. No pipe shall be installed in water and no water shall be allowed to rise above the bottom of any pipe while it is being jointed, except as accepted in writing by the Utility. Additionally, pipe trenching must be dewatered in accordance with the Utility's *Typical Pipe Trench Detail*.

14. HYDROSTATIC TESTING. After all pressure pipes (water, force and reclaimed mains, and services) are installed, the joints completed, and the trench backfilled, the newly installed pipe and appurtenances shall be subjected to a hydrostatic pressure test minimum of 150 pounds per square inch (p.s.i.) for a minimum period of two hours. The engineer of record and the Utility must be notified 48 hours before a test and be present as the test is performed. Test shall be as set forth in AWWA Standard C600. Any leaks detected shall be corrected and the section of pipeline retested. The two-hour test period shall begin when all joints have been determined to be watertight. Leakage shall be limited to that allowance set forth in Section 4 of AWWA Standard C600-87. Hydrostatic and leakage test and blow-down (zeroing of gauge) must occur before sampling for bacteriological test. The maximum allowable pressure loss is 5 p.s.i. regardless of the length of pipe and the hydrostatic pressure test shall not fall below 150 p.s.i.

15. HDPE. Hydrostatic testing shall consist of a pressure test and leakage test. Hydrostatic tests shall be conducted on all newly laid pressure pipes, joints, hydrants and valves, including all service lines to the curb stops. Air testing of pressure pipes shall not be permitted under any circumstance. Tests shall be made on sections not exceeding 3,000 feet. Contractor shall furnish all necessary equipment and material, make all taps, and furnish all closure pieces in the pipe as required. Equipment to be furnished by the Contractor shall include graduated containers, pressure gauges, hydraulic force pumps, and suitable hoses and piping. The Owner or their designated representative shall monitor and approve a satisfactory test. The basic provisions of ASTM F2164 - "Standard Practice for Field Leak Testing of Polyethylene (PE) Pressure Piping Systems Using Hydrostatic Pressure" shall apply.

16. DENSITY TESTING. Backfill In-place density tests are required at intervals not to exceed 150 feet along pipelines for every other lift. A minimum of one test between manholes is required for every other lift regardless of the distance between sanitary sewer manholes.

17. PIPE AND PIPE JOINTING FOR FUSED & HDPE PIPE:

a. Heat Fusion Jointing: Joints between plain end pipes and pipe fittings shall be made by butt fusion when possible. Electro fusion welding may also be used to complete when the location is not accessible to butt fusion welding equipment. The on-site welder making the joints (butt fusion or electro fusion) shall have received specific training from the Manufacturer of the fittings and/or pipe being welded and shall have written proof of proper training/certification from the associated Manufacturers. Only certified welders who have written training certifications from the fitting and/or pipe Manufacturer will be allowed to perform this work. To weld a fitting or electro fusion coupling in place, the on-site welder (employee) must be trained and certified by the fitting Manufacturer. To butt weld pipe, the on-site welder (employee) must be trained and certified by the pipe Manufacturer. The fusion work shall be accomplished (welding and cool-down/closing times) in accordance with the fitting and pipe Manufacturers' recommendations, at a minimum. The Utility reserves the right to require the Contractor to remove from or not permit an employee to work on the welding or fusing portion of the work if in the opinion of the Utility that person is not properly trained or cannot perform the welding or fusion process in high quality and professional workmanship manner.

b. External and internal beads shall only be removed when required by the Utility. The internal bead shall be removed from all fused joints of a pipe that is to be used as a gravity sewer line, or as a sewer force main line or as a sleeve or host pipe which will have another pipe installed inside it. The external bead shall be removed from all fused joints of a pipe which will be installed inside of a sleeve or host pipe and the external bead shall be removed from all fused joints of a pipe to be pulled through a reamed Horizontal Directional Drill hole which may have a possible catch point such as extreme rocky ground conditions or other hazards. The Contractor shall be required to follow the requirements and recommendations of the pipe Manufacturer and the Utility.

18. FUSIBLE POLYVINYL CHLORIDE (FPVC) PIPE:

a. FPVC Pipe shall conform to AWWA C900, Ductile Iron Pipe Size (DIPS), DR18, and color coded. The pipe material shall be clean, virgin, National Sanitation Foundation No.14, ASTM cell class 12454. FPVC shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe. Each length shall be clearly marked with the name of the manufacturer, location of the plant, pressure rating, nominal pipe diameter.

b. FPVC pipe shall not be bent beyond the manufacturer's recommended minimum allowable bend radius. The published allowable bend radius is applicable to all pipe alignments, including during handling and movement, as well as final positioning and installation.

c. FPVC pipe shall not be subjected to a pull force greater than 80% of the manufacturer's recommended allowable pull force for the pipe wall thickness and size. Allowable pull force is the tensile load that may be safely applied to the pipe and is a function of the tensile stress capacity of FPVC and the cross-sectional area of the FPVC pipe section. FPVC pipe shall meet the cell class tensile stress capacity of 7,000 psi when the compound is tested per ASTM 1784. Safety factor shall be 2.5.

19. PIPE INSTALLATION. The installation of all pipe regardless of the type or size shall be installed in accordance with the Manufacturer's specifications or recommended criteria for the pipe being installed. No pipe shall be installed with the joints over-homed. The reference mark (home-line) shall not be installed into the bell beyond the Manufacturer's recommendation. The Contractor shall be responsible to mark any pipe cut to length with a reference mark (home-line) placed at the correct location on the pipe according to the type and size pipe being installed. CCUA will not permit any pipe joint to be left in place if the joint is over-homed. It shall be the Contractor's responsibility to obtain the information pertaining to installation of pipe to be installed from the Supplying Manufacturer and to install the pipe accordingly.

20. PIPE ABANDONMENT. Any utility pipe regardless of the type or size which has been abandoned, or taken out of service or out of use for any reason, shall either be removed from the ground for its entire length and disposed of in a legal manner, or shall be grout filled in place for its entire length. A CCUA inspector shall be present and witness the grout filling of the pipe from start to finish of the process. If the abandoned pipe is being removed, a CCUA inspector shall be present or be able to view the open ditch where pipe was removed from prior to backfilling that ditch. A grout fill plan must be submitted to CCUA for their acceptance at a minimum of two (2) weeks in advance of the proposed grout fill operation.

21. DISINFECTION/STERILIZATION NOTES:

a. CCUA staff shall authorize changes or adjustments to existing CCUA valves.
b. The General Superintendent of the Distribution and Collection System must be informed of any changes to existing CCUA valves.
c. Engineer of Record shall provide a Disinfection/Sterilization Plan in accordance to F.A.C 63-302.530 showing the proposed sample point locations with the initial plan review submittal.
d. The scheduling of the disinfection process for new water mains must be coordinated with CCUA at least seven (7) days in advance.
e. CCUA inspectors must be present to observe and monitor the disinfection process.

22. Extreme caution shall be exercised to eliminate any possibility of any damage to utilities resulting from Contractor's activities. The locations of all overhead utilities shall also be verified by the Contractor. The Engineer shall be notified of any conflict that may occur. The Contractor shall be responsible for determining which poles will need shoring during excavation and shall provide such shoring and support as required.

23. CCUA details and specifications (latest available copy) shall be included in all plans submitted for work within the CCUA utility system. No person shall modify, change, omit, or replace any portion of those details and specifications without the express written consent of CCUA. In any instance where the Design Engineer has included his written specifications or details in the plans then the more stringent of the two shall govern.

24. Under no circumstance shall any trees be planted within a CCUA utility easement without:

a. CCUA approving landscape and irrigation plans.
b. CCUA being notified prior to the planting of trees and giving approval.
c. CCUA inspecting the installation of root barrier material (required at all trees which are closer than 7.5' to any CCUA utility line) as shown in CCUA approved material manual and CCUA roadway cross section details, whether or not shown on the plans.

25. CLOSE OUT/COMPLETION. Minimum items required for Close Out / Completion for submittal to CCUA will include:

a. Construction Warranty from Developer in the form of a Bond, Letter of Credit or Cashier's Check for a two-year period, no less than ten percent (10%) of the construction cost or Value of Acceptance, unless otherwise specified in the agreement.
b. Warranty Certificate for a two-year warranty from the Contractor to the Developer and assignment of same to the CCUA.
c. Developer's Affidavit certifying there is no outstanding debt or liens against utility assets to be deeded to CCUA.
d. Value of Acceptance Report showing value of assets to be deeded to the CCUA.
e. Bill of Sale to CCUA
f. Bacteriological Test(s)Reports from an approved FDEP laboratory.
g. Pressure Test(s)
h. Closed Circuit Television (C.C.T.V.) Reports submitted electrotonically.
i. Density Reports
j. Locate Wire test
k. Final As-Built Drawings in accordance with CCUA As-Built Standards and Specifications located at the following web page: https://www.clayutility.org/engineering/development_permitting.aspx

SPECIFICATIONS FOR CONSTRUCTION OF WATER DISTRIBUTION SYSTEM

01. JOINT RESTRAINT. All fittings shall be properly and adequately restrained against lateral movement at all water main tees, crosses, valves, bends, and fire hydrants. See CCUA Approved Materials Manual for acceptable restraints.and refer to joint restraint tableon detail sheet WAT 02.

02. 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 of 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 in length, and shall be clearly marked with pressure rating, thickness, class, height of pipe without lining, length, and manufacturer. Ductile iron pipe for water service shall be furnished with cement lining per AWWA C110, C115 and C151. The pipe shall have design values of 60,000 p.s.i. minimum tensile strength, and 42,000 p.s.i. minimum yield strength. Ductile iron pipe for water or service lines shall be used in any easement, right-of-way, between lots, or any instance where a building foundation or other permanent appurtenance is within 10' of the water or service line.

03. DUCTILE IRON FITTINGS 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 potable, domestic water service. Minimum working pressure shall be 150 p.s.i.

04. POLYVINYL CHLORIDE PIPE. Polyvinyl chloride pipe for water mains 4 inch through 24 inches in diameter, shall be DR18 (C900) Pressure Class 235 psi PVC 1120; water distribution mains above 24 inches in diameter shall be DR25 (C900) Pressure Class 165 PVC 1120, 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 color coded and marked on at least 1 (one) side with the word "WATER" at every 12" along the barrel of the pipe, with the lettering facing up. Couplings shall be rubber gasketed, push-on type conforming to ASTM D-2122. All water pipe shall be blue in color.

05. 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.

06. POLYVINYL CHLORIDE (PVC 1120, SCHEDULE 80) PIPE Polyvinyl Chloride Pipe shall conform to the requirements of ASTM D 1785. Fittings shall be suitable for type of installation required. All piping smaller than 4" shall be Schedule 80 PVC.

07. 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 shall be as described in the CCUA Material Manual.

08. WATER METER BOXES. See CCUA Approved Materials Manual for acceptable water meter boxes. Developer shall be responsible for installation of meter boxes on all water services as part of the water main installation as per standards for water meter service details. All curb stops shall be adjusted to the proper elevation and shall be accessible for the installation of the water meter. The Contractor shall be required to open all boxes for the CCUA inspector at the final inspection. A treated 6'-6" fence post marker shall be painted blue for identification. Meter boxes shall not be placed in any sidewalk or driveway without approval of CCUA.

09. CURB STOPS. Curb stops shall be cast bronze, inverted key stop, roundway, with check, lock wing type, for locking in the closed position. See CCUA Approved Materials Manual for acceptable curb stops.

10. FIRE HYDRANTS. Fire hydrants shall be traffic type, 150 pound working pressure, AWWA Standard C502, latest revisions, with two 2 1/2" nozzles, one 4 1/2" nozzle and one 5 1/4" main valve. Fire hydrant shall be compression type with breakable coupling and bolts. Pipe connection shall be mechanical joint. Fire hydrants shall be painted silver, BLP Mobile Paints, Liquid Aluminum, 1151 alkyd weight 56.6% x volume 41.2% VOC 3.76 lb. per gallon with 1 1/2" penta nuts, opening left. See CCUA Approved Materials Manual for acceptable fire hydrants.

11. NEW CONNECTION TO EXISTING MAIN. New connection to existing main in service shall be accomplished by the "wet tap" method utilizing full circle stainless steel tapping sleeve and mechanical joint tapping valve. Tapping sleeve shall be rated at 200 p.s.i., non-shock working pressure conforming to AWWA Standard C110, latest revision. Stainless steel tapping sleeves shall be from those listed in CCUA approved material manual. Tapping valve shall be mechanical joint on one end and standard flanged joint on other end. Valve shall conform of these specifications.

12. FIRE LINES/MAINS. All fire lines or mains connecting to CCUA owned potable water main shall be installed by a State of Florida Licensed Fire Installation Contractor, and shall meet all requirements of the local Authority, State Fire Marshal, County Fire Marshal, and the National Fire Protection Association. Work performed must meet all requirements of NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

12.1 The Fire Marshal shall have the right to deny acceptance or use of any fire line, installed and connected to a CCUA owned and maintained water main until such time that the Contractor installing the fire line can produce proof to the Fire Marshal that all paperwork, fees due, or close out documents have been satisfactorily prepared and approved by CCUA.

13. INSTALLATION. The minimum cover over top of potable water main shall be 36". All water 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 as shown in the CCUA Standard Detail drawing.

14. STERILIZATION. After completion of construction and testing, the water system shall be sterilized with chlorine in accordance with AWWA Standard C651, latest, and State of Florida Department of Environmental Protection requirements before acceptance for domestic operation. The amount of chlorine applied shall be sufficient to provide a dosage of 50 parts per million or more. The chlorine solution shall remain in the new pipe system for a period of at least 24 hours, during which time every valve in the new pipe system shall be opened and closed several times to assure contact with every surface of the system. After completion of sterilization procedures, the system shall be flushed using chlorinated water from a domestic water source having a chlorine residual of at least 1 part per million. The Contractor shall obtain all bacteriological clearances as required by the Florida Department of Environmental Protection. After bacteriological clearances, the pressure in the main shall not drop below 20 p.s.i. Clearance report to be submitted to the Engineer and CCUA Inspector. The Contractor should be aware that there is a timing maximum related to bacteriological clearance of the main, completion of as-built drawings and Engineer / CCUA completion of Certificate of Completion. In any project where the bacteriological clearances are greater than 60 days old at the time of submittal of Certificate of Completion to FDEP, the Contractor may be required to pull more samples and obtain more bacteriological clearances. Prior to introducing the chlorine solution, the lines shall be thoroughly flushed with clean water utilizing full pipe diameter flushing for pipe up to and including 8" diameter. Dechlorination of flushing water may be required to be in compliance with the State of Florida Surface Water Quality Standards (F.A.C. 63-302.530). Dechlorination is necessary if the flushing of highly chlorinated water is to be discharged directly to a surface water or to a storm water system. If the water can be sheet flowed over a large area or discharged to a holding pond, dechlorination may be avoided.

15. BACTERIOLOGICAL SAMPLING. Contractor shall ensure the project construction is completely finished prior to any bacteriological sampling and testing.

16. POLYETHYLENE TUBING SERVICE LINES AND MAINS (2 INCH AND SMALLER): Tubing shall be manufactured of PE 4710, High Density Polyethylene (HDPE), in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D3737 and ASTM D3350. The tubing shall have a minimum working pressure of 250 psi. Polyethylene tubing shall be copper tube size SDR-9 and shall be colored blue. HDPE pipe shall have ultraviolet (UV) inhibitors for protection against direct sunlight for 1 year. Inserts for polyethylene tubing may be utilized, at Contractor's options, and, if used, shall be 316 stainless steel. The use of no-lead brass couplings, tees and "Y" fittings are acceptable on poly service tubing, if not located under a roadway. Tubing shall be approved for use with potable water by the National Sanitation Foundation (NSF-14) and shall be continuously marked at intervals of not more than four feet with the following:

- Nominal size
- Pressure rating
- NSF seal
- Manufacturer's name or trademark
- Standard dimension ratio
- ASTM specification

SPECIFICATIONS FOR CONSTRUCTION OF WASTEWATER COLLECTION SYSTEM

01. 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 Work. Minimum wall thickness shall be 1/12 the inside diameter in inches plus one (1) inch. Bases for manholes shall be cast integrally with the bottom manhole section. Joint contact surfaces shall be formed with 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 pipe using Rubber gasket, or RAM-NEK premolded Plastic Joint Sealer to joints. Manhole adjustment materials shall be sound, hard, and pre-primed. Precast concrete adjustment rings may be utilized. 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 AGRU America, Inc., or approved equal.

01.1 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 65-45-12, 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 an 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.

01.2 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.

01.3 FLOW CHANNELS. Flow channels in manhole base shall be formed of D.O.T. Class I Type II cement grout with brick and trowel to a smooth surface finish. Grout surface shall be 1" min. thickness over brick. While the precast manholes are being installed, cut off pipes 4 inches inside face of the manhole and construct the invert to the shape and sizes of pipe indicated. All inverts 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.

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

02. 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 manufacturers-marked in 5 ft. intervals or less, indicating manufacturers name, nominal size, cell classification and legend. Joints shall be push-on rubber gasketed, conforming to ASTM 3212. Pipe and fittings shall be installed in accordance with recommended practice ASTM D-2321. All pipe and sewer fittings shall be SDR-26 heavy wall, installed up to a depth of 13 feet from finish grade to invert of pipe. Maximum depth of gravity sewer without prior approval shall be 13 feet.

03. 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.

04. SANITARY SERVICE LATERALS. Sanitary service laterals shall be Polyvinyl Chloride Pipe conforming to the requirements of ASTM D-3034, SDR 26 where cover over top of pipe is 36 inches or greater. Where cover over top of pipe is less than 36 inches, specific construction conditions shall be directed by the Clay County Utility Authority (CCUA). 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 6'-0" deep at the right-of-way line and shall not be installed prior to obtaining permission from the CCUA field inspector or CCUA Engineering Department. All sanitary service laterals shall be 6-inch diameter from the main 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 at the property line utilizing the proper fittings for the type of pipe specified. All sewer service laterals over 13' deep shall be constructed of DR18 PVC pipe, and DR18 pipe fittings, per CCUA standard sewer system details.

05. PUMP STATIONS (TEMPORARY OR PERMANENT). All pump stations shall be constructed in accordance with CCUA standards, rules and regulations and be approved by CCUA. All work and materials shall meet the requirements of CCUA Standard Pump Station Details and Specifications or the plans, details and specifications for that specific pump station.

06. FORCE MAINS. Force mains shall be C900 DR18 PVC and conform to the requirements of ASTM D-1784, D-2241, D-3139 and F-477. Pipe shall be color coded and manufacturers-marked "FORCE MAIN" 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 C110 gray iron and shall be epoxy coated and lined. All force mains shall be installed with minimum tracer wire per CCUA standard location wire details. All force mains should be installed with minimum 5 feet cover from finish grade, unless approved by CCUA.

07. LIFT STATION VALVES. See CCUA Approved Lift Station Details and Materials Manual for acceptable gate valves and check valves.

08. FORCE MAIN VALVE. Gate valve, resilient seated, same as specified in Water Distribution System Specifications Section 11. Except valve bodies shall be grey iron. Valve box shall have the word "SEWER" cast into the cover.

9. FORCE MAIN JOINT RESTRAINT. All fittings shall be properly and adequately restrained against lateral movement at all force main tees, crosses, valves and bends. See CCUA Approved Materials Manual for acceptable restrainers (refer to Restraint Joint Table on detail sheet WAT 03).

10. FORCE MAIN PIPE FLUSHING. All force main piping shall be flushed clean with water utilizing full pipe diameter. In cases where the water supply is inadequate to flush the full pipe diameter, alternate flushing methods shall be coordinated with CCUA's Inspector.

11. INSTALLATION. All sewer lines, manholes, and appurtenances shall be constructed to the dimensions and elevations indicated on the approved drawings. Trenches shall be excavated to a width approximately twelve inches greater than the outside diameter of the pipe. Machine excavation shall be to a depth one-fourth pipe diameter above proposed pipe grade; the remaining depth shall be hand excavated and shaped to give full support to the lower one-fourth of each pipe. Each section of pipe shall be inspected for defects prior to being lowered into the trench. The inside of each bell and the outside of each spigot shall be thoroughly cleaned of all foreign matter prior to making the joint. All sewer lines shall be constructed with the spigot ends pointing in the direction of the flow. Both the bell and the spigot of each joint shall be lubricated with the lubricant recommended by the pipe manufacturer. All sewer lines shall be cleaned of foreign matter as construction progresses, and shall be in a clean condition upon completion of construction operations. Gravity pipe materials shall remain the same on runs between manholes and / or other structures.

12. INSPECTIONS. Each section of the completed sewer system shall be inspected for proper alignment. Any section of the sewer system which does not display true, concentric alignment shall be reinstalled. A written log of inspection shall be kept indicating location of test, potential problems in sewer dips and depth of water, service locations, and other irregularities in the pipe lines. An image in DVD/USB drive format shall be made of the television inspection and submitted to the Engineer and the CCUA. Copies of compaction density test reports from a licensed testing agency shall be made available to CCUA if requested.

12.1 CLOSED CIRCUIT TELEVISION INSPECTIONS (CCTV) inspection will be required on all new gravity sewers constructed. This service shall be provided by the Contractor as a part of the Construction Contract. The newly constructed sewers shall be televised in the presence of the Inspector of the CCUA. A full report as to the condition of pipe, type, depth, location of services, length, joint and distance between manholes, etc. shall be furnished to the CCUA inspector prior to the final acceptance of the system. CCTV inspections start at manhole invert. Any pipe found to be cracked, leaking or otherwise defective shall be removed and replaced with new pipe. Deflection testing with 7.5% mandrel is also required. Any section not passing the mandrel test shall be corrected. Sewer mains shall be CCTV after curb and lime rock are in place but prior to paving unless approved by CCUA inspector. Limerock priming and paving operations shall not take place until approved by the CCUA inspector. This will be strictly enforced. All gravity sewers must be flushed no sooner than 4 hours prior to any CCTV inspection. Force main lines within pavement area shall be pressure tested and approved prior to paving, but not prior to subgrade mixing operation and limerock installation, finish graded and compacted. Sewer services shall be viewed by a camera capable of viewing into service lateral connections. Adequate water must be placed within the upstream manhole to flow through connection to new or existing main to the downstream manhole before inspecting with the camera. All work must be accomplished in the presence of the CCUA inspector. Contractor shall contact CCUA inspector to schedule the CCTV and inspection of the sewer main. CCUA inspector shall report to job site at the agreed upon time. CCUA inspectors will wait at the job site no more than 30 minutes from the agreed upon time for the televising to begin before leaving the job site. Contractor shall reschedule CCTV giving CCUA 48 hours' notice if the above occurs.

12.2 INFILTRATION After CCTV completion, if infiltration existing the sewers or sections thereof, shall be tested and gauged for infiltration. To check the amount of infiltration, the Contractor, shall furnish at no added compensation over the contract price for the sewers. Maximum allowable infiltration shall be 50 gallons per mile, per inch of dia. of sewer per 24 hour day, at any time.

12.3 EXFILTRATION TEST In areas where ground water is not encountered in sewer construction, or it is desired to run exfiltration tests, the Contractor shall furnish and install all necessary materials, equipments, shall supply water, etc., and shall run exfiltration tests to determine acceptance of the sewer. The maximum allowable exfiltration shall be 50 gallons per mile per inch of diameter of sewer per 24 hour day at any time based on two foot minimum internal head.

12.4 PIPE GRADE. A “dip” is defined as any water holding depth which is equal or greater than the depth as listed below. Each run of pipe, between two manholes, shall be evaluated independently for compliance. Any “dip” which is greater than the “dip” depth listed below are not acceptable , unless approved by CCUA and shall be removed and replaced at no cost to CCUA. Regardless of the number of “dips” in the line section, if, in the opinion of the CCUA inspector, the number and/or location of the “dips” is believed to create an unacceptable operating condition, then the defective pipe section(s) shall be removed and replaced at no cost to CCUA.

WATER HOLDING DEPTH (INCHES)	
PIPE SIZE	DIP DEPTH
8"	1.0"
10"	1.5"
12"	2.0"

12.4 PIPE GRADE. A “dip” is defined as any water holding depth which is equal or greater than the minimum depth as listed below. Each run of pipe, between two manholes, shall be evaluated independently for compliance. Any “dip” which is greater than the “maximum” “dip” depth listed below are not acceptable , unless approved by CCUA and shall be removed and replaced at no cost to CCUA. Regardless of the number of “dips” in the line section, if, in the opinion of the CCUA inspector, the number and/or location of the “dips” is believed to create an unacceptable operating condition, then the defective pipe section(s) shall be removed and replaced at no cost to CCUA.

13. DEMARCATION BOX. Demarcation box shall be used as an isolation point between the wet well and the motor control center panel. All wiring between the motor control center(MCC) and wet well shall be interconnected at this point. Install malleable seal off conduits at the demarcation box end, in conduits between the demarcation box and the MCC. All internal hardware including terminal strips, blocks and backplane shall be stainless steel.

13.1 Demarcation box shall be 24” wide, 24” tall and 12” deep nema 4x enclosure manufactured of 316 stainless steel. Enclosure shall have a hinged cover and removable backplane for terminal blocks. The box shall be mounted so that the cover faces away from the wet well.

13.2 Terminal blocks will need to be mounted for each wire passing through the demarcation box. Terminal strips will be rated at 600 volts, sized according to the load served. Antioxidant compound shall be used on all terminal connections, (nolox or equal). Nameplates as specified on the electrical standards sheet shall be provided at the terminal blocks to identify each circuit.

13.3 All wires including spares shall be identified with heat shrink labels. All control wires shall have spade lugs. Wires shall be 600 volt rated thhn/mtw/thhw.

14. SEPARATION OF WATER AND SEWER MAINS. Horizontal and vertical separation between potable water system mains and or appurtenances and sanitary or storm sewers, wastewater or storm water force mains, and reclaimed water mains shall be in accordance with Rule 62-555.314 FAC. a. New or relocated underground water mains 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 storm sewer, storm water force main, reclaimed water main regulated under Part III of Chapter 62-610, F.A.C, or proposed vacuum-type sanitary sewer. b. New or relocated, underground water mains shall be laid to provide a horizontal distance of at least six feet, and preferably ten 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 conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. The minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three feet where the bottom of the water main is laid at least six inches above the top of the sewer. c. New or relocated underground water mains crossing any existing or proposed gravity- or vacuum-type sanitary sewer or storm sewer shall be laid so the outside of the water main is 12 inches, above, or at least 12 inches below, the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline (see Crossing "A" as shown on detail sheet WAT 02). d. New or relocated underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or storm water force main, or pipeline conveying reclaimed water shall be laid so the outside of the water main is at least 12 inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline. e.g. At the utility crossings described in paragraphs (c) and (d) 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 pipes shall be arranged 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 conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least six feet from all joints in gravity- or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

15. NEW CONNECTION TO EXISTING MAIN. New connection to existing main in service shall be accomplished by the "wet tap" method utilizing full circle stainless steel tapping sleeve and mechanical joint tapping valve. Tapping sleeve shall be rated at 200 p.s.i., non-shock working pressure conforming to AWWA Standard C110, latest revision. Stainless steel tapping sleeves shall be from those listed in CCUA approved material manual. Tapping valve shall be mechanical joint on one end and standard flanged joint on other end. Valve shall conform of these specifications.

16. At all Jack & Bore locations a CCUA inspector shall inspect the casing spacers to verify they are the correct size and have been installed correctly on the pipe prior to the pipe being installed into the pipe casing. The pipe casing shall be clean and free of all dirt, and shall be cleaned with a vacuum truck if necessary. A CCUA inspector shall be present at all time during this work. Contractor shall be responsible to establish the correct elevation of the Jack and Bore the (restrained Joint) carrier pipe and pipe casing. Contractor shall compact the bottom of the excavation to assure the density of earth is adequate to prevent any settlement of equipment used to perform the Jack and Bore operation. Contractor shall, at all Jack and Bore pits, provide and utilize the necessary de-watering equipment to keep the excavation dry and free from water. Contractor shall, at all Jack and Bore excavations, provide a rock bed of #57 stone (a minimum of 8-inches thick) to support the track and rail system of the Jack and Bore equipment. This shall be inspected by a CCUA inspector and approved by the inspector prior to beginning the placement of the pipe casing. Contractor shall replace, at their expense, any Jack and Bore installed which does not conform to CCUA Standards for acceptance for ownership, due to incorrect grading, damaged or faulty materials, poor workmanship, or anything that CCUA deems inadequate to perform its intended use.

NO	DATE	BY	REVISION DESCRIPTION
24	OCT 23	RHD	UPDATED TO ADD FPVC NOTES
23	JULY 23	RHD	UPDATED SEWER & GENERAL NOTES
22	JAN 17	RHD	UPDATED WATER OUTLINE NOTE 2.0
21	MAR 16	RHD	UPDATED FINAL INSPECTION NOTES
20	SEP 15	RHD	UPDATED
19	AUG 15	RHD	UPDATED
18	APR 15	RHD	UPDATED
17	FEB. 15	RHD	REVISED 06. SERVICE SERVICE LATERAL NOTES

DESG XXX
DRWN RHD
CHKD XXX
APRV XXX
DATE 00/00

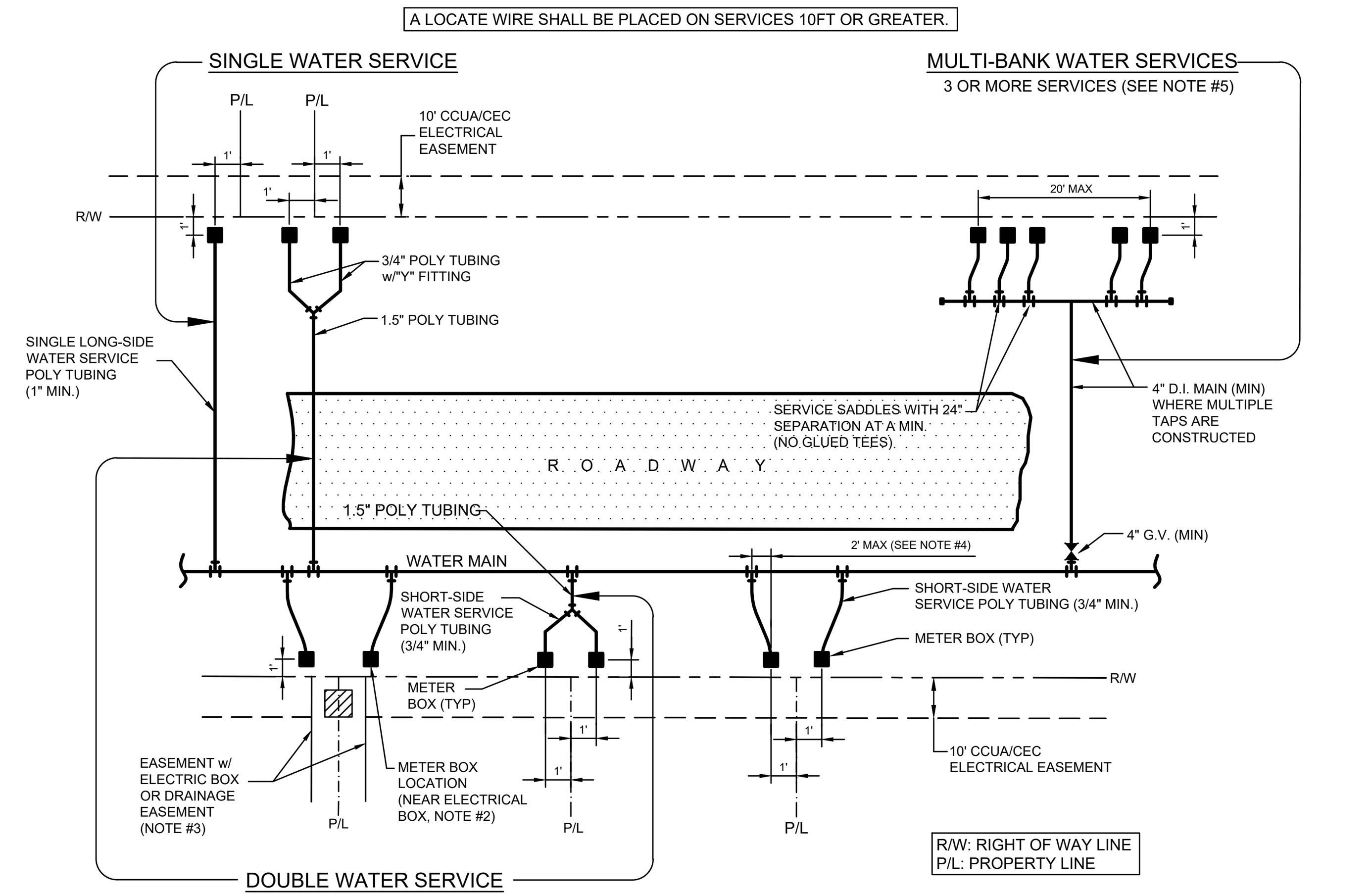
STANDARD WATER AND SEWER SYSTEM SPECIFICATIONS

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.
S-SPA

POLYETHYLENE WATER SERVICE DETAILS



NOTES

1. The sketches above indicate typical 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 applicable county (Clay or Bradford), 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 CCUA, the water meter box shall be located in non-traffic areas (not in sidewalks or driveways). If an unapproved meter box is identified by CCUA, 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. CCUA 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.

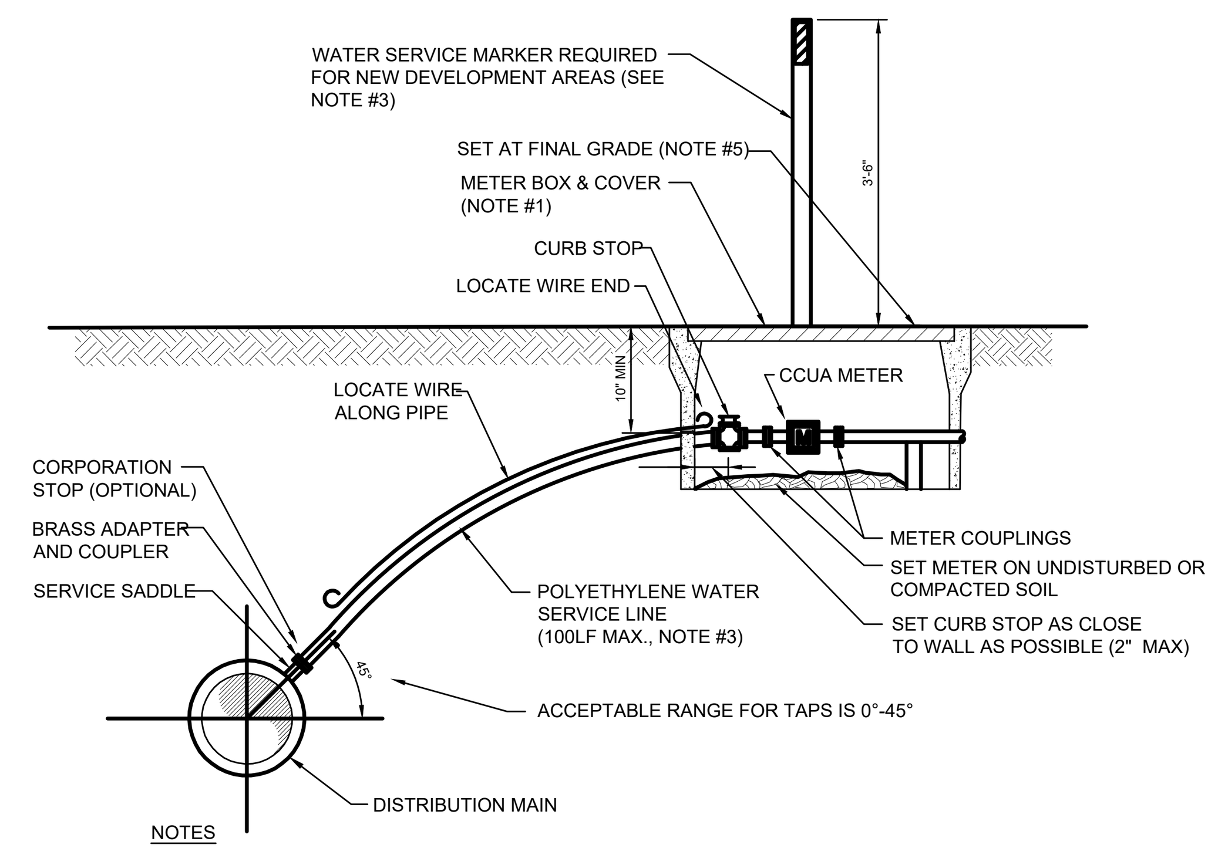
4. For single services, the horizontal distance (perpendicular to the main) between the service's saddle and the meter box shall be 2 feet maximum. For double 3/4" services, the 1 ½" poly main shall be located centered between the two meter boxes. Locate wire is required on all services 10' or greater in length. If locate wire is required, 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 CCUA. This will assist in locating existing service lines in the future.

5. A ducticle iron pipe (D.I.P.) 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 water main. For 3 or more services in one area, a 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. crossing the street for 5 residential customers, utilizing 4" g.v., 4" pipe, 4"x1" saddles and 1" curb stops (no glued tee fittings). The 4" or larger D.I.P. water main must be sized and designed by the engineer.

6. Reclaimed water meter boxes or services shall be constructed similar to the above and shall be located at a min. of 10' from the potable water service and/or box, and not allowed in concrete or asphalt unless approved otherwise by CCUA.

WATER SERVICE INSTALLATIONS 2" AND SMALLER METER (A)

NOT TO SCALE



NOTES

1. See CCUA Approved Materials Manual and system details for requirements.

2. No open-cut under roadway paving allowed unless the roadway is being reconstructed, or if directed otherwise by CCUA. Construct poly line with 36" (min.) cover under roadways. The poly water service line shall be same size as the meter (3/4" minimum) and be installed perpendicular to the main and not exceed 100lf unless otherwise approved by CCUA.

3. Install PVC plug in all curb stops if water service is "not in use" (i.e.: if no meter is installed). In addition, install a 6 inch wide, 6 foot long P.T. fence post (top painted blue) 12" off side of meter box. The removal or transfer of a water service shall include brass meter couplings (hex on barrel type).

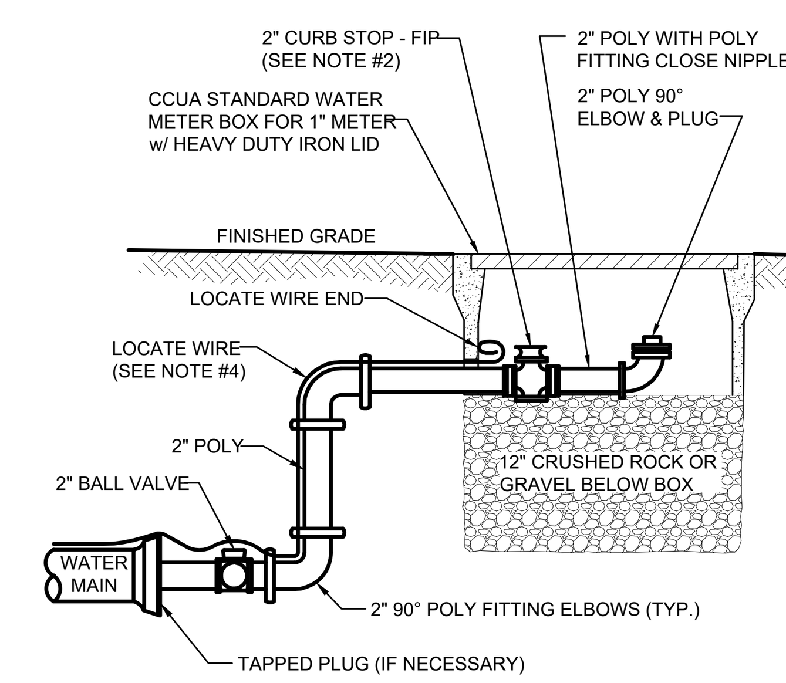
4. The contractor shall be responsible for the repair or replacement of the meter or electronic devices if damaged by the contractor during the construction period.

5. Meter box and top shall be clear of all debris to allow full access to box (i.e., no dirt, trash or other debris placed on top of box).

6. Locate wiring required on all services 10' or greater in length / offset greater than 2.0'.

WATER SERVICE DETAIL 2" AND SMALLER METER (B)

NOT TO SCALE



NOTES

1. Pipe shall be polyethylene. Fittings shall be poly.

2. The 2" curb stop shall be all bronze. Fittings shall be poly.

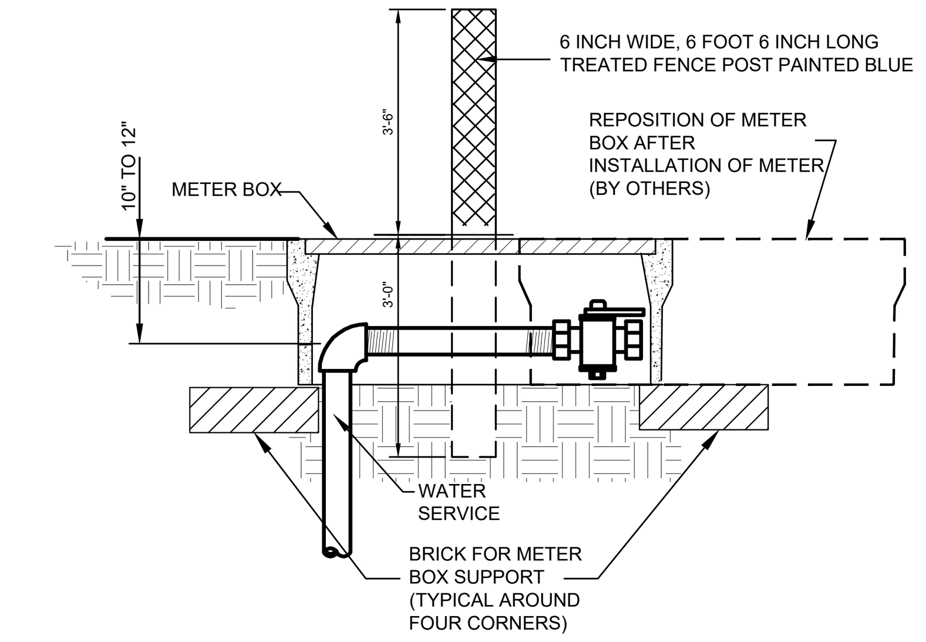
3. Locate wire for 10' or greater in length.

4. Cannot be placed under concrete or pavement.

5. Place 2 feet past last water main service connection.

FLUSHING VALVE BELOW GRADE (C)

NOT TO SCALE



1. All services are to be clearly marked by a treated 6 inch wide, 6 foot 6 inch long marker (fence) post painted blue.+

2. 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 locate wire ball valve at that elevation.

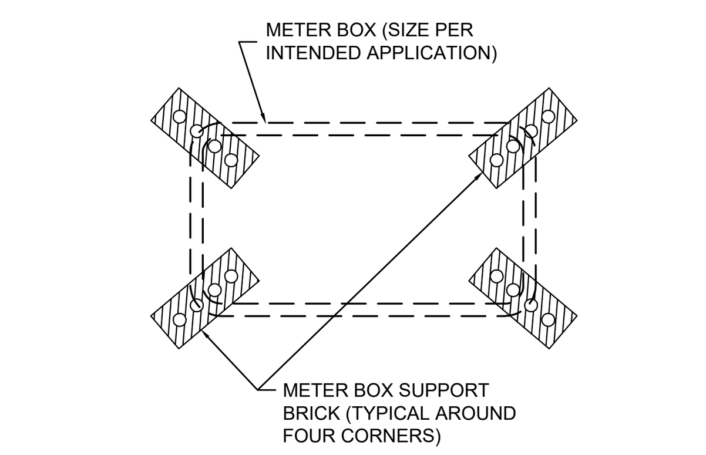
3. Set meter box over entire horizontal section of service line from last 90° bend to the end of the curb stop.

4. Box to be repositioned level when the meter is installed.

5. Marker post to be installed adjacent to and located at the mid section of the meter box.

WATER SERVICE MARKER POST (G)

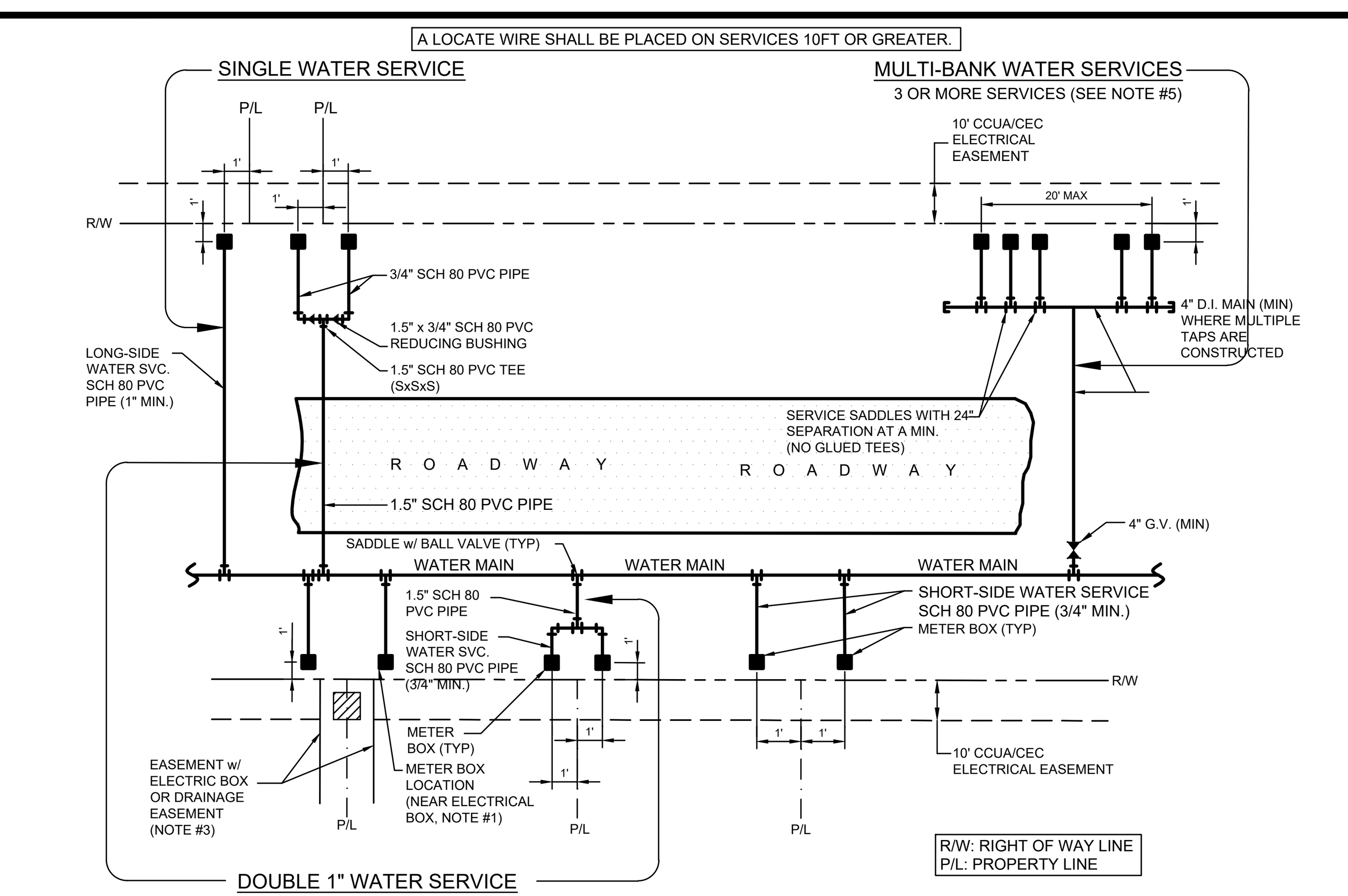
NOT TO SCALE



METER BOX SUPPORT DETAIL (H)

NOT TO SCALE

SCH 80 PVC WATER SERVICE DETAILS



NOTES

1. The sketches above indicate typical water service and meter box locations. Actual locations of boxes may vary slightly according to field conditions encountered. Typically, the meter box shall located 1.0' off of the R/W line (as shown).

2. Unless specified otherwise by the applicable county (Clay or Bradford), 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 CCUA, the water meter box shall be located in non-traffic areas (not in sidewalks or driveways). If an unapproved meter box is identified by CCUA, 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. CCUA 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 services saddle and the meter box shall be 2 feet maximum. For double 3/4" services, the 1 ½" SCH80 PVC main shall be located centered between the two meter boxes. Locate wire is required on all services 10' or greater in length. If locate wire is required, 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 CCUA. This will assist in locating existing service lines in the future.

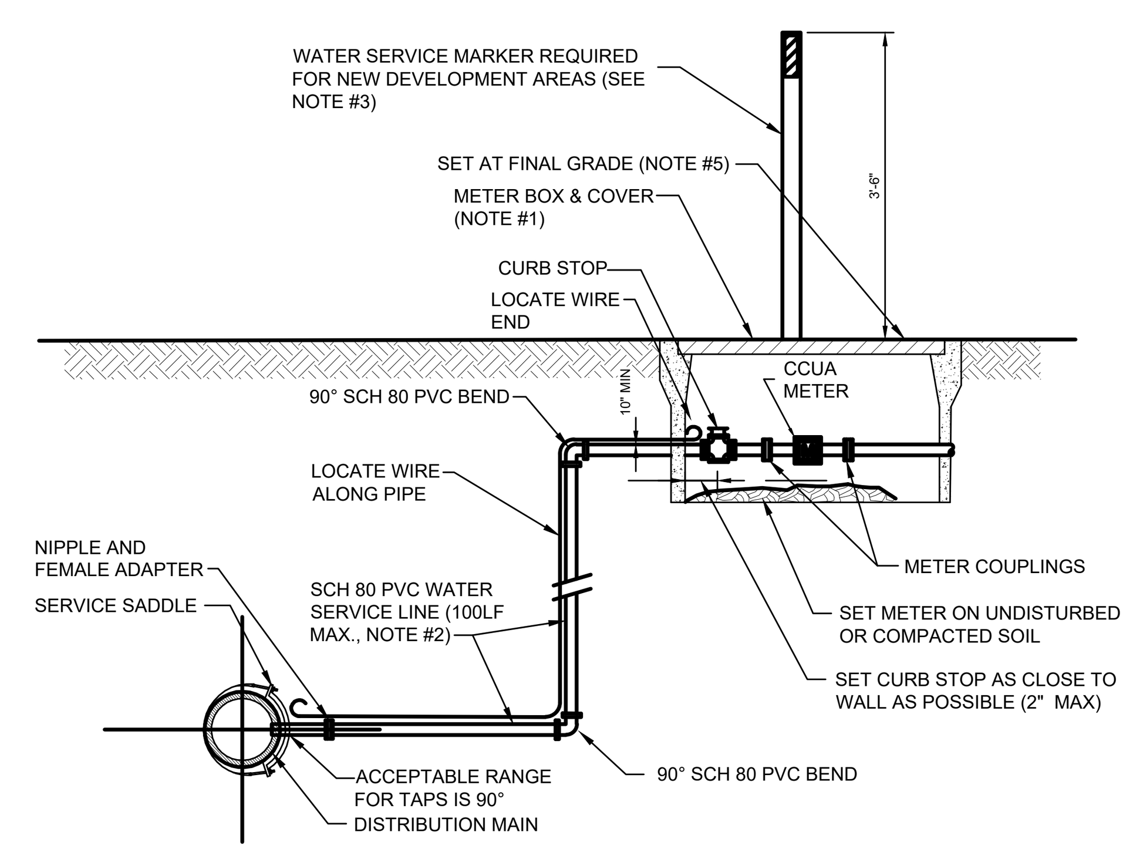
5. A ducticle iron pipe (D.I.P.) water main extension w/locate wire may be utilized on either short-side or long-side services where shown on the drawings. Locate wire shall extend from one meter box to curb stop at water main. For 3 or more services in one area, a water main extension w/locate wire 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 3 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"x1" saddles and 1" curb stops (no glued tee fittings). The 4" or larger D.I.P. water main must be sized and designed by the engineer.

6. Double 1" water services is allowed for short side or long side services and where shown on the drawings.

7. Reclaimed water meter boxes or services shall be constructed similar to the above and shall be located at a min. of 10' from the potable water service and/or box, and not allowed in concrete or asphalt unless approved otherwise by CCUA.

SCH80 PVC WATER SERVICE INSTALLATIONS 2" AND SMALLER METER (D)

NOT TO SCALE



NOTES

1. See CCUA Approved Materials Manual and system details for requirements.

2. No open cut under roadway paving allowed unless the roadway is being reconstructed or if directed otherwise by CCUA. Construct SCH80 PVC line with 36" (min.) cover under roadways. The SCH80 PVC water service line shall be same size as the meter (3/4" minimum) and be installed perpendicular to the main and not exceed 100lf unless otherwise approved by CCUA.

3. Install PVC plug in all curb stops if water service is "not in use" (i.e.: if no meter is installed). In addition, install a 6 inch wide, 6 foot 6 inch long P.T. fence post (top painted blue) 12" off side of meter box. The removal or transfer of a water service shall include brass meter couplings (hex on barrel type).

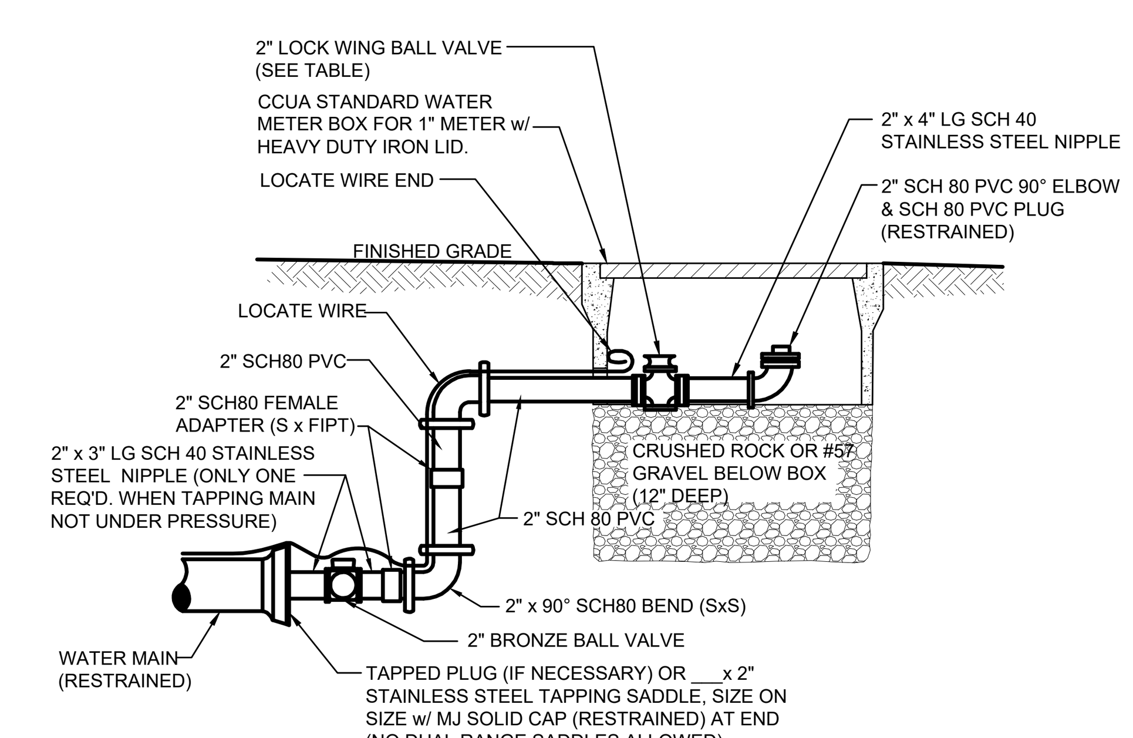
4. The contractor shall be responsible for the repair or replacement of the meter or electronic devices if damaged by the contractor during the construction period.

5. Meter box and top shall be clear of all debris to allow full access to box (i.e., no dirt, trash or other debris placed on top of box).

6. Locate wiring required on all services 10' or greater in length / offset greater than 2.0".

SCH 80 PVC WATER SERVICE DETAIL 2" AND SMALLER METER (E)

NOT TO SCALE



NOTES

1. Pipe shall be SCH80 PVC. Fittings shall be SCH80 PVC.

2. The 2" ball valve shall be all bronze. Fittings shall be brass.

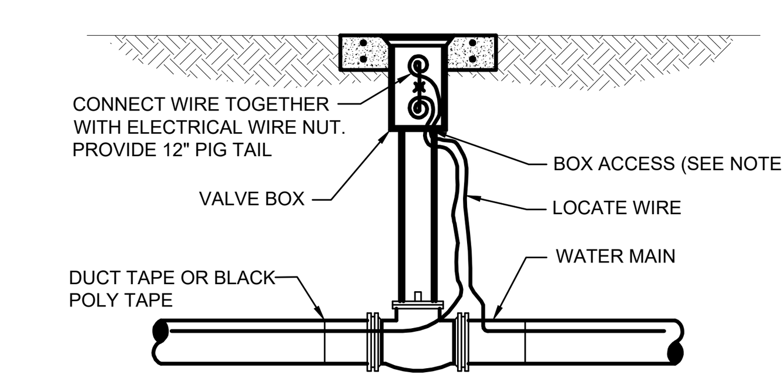
3. Locate wire for 10' or greater in length.

4. Cannot be placed under concrete or pavement.

5. Place 2 feet past last water main service connection.

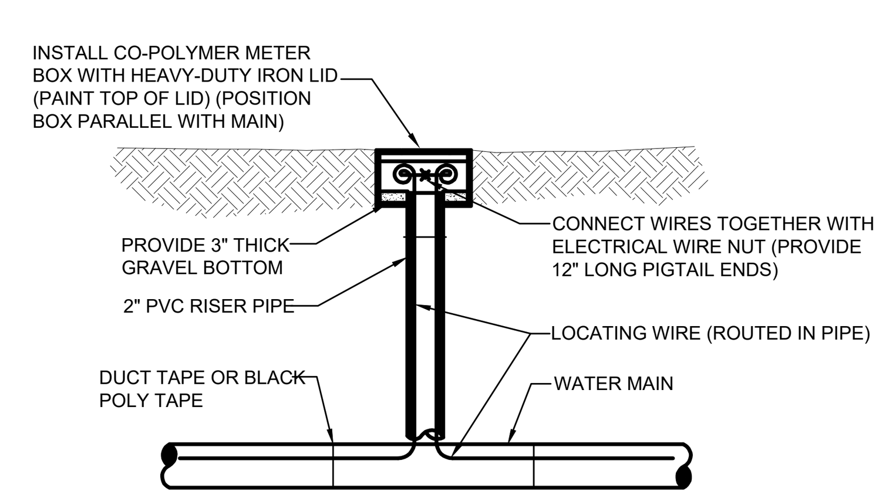
2" STANDARD SCH 80 PVC FLUSHING HYDRANT ON DEAD-END LINE (F)

NOT TO SCALE



LOCATE WIRE BOX UTILIZING VALVE BOX

NOT TO SCALE



LOCATE WIRE BOX UTILIZING METER BOX

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

LOCATE WIRE BOX (I)

NOT TO SCALE

NOTES

1. Locating wire shall be 10 guage, single strand UF rated (direct burial) copper wire, or approved equal

2. All directional drilled pipes shall have 2-8 guage strand copper-clad steel conductors with 45mil HDPE extruded coating. and shall be of sufficient length to avoid splicing. Under no circumstances shall the tracer wire be spliced. It shall be the Contractor's responsibility to order rolls of wire of the required length to avoid the need for splicing the tracer wire.

3. Locate boxes hall be installed at the lot line in residential subdivisions, or commercial properties. Boxes shall located in sidewalks or driveways. Locate boxes spacing shall not exceed 500 feet.

4. Where it is not possible to locate the box outside of a paved street or parking lot, the locate wire shall be placed in a valve box instead of a Rome box. Valve box lid shall be marked according to the type of pipe served.

NO	DATE	BY	REVISION DESCRIPTION
6	AUG '23	RHD	REVISED ALL NOTES & DETAILS
5	NOV '22	RHD	REVISED VARIOUS DETAILS FOR JOE P.
4	JUNE 17	RHD	REVISED VARIOUS DETAILS
3	JUNE 16	RHD	REVISED POLY WATER SERVICE DETAIL
2	MARCH 16	RHD	REVISED METER OFFSETS
1	JUNE 15	RHD	NEW DETAIL SHEET DESIGN

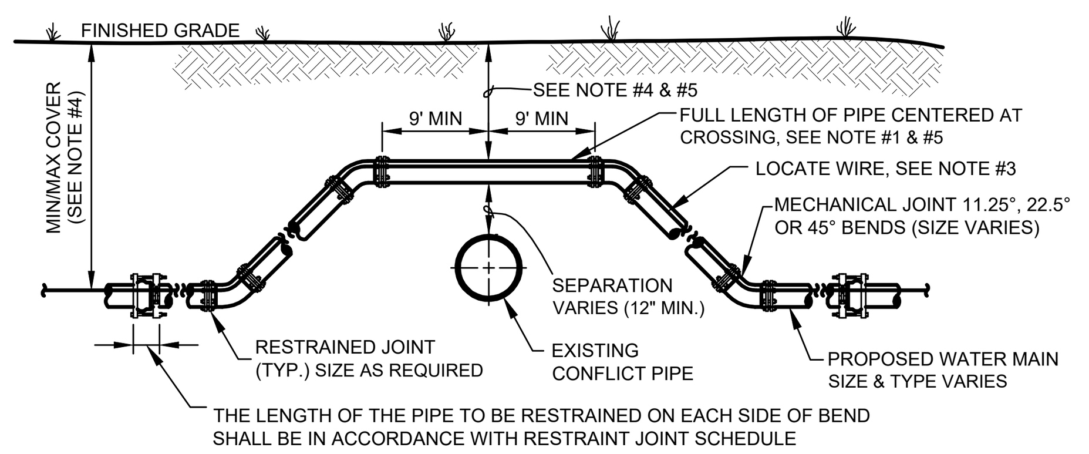
DESG XXX
DRWN RHD
CHKD XXX
APRV XXX
DATE 00/00

STANDARD SCH80 PVC AND POLYETHYLENE WATER SERVICE DETAILS

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.
WAT 01



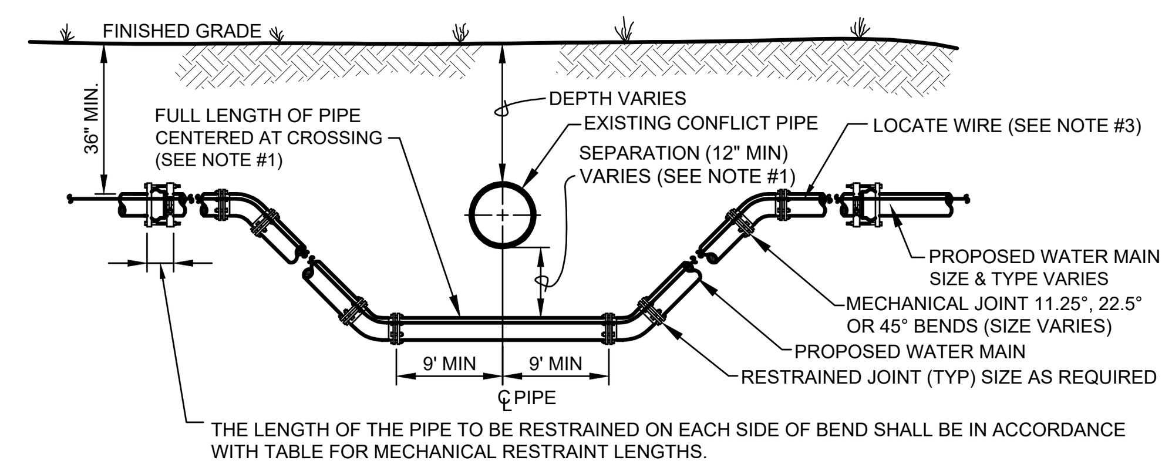
CASE "A" CROSSING

NOTES

1. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557.
2. ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER CCUA REQUIREMENTS, TO WITHSTAND 150 P.S.I. PRESSURE TEST.
3. LOCATING WIRE REQUIRED.
4. THE COVER FOR PIPING SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY CCUA.
5. IF UTILITY CONFLICT IS LOCATED IN A NON-TRAFFIC AREA (NO TRAFFIC LOADS) AND IF THE NEW PIPE SHALL BE DUCTILE IRON PIPE, THEN THE MINIMUM COVER MAY BE REDUCED TO 24 INCHES (ONLY IN THE AREA OF THE CONFLICT).

ADJUSTMENT ABOVE EXISTING UTILITIES MECHANICAL RESTRAINTS (A)

NOT TO SCALE



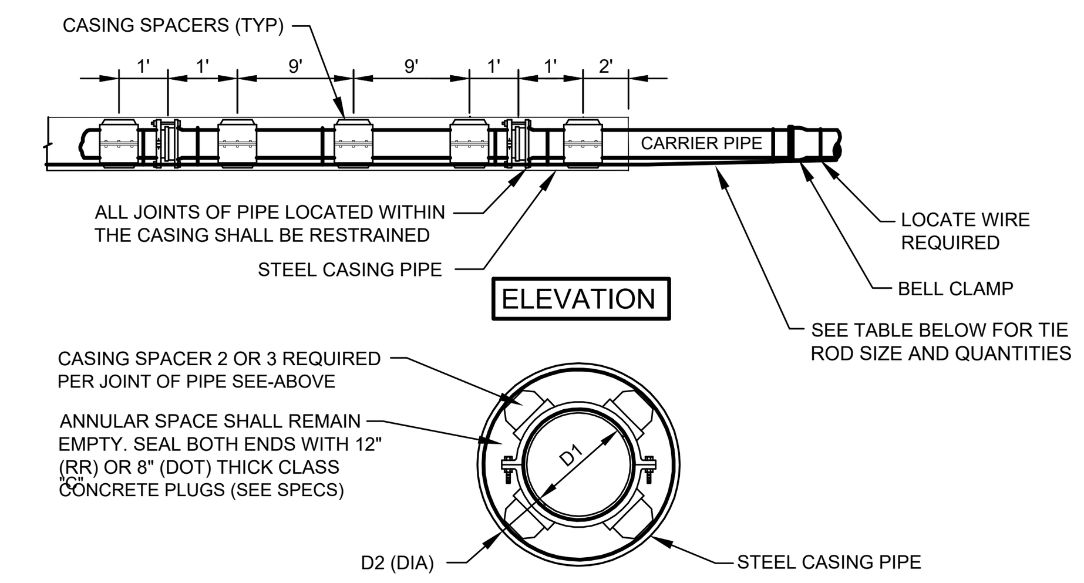
CASE "B" CROSSING

NOTES

1. THE SOILS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D 1557.
2. ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER CCUA REQUIREMENTS, TO WITHSTAND 150 P.S.I. PRESSURE TEST.
3. LOCATING WIRE REQUIRED.
4. ALL BENDS TO BE RESTRAINED IN BOTH DIRECTIONS PER CCUA REQUIREMENTS, TO WITHSTAND 150 P.S.I. PRESSURE TEST.
5. THE COVER FOR ALL PIPING SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84", UNLESS APPROVED BY CCUA.

ADJUSTMENT BELOW EXISTING UTILITIES MECHANICAL RESTRAINTS (C)

NOT TO SCALE



CASING DETAIL

CARRIER TYPE AND CASING PIPE SIZES (MIN) IN INCHES												
CARRIER PIPE NO. DIA. (D1)	4	6	8	10	12	14	16	18	20	24	30	36
CASING PIPE NOM. DIA. (D2)	14	16	20	20	24	30	30	30	36	42	48	54
WALL THICKNESS RAILROAD (CSX)	0.25	0.281	0.375	0.375	0.375	0.469	0.469	0.469	0.562	0.625	0.688	0.781
WALL THICKNESS DOT	0.25	0.25	0.25	0.25	0.25	0.312	0.312	0.312	0.375	0.50	0.50	0.50
NUMBER OF TIE RODS (EACH END)	2	2	2	4	4	6	6	8	8	12	14	14
TIE ROD SIZE (DIA.)	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"

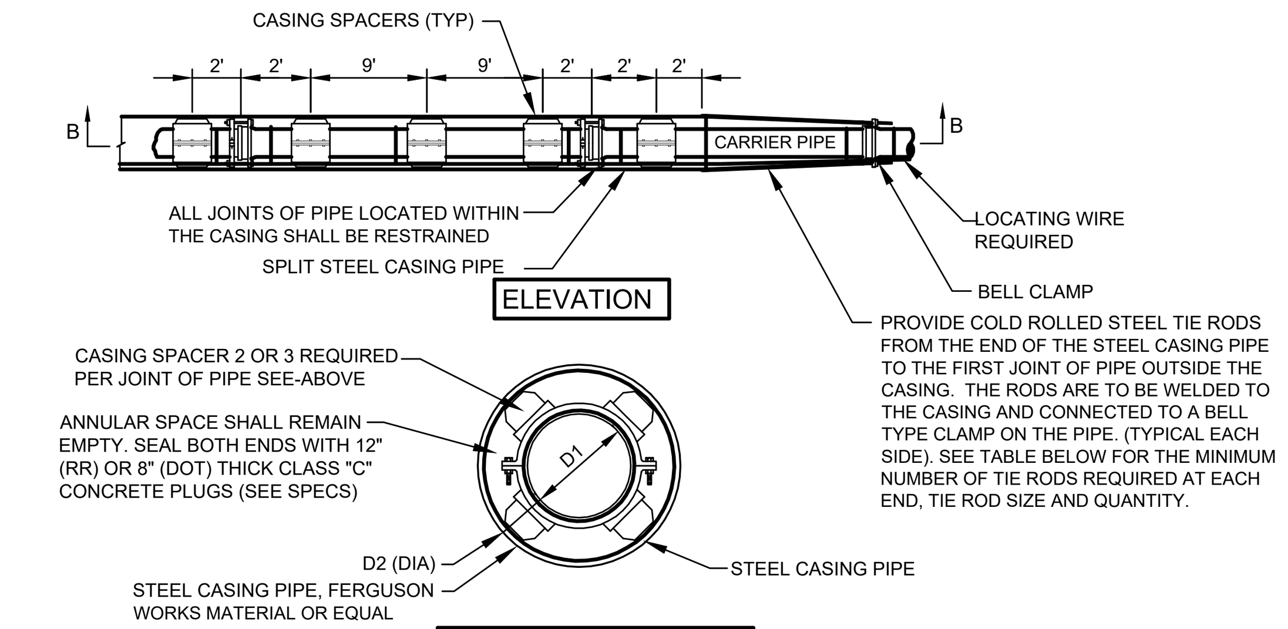
CASING SIZE SCHEDULE

NOTES

1. MIN. COVER TO TOP OF CASING; a) FDOT-3.0' b)RAILROAD-5.5' TO BASE OF RAIL, 4.5' FOR SECONDARY OR INDUSTRIAL TRACKS.
2. ALL JOINTS WITHIN CARRIER PIPE SHALL BE MECHANICAL RESTRAINED JOINTS.
3. FOR STREET USES WHICH ARE NOT DOT OR RAILROAD, USE DOT CASING THICKNESS UNLESS OTHERWISE INDICATED BY ENGINEER.
4. CASING PIPE SHALL BE FURNISHED IN NOMINAL 8 FOOT LENGTHS (MIN.) UNLESS OTHERWISE INDICATED ON THE DRAWING OR APPROVED BY CCUA. 5. PIPE TO BE USED AS A CASING SHALL CONFORM TO EITHER ASTM STANDARD A139 FOR "ELECTRIC FUSION (ARC) WELDED STEEL PIPE". WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI OR "API SPECIFICATION API-5LX, GRADE X-42 WELDED STEEL PIPE".

TYPICAL CASING DETAIL - WATER (D)

NOT TO SCALE

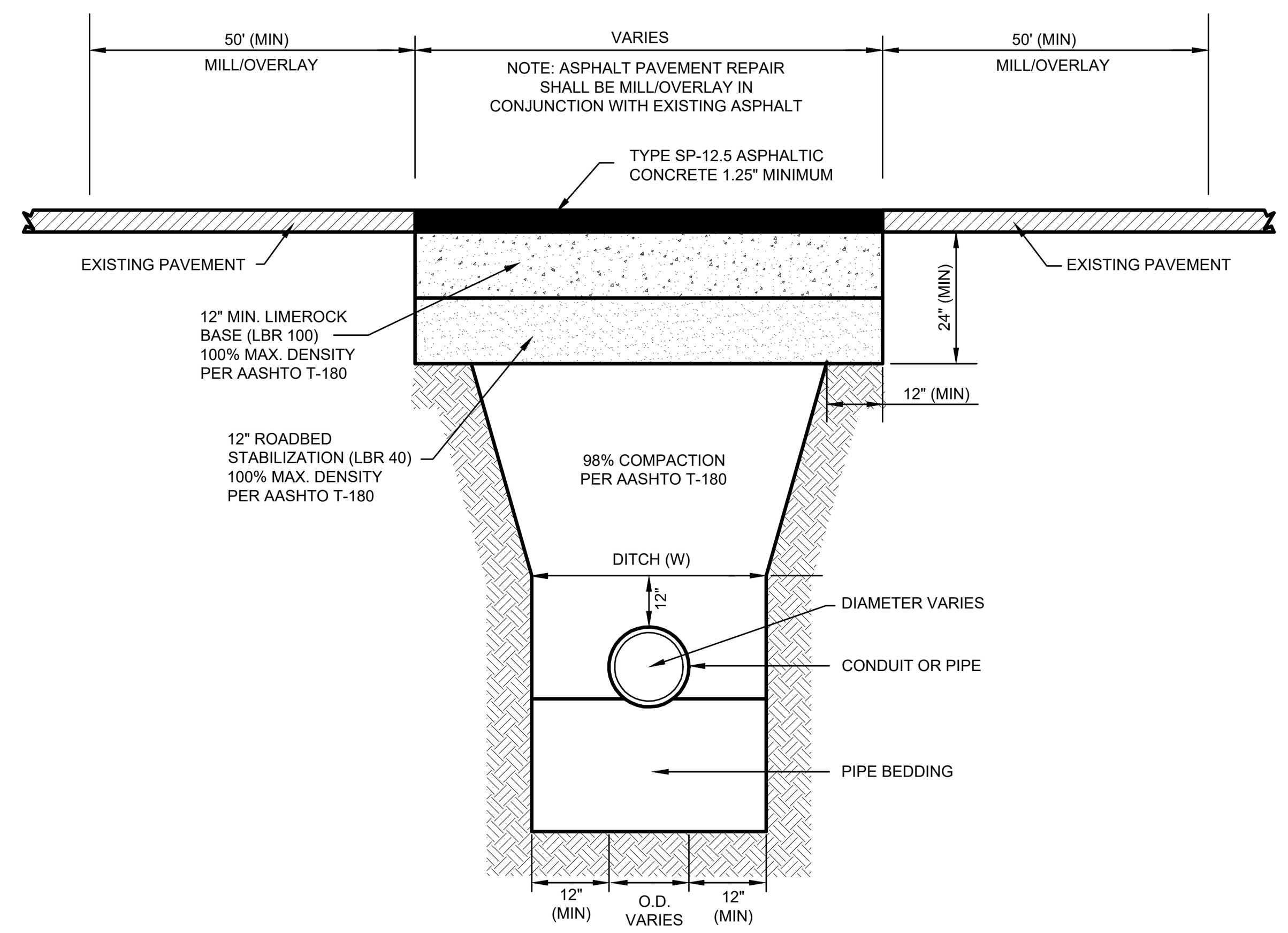


SPLIT CASING DETAIL

CARRIER TYPE AND CASING PIPE SIZES (MIN) IN INCHES														
CARRIER PIPE NO. DIA. (D_1)	4	6	8	10	12	14	16	18	20	24	30	36	42	48
CASING PIPE NOM. DIA. (D_2)	14	16	20	20	24	30	30	30	36	42	48	54	60	66
WALL THICKNESS RAILROAD-(CSX)	0.25	0.281	0.375	0.375	0.375	0.469	0.469	0.469	0.562	0.625	0.688	0.781	0.844	0.938
WALL THICKNESS DOT	0.25	0.25	0.25	0.25	0.25	0.312	0.312	0.312	0.375	0.50	0.50	0.50	0.50	0.50
NUMBER OF TIE RODS (EACH END)	2	2	2	4	4	6	6	8	8	12	14	14	16	16
TIE ROD SIZE (DIA.)	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1 1/4"	1 1/4"

NOTES

1. NOT ALLOWED UNDER RAILROADS.
2. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 4 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
3. ALL JOINTS WITHIN CARRIER PIPE SHALL BE MECHANICAL RESTRAINED JOINTS.
4. FOR STREET USES WHICH ARE NOT DOT OR RAILROAD, USE DOT CASING THICKNESS UNLESS OTHERWISE INDICATED BY ENGINEER.
5. CASING PIPE SHALL BE FURNISHED IN NOMINAL 8 FOOT LENGTHS (MIN.) UNLESS OTHERWISE INDICATED ON THE DRAWING OR APPROVED BY CCUA.
6. PIPE TO BE USED AS A CASING SHALL CONFORM TO EITHER ASTM STANDARD A139 FOR "ELECTRIC FUSION (ARC) WELDED STEEL PIPE". WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI OR "API SPECIFICATION API-5LX, GRADE X-42 WELDED STEEL PIPE".



REVISED CLAY COUNTY CASE 2 ASPHALT PAVEMENT REPAIR DETAIL (B)

NOT TO SCALE

PVC PIPE RESTRAINT NOTES

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THIS SCHEDULE, AT A MINIMUM.

2. ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.

3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.

4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, Lu IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. Li IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.

5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.

6. HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).

7. THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS 90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	VERTICAL OFFSETS 45° BENDS (SEE NOTE 4) UPPER Lu (FT.)	LOWER Li (FT.)	VALVES OR DEAD ENDS L (FT.)
4	20	8	4	2	20	3	50
6	28	10	5	2	28	4	66
8	36	14	6	3	36	5	90
10	40	18	8	4	45	6	110
12	50	20	9	4	52	8	120
14	56	23	10	5	60	9	140
16	60	26	11	6	67	10	160
18	69	29	12	6	74	12	180
20	75	32	13	7	80	13	195
24	76	33	15	7	81	14	200
30	88	36	18	9	97	16	235
36	100	40	20	10	110	20	270
42	115	48	23	11	125	24	300
48	125	52	25	12	140	30	340

REDUCERS SIZE (IN.)	L (FT.)
6x4	35
8x6	35
8x4	65
10x8	35
10x6	65
12x10	35
12x8	65
16x12	65
16x10	95
20x18	35
20x16	65
20x12	120
24x20	65
24x18	95
24x16	120
30x24	80
30x20	150
36x30	80
36x24	150
42x36	80
42x30	150
48x42	80
48x36	150

TEES SEE NOTE 5 RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
4	6 4 < LESS	10 F.O.
8	8 6 < LESS	30 F.O.
10	10 8 6 < LESS	48 14 F.O.
12	12 10 8 < LESS	65 35 F.O.
16	16 12 10 < LESS	100 40 F.O.
20	20 16 12 < LESS	130 80 F.O.
24	24 20 16 12 < LESS	130 90 40 F.O.
30	30 24 20 16 < LESS	140 80 50 F.O.
36	36 30 24 20 < LESS	180 120 50 F.O.
42	42 36 30 24 20 < LESS	220 160 80 40 F.O.
48	48 42 36 30 24 < LESS	250 180 90 40 F.O.

F.O. = FITTING ONLY

PVC PIPE RESTRAINT JOINT SCHEDULE

DUCTILE IRON PIPE RESTRAINT NOTES

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.

2. ASSUMPTIONS: DUCTILE IRON PIPE (WITHOUT POLY WRAP), SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE. FOR D.I.P. W/POLY WRAP, USE RESTRAINT JOINT SCHEDULE FOR PVC PIPE.

3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.

4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, Lu IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. Li IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.

5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.

6. HDPE TO D.I.P. TRANSITIONS: THE D.I.P. PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).

LENGTH (L) TO BE RESTRAINED

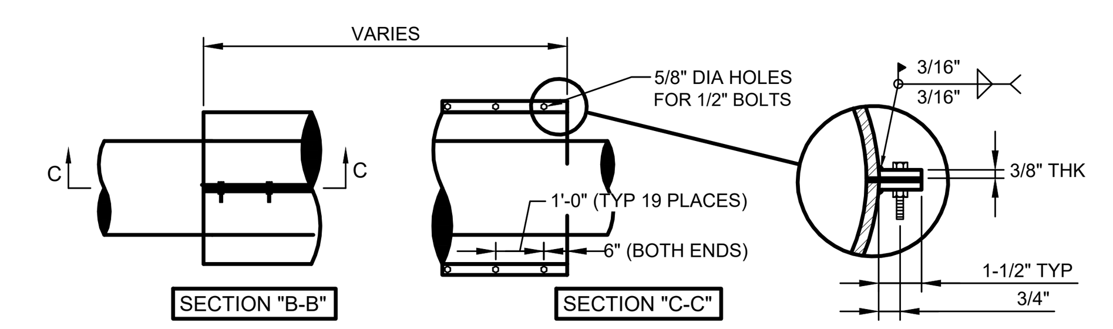
NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS 90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	VERTICAL OFFSETS 45° BENDS (SEE NOTE 4) UPPER Lu (FT.)	LOWER Li (FT.)	VALVES OR DEAD ENDS L (FT.)
4	18	6	4	2	12	2	30
6	22	10	5	2	17	3	40
8	30	13	6	3	22	4	50
10	35	14	7	4	26	5	64
12	42	16	8	4	31	6	75
14	46	20	9	5	35	7	85
16	53	22	11	5	40	8	95
18	57	24	12	6	44	9	105
20	62	26	13	6	48	10	110
24	64	27	14	6	50	11	111
30	73	30	15	7	57	13	137
36	85	34	18	8	66	17	159
42	93	38	20	9	75	20	176
48	102	43	22	10	82	22	198

REDUCERS SIZE (IN.)	L (FT.)
6x4	20
8x6	20
8x4	40
10x8	20
10x6	40
12x10	20
12x8	40
16x12	40
16x10	57
20x18	20
20x16	40
20x12	73
24x20	40
24x18	50
24x16	60
30x24	50
30x20	76
36x30	50
36x24	88
42x36	40
42x30	88
48x42	40
48x36	88

TEE SEE NOTE 5 RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
4	6 4 < LESS	6 F.O.
8	8 6 < LESS	18 F.O.
10	10 8 6 < LESS	27 8 F.O.
12	12 10 8 < LESS	38 20 F.O.
16	16 12 10 < LESS	60 20 F.O.
20	20 16 12 < LESS	78 40 F.O.
24	24 20 16 12 < LESS	76 53 20 F.O.
30	30 24 20 16 < LESS	99 60 37 F.O.
36	36 30 24 20 16 < LESS	118 88 52 37 F.O.
42	42 36 30 24 20 < LESS	138 110 78 37 F.O.
48	48 42 36 30 24 < LESS	154 132 99 59 F.O.

F.O. = FITTING ONLY

DUCTILE IRON PIPE RESTRAINT JOINT SCHEDULE



MATERIAL: PIPE - ATSM A53, GRADE B, ERW, STD WALL, CARBON STEEL
PLATE - STM A36, GRADE B, CARBON STEEL (THICKNESS AS NOTED)
WELDS: ALL WELDS SHALL BE PERFORMED BY A CERTIFIED WELDER
LININGS/COATINGS: INTERIOR - BARE
EXTERIOR - BARE

PIPE MAIN FOR CROSSINGS USING SPLIT CASING PIPE

NOT ALLOWED UNDER RAILROADS

TYPICAL SPLIT CASING DETAIL - WATER (E)

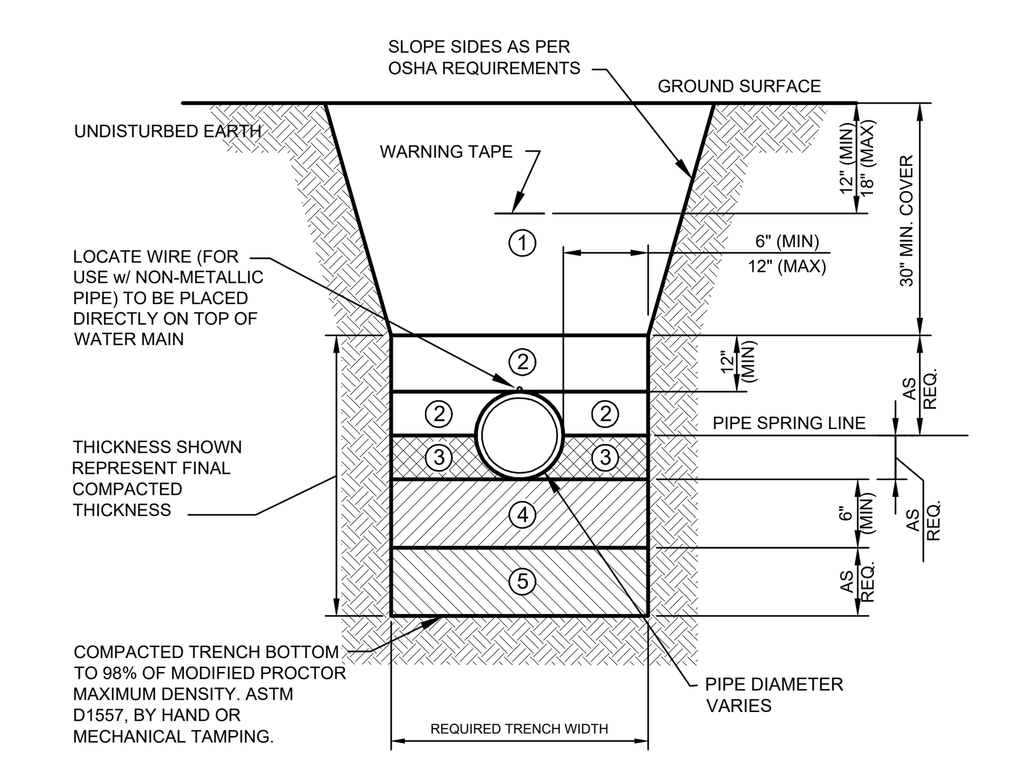
NOT TO SCALE

LOCATION OF PUBLIC WATER SYSYEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	Water Main 3 ft. minimum	Water Main 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum Water Main
Vacuum Sanitary Sewer	Water Main 10 ft. preferred 3 ft. minimum	Water Main 12 inches preferred 6 inches minimum	Alternate 3 ft. minimum Water Main
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	Water Main 10 ft. preferred 6 ft. minimum (3)	Water Main 12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is preferred	Alternate 6 ft. minimum Water Main
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer – This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.



1. FINAL BACKFILL - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. FINAL BACKFILL SHALL BE INSTALLED IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 95% (UNPAVED) AND 98% (PAVED) MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557.

2. INITIAL BACKFILL - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. INITIAL BACKFILL SHALL BE INSTALLED IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 98% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557. BACKFILL SHALL EXTEND TO THE TOP OF THE PIPE AFTER COMPACTION. ALL LIFTS SHALL BE COMPACTED BY HAND TAMPING OR AN APPROVED METHOD OF MECHANICAL TAMPING. DEWATERING SHALL CONTINUE UNTIL BACKFILL IS COMPACTED AT LEAST 2 FEET ABOVE PIPE.

3. HAUNCHING - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. HAUNCHING SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 4 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 98% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557, BY HAND TAMPING. HAUNCHING SHALL BE BROUGHT UP EQUALLY ON BOTH SIDES OF THE PIPE. COMPACT BACKFILL TO MID-PIPE.

4. BEDDING - CLEAN, WELL GRADED MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. BEDDING SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 6 INCHES, LOOSE MEASUREMENT, AND SHALL BE COMPACTED TO AT LEAST 98% MODIFIED PROCTOR MAXIMUM DRY DENSITY, ASTM D-1557, BY HAND TAMPING OR MECHANICAL TAMPING. PROPERLY SHAPED BELL HOLES SHALL BE EXCAVATED IN THE COMPACTED BEDDING TO PERMIT ASSEMBLY OF THE PIPE. SEE SPECIFICATIONS FOR UNSUITABLE MATERIALS EXCAVATION IF REQUIRED. TRENCH BOTTOM IS AT BOTTOM OF PIPE IF UNSUITABLE MATERIAL IS NOT ENCOUNTERED.

NOTE: NATIVE, UNDISTURBED MATERIAL IN COMPLETELY DEWATERED TRENCHES MEETING THE COMPACTION AND MATERIAL REQUIREMENTS FOR COMPACTED BEDDING MATERIAL NEED NOT BE REPLACED OR REWORKED, EXCEPT FOR SHAPING OF BELL HOLES, AND WHERE REFILL IS REQUIRED.

5. REFILL - REQUIRED WHERE TRENCH HAS BEEN OVER-EXCAVATED. REFILL SHALL BE INSTALLED IN COMPLETELY DEWATERED TRENCHES IN LIFTS NOT EXCEEDING 6 INCHES AND SHALL BE COMPACTED TO 98% OF ASTM D-1557 MAX DRY DENSITY, BY HAND OR MECHANICAL TAMPING.

TYPICAL PIPE TRENCH DETAIL (F)

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
7	AUG 23	RHD	REVISED ALL NOTES & DETAILS
6	JUN 17	RHD	REVISED CLAY COUNTY ASPHALT DETAIL
5	JUN 17	RHD	REVISED NOTES AND DETAILS
4	FEB 17	RHD	REVISED CASE "B" CROSSING DETAIL (PIPE RESTRAINT)
3	SEPT 16	RHD	ADDED CASE 2 DETAIL
2	MAR 16	RHD	ADDED PIPE SEPARATION DETAIL
1	JUNE 15	RHD	NEW DETAIL SHEET DESIGN

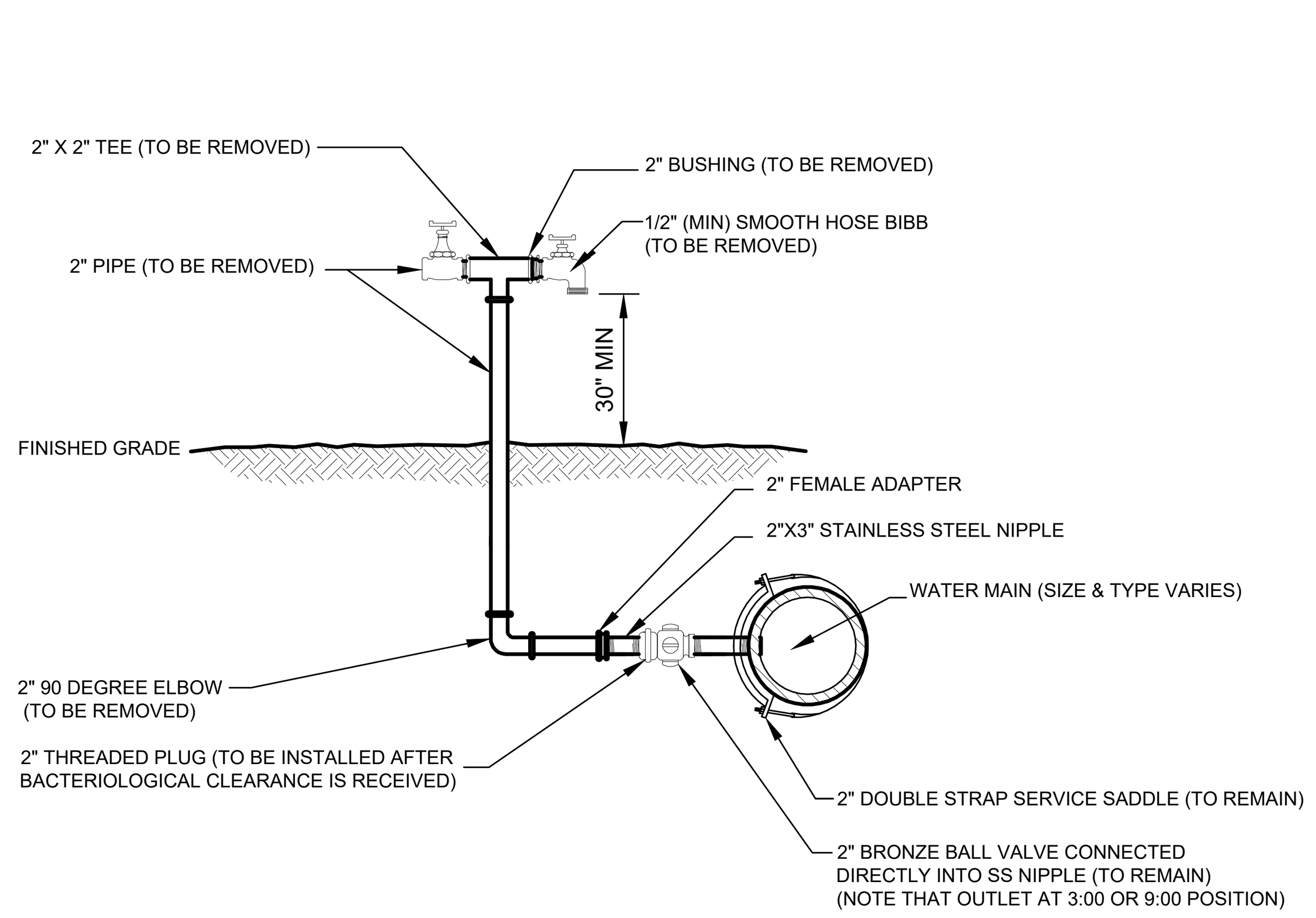
DESG XXX
DRWN RHD
CHKD XXX
APRV XXX
DATE 00/00

STANDARD WATER CASING, CROSSING TYPE AND PIPE RESTRAINT DETAILS

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.
WAT 02

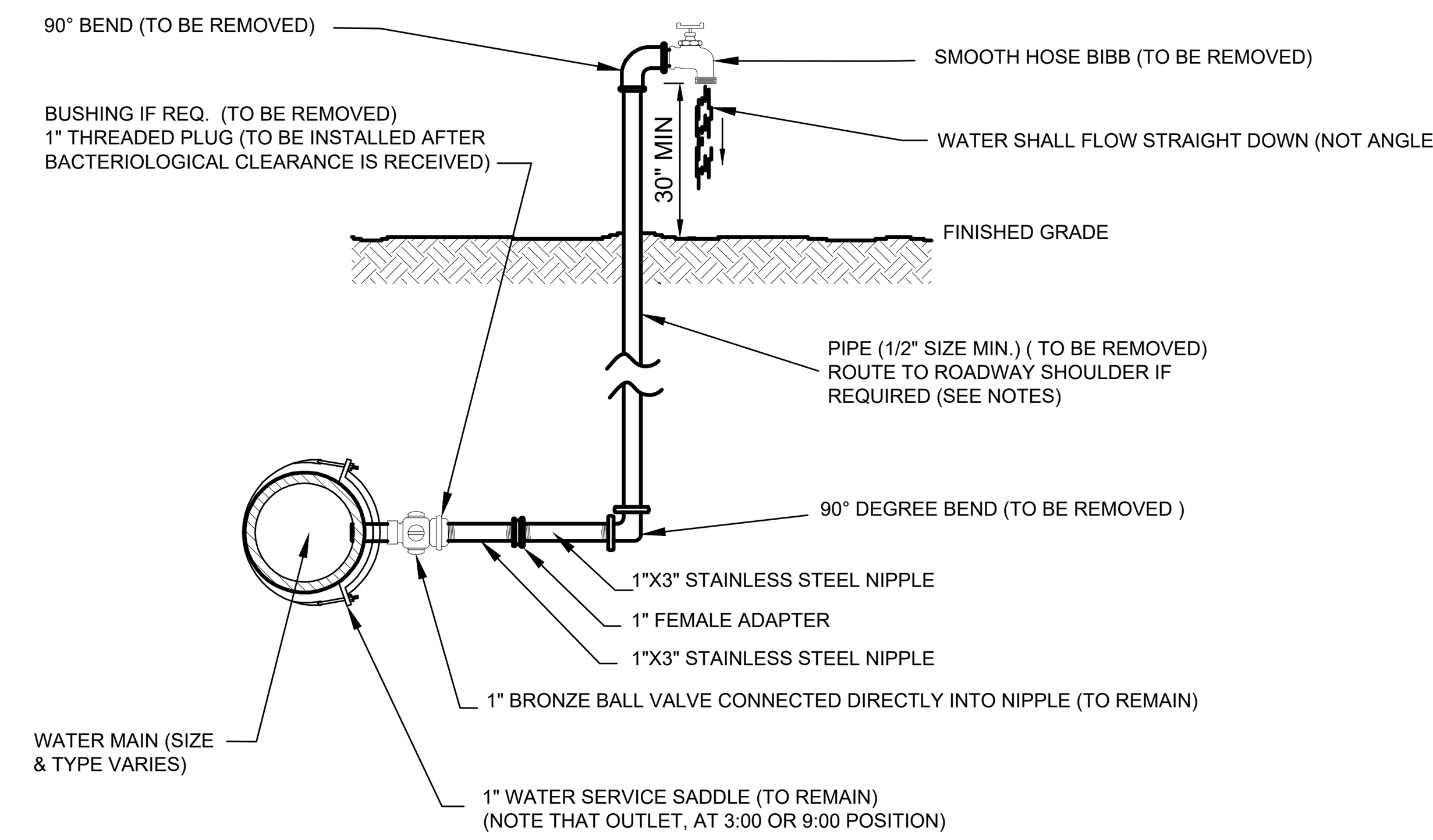


NOTES

1. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
2. ALL PIPE & FITTING SHALL BE GALVANIZED MATERIAL OR SCH 80 PVC.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTING (AS NOTED) AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
4. THE CONTRACTOR SHALL COMPLY WITH ALL CCUA RULES AND POLICES AS OUTLINED BY CCUA'S STANDARD WATER SYSTEM STANDARDS AND OTHER ASSOCIATED CCUA STANDARDS.

2" TEMPORARY SAMPLE TAP FOR STUB OUT (A)

NOT TO SCALE

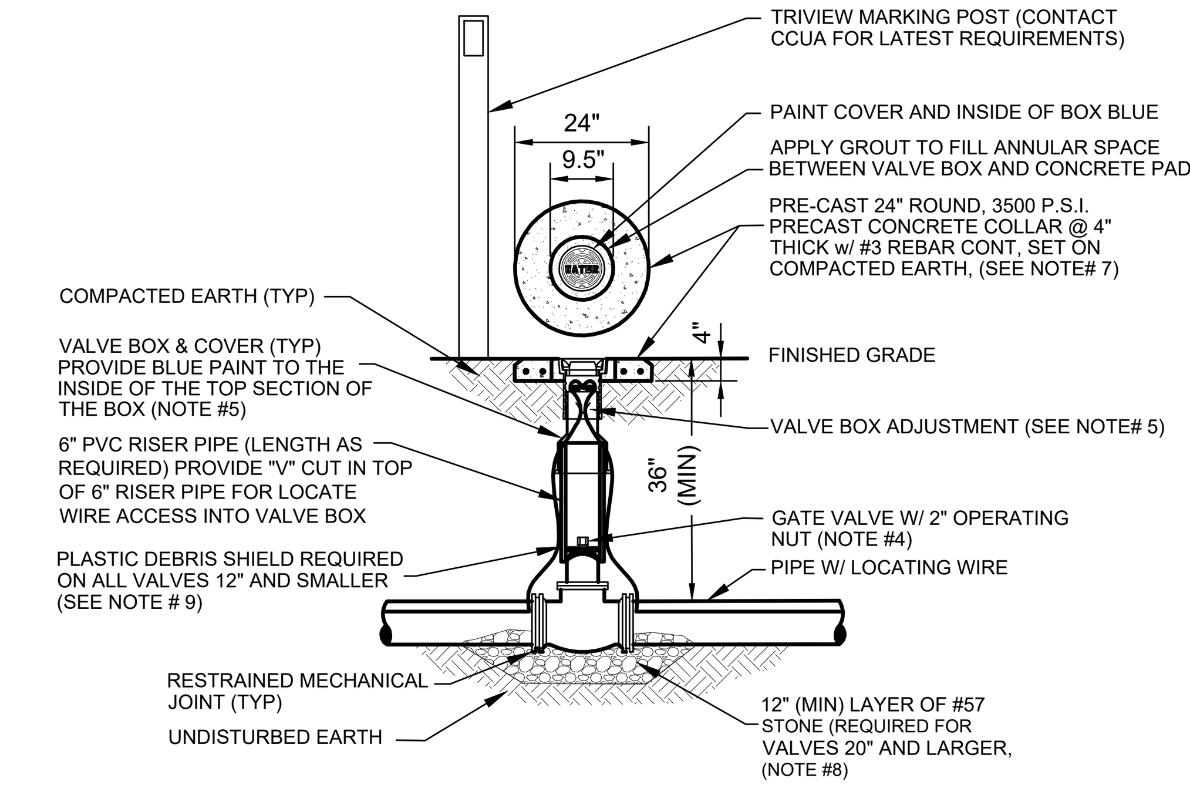


NOTES

1. LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED), AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
3. PIPE AND FITTINGS SHALL BE PVC SCH 80 OR GALV. MATERIAL.
4. THE USE OF THE ABOVE CONSTRUCTION FOR A TEMPORARY SAMPLE POINT SHALL BE LIMITED TO AREAS WHERE A SAMPLE TAP BY ALTERNATIVE METHODS IS NOT FEASIBLE OR IF DIRECTED OTHERWISE BY CCUA.
5. THE CONTRACTOR SHALL COMPLY WITH ALL CCUA RULES AND POLICIES AS AS OUTLINED BY CCUA'S STANDARD WATER SYSTEM STANDARDS AND OTHER ASSOCIATED CCUA STANDARDS.

TEMPORARY SAMPLE TAP (B)

NOT TO SCALE

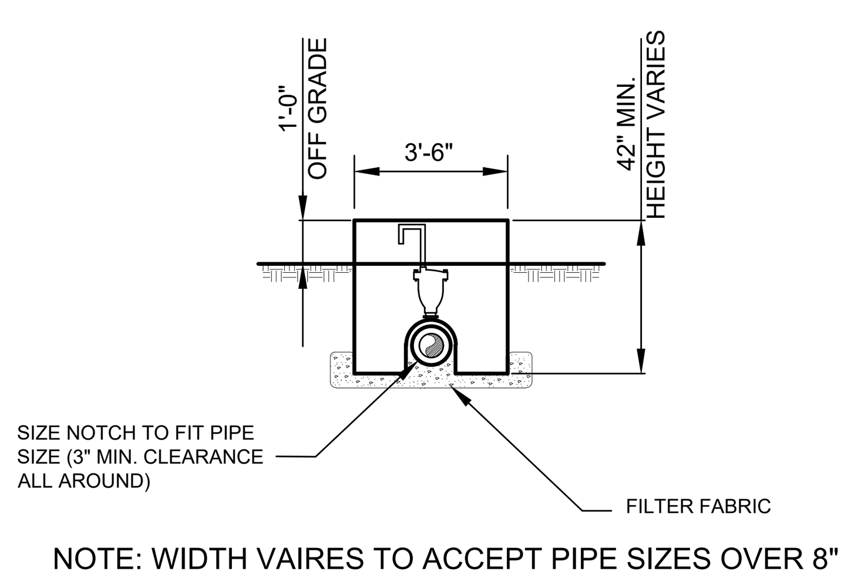


NOTES

1. FOR UNPAVED LOCATIONS, A PRECAST CONCRETE VALVE PAD SHALL BE PROVIDED AND INSTALLED FLUSH WITH GRADE. CONCRETE PAD IS NOT REQUIRED FOR VALVE LOCATED IN THE ROADWAY, UNLESS SHOWN OR NOTED OTHERWISE.
2. LOCATING WIRE IS REQUIRED ON ALL PRESSURE PIPING (SEE DETAIL W-44).
3. A "V" CUT SHALL BE CARVED IN THE CURB CLOSEST/ADJACENT TO ALL BELOW GRADE VALVES. THE "V" CUT IS TO BE PAINTED GREEN.
4. IN PAVED AREAS, INSTALL VALVE AT A DEPTH TO ALLOW A 12" MIN. DISTANCE BETWEEN THE VALVE COVER PLATE AND THE TOP OF THE VALVE OPERATING NUT. OUTSIDE OF PAVED AREAS (GRASS), INSTALL VALVE AT A DEPTH TO ALLOW A 6" MINIMUM DISTANCE BETWEEN THE VALVE COVER AND THE TOP OF THE VALVE OPERATING NUT. OPERATING NUT/STEM EXTENSION SHALL BE PROVIDED (WHERE APPLICABLE) SO THAT THE OPERATING NUT WILL BE NO MORE THAN 30 INCHES BELOW FINISHED GRADE.
5. FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS. ROUTE LOCATE WIRES THRU A "V" CUT IN THE TOP OF THE 6" PVC RISER PIPE FOR LOCATE WIRE ACCESS INTO VALVE BOX. THE LOCATE WIRES WITH A 12" LONG PIG-TAIL AT THE TOP SHALL BE CONNECTED TOGETHER WITH A WIRE NUT.
6. BRASS IDENTIFICATION TAG INDICATING "WATER", VALVE SIZE, DIRECTION AND TURNS TO OPEN & VALVE TYPE. PROVIDE A 1/4" HOLE IN BRASS TAG AND ATTACH TAG (TWIST WIRE AROUND TAG) TO THE END OF THE LOCATE WIRE. TAGS ARE NOT REQUIRED ON VALVES INSTALLED ON FIRE HYDRANT BRANCH LINES.
7. IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD W/2 - #4 REBAR AROUND PERIMETER, MAY BE USED.
8. GRAVEL SHALL BE PROVIDED UNDER ALL VALVES 20" AND LARGER. THE MINIMUM VERTICAL LIMIT OF GRAVEL IS 12" UNDER THE VALVE UP TO 1/3 THE OVERALL HEIGHT OF THE VALVE.
9. FOR VALVES 12 INCH AND SMALLER, PROVIDE A WHITE OR BLACK PLASTIC DEBRIS SHIELD WHICH INSTALLS BELOW THE OPERATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE OPERATING NUT AND MINIMIZE INFILTRATION. SHIELD SHALL BE BY AFC, BOXLOK OR APPROVED EQUAL.

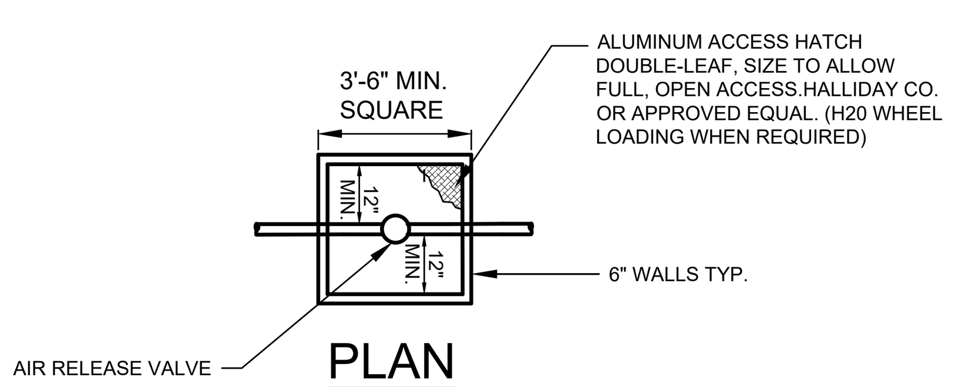
WATER VALVE INSTALLATION DETAIL (C)

NOT TO SCALE



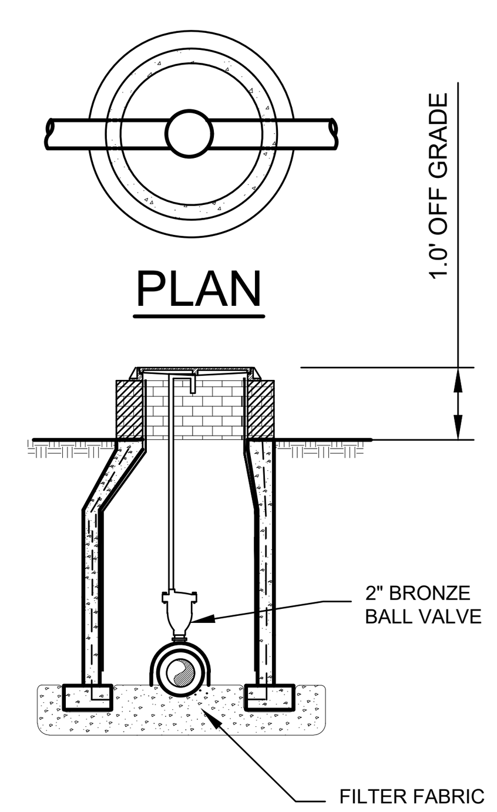
NOTE: WIDTH VAIRES TO ACCEPT PIPE SIZES OVER 8"

SECTION



PLAN

TO BE USED ON ALL PIPES 12" OR LARGER



PLAN

SECTION

NOTES

1. FOR PIPE 10" OR SMALLER A 4' DIAMETER, NOTCHED MANHOLE CAN BE USED FOR AIR RELEASE VALVE.
2. SET MANHOLE ON MIN. OF 4 SOLID CONCRETE BLOCKS SPACED EVENLY AROUND THE MANHOLE W/ A MIN. OF 12" OF #57 STONE WITH FILTER FABRIC ABOVE AND BELOW THE STONE.

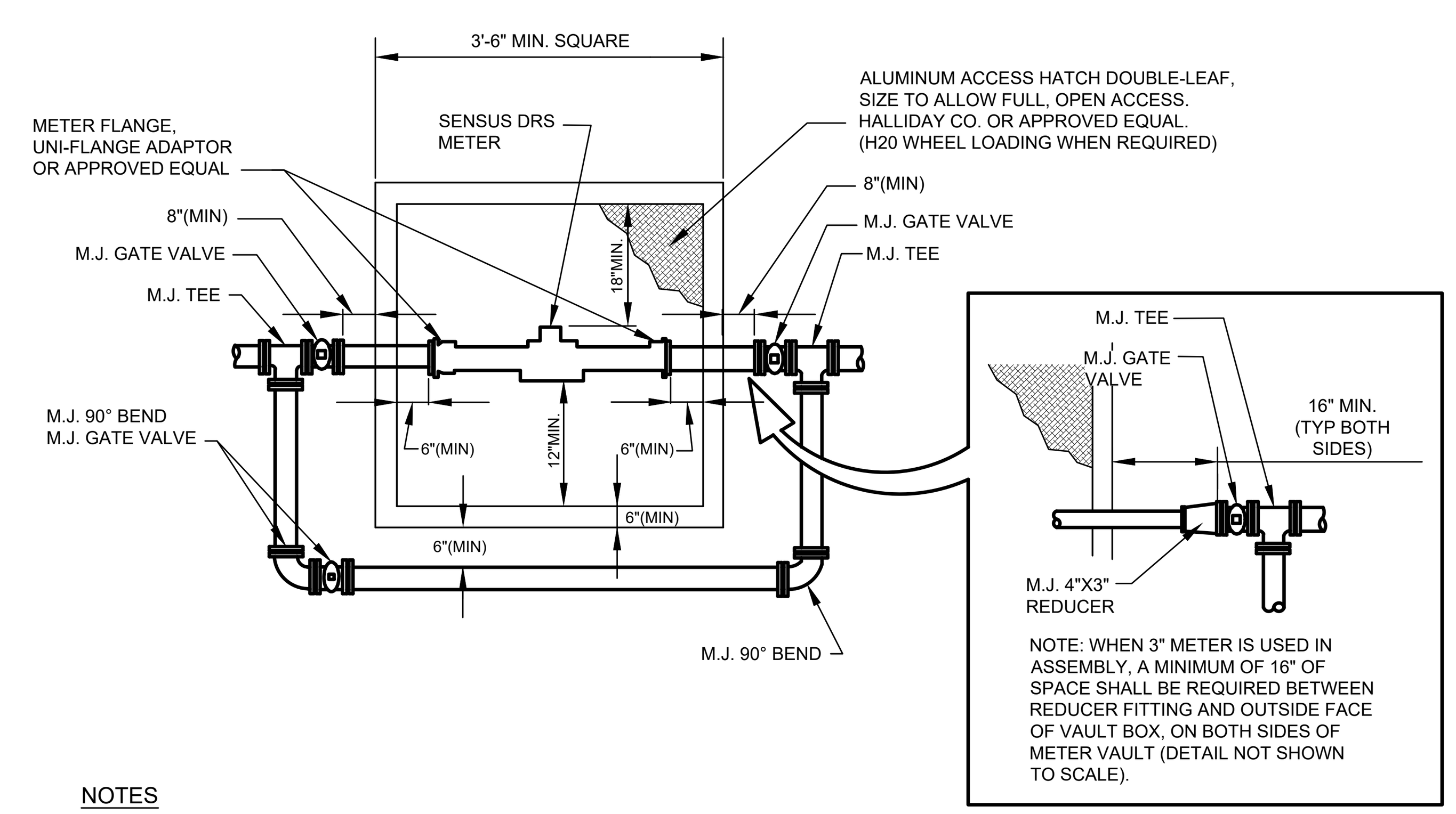
TO BE USED ON ALL PIPES 10" OR SMALLER

NOTES

1. CONCRETE BOX SHALL BE 42" MIN. DEPTH BUT SHALL BE DEEP ENOUGH TO ACCOMMODATE THE SIZE PIPE AND TYPE OF AIR RELEASE VALVE REQUIRED, WITH OPEN BOTTOM, PRECAST WITH NOTCH TO ACCOMMODATE PIPE INSTALLED WITH 36" COVER FROM TOP OF PIPE TO FINISH GRADE, ON 12" OF #57 STONE,WITH FILTER FABRIC ABOVE AND BELOW THE STONE.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWING OF BOX WITH DIMENSIONS FOR APPROVAL BY CCUA.
3. DIMENSIONS SHOWN ARE MINIMUM AND SHALL BE INCREASED BASED UPON ACTUAL SIZE OF PIPE INSTALLED.

WATER MAIN AIR RELEASE VALVE VAULT (D)

NOT TO SCALE



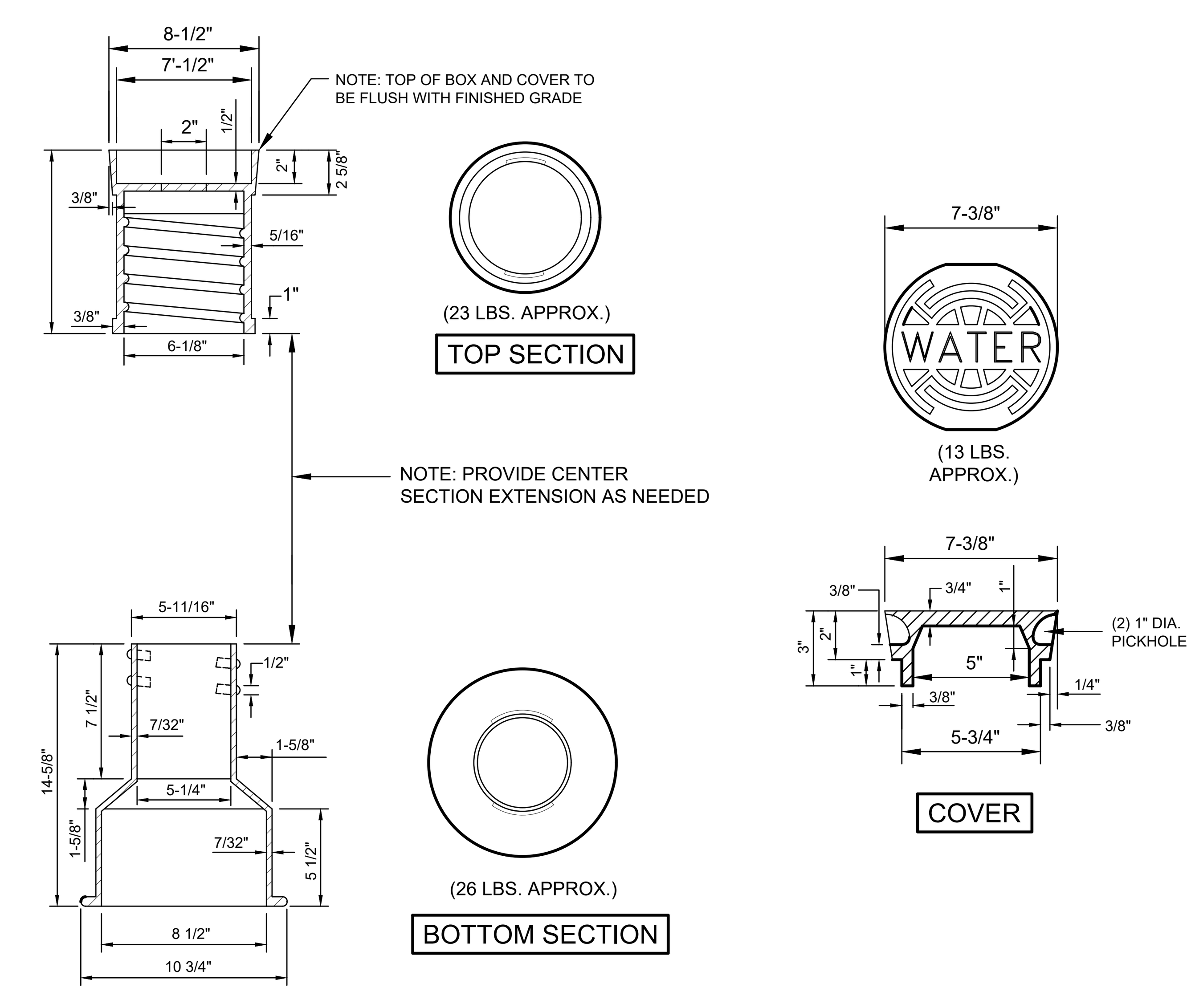
NOTES

1. ALL PIPE TO BE D.I. (MINIMUM 4").
2. ALL VALVES & FITTINGS TO BE DUCTILE IRON. (MINIMUM 4")
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. (EXCEPT 3" METER SHALL HAVE 4" PIPE AND FITTINGS)
5. CONC. BOX SHALL BE A MINIMUM OF 42" DEEP WITH OPEN BOTTOM, PRECAST WITH NOTCH TO ACCOMMODATE PIPES INSTALLED 36" DEEP, INSTALLED ON 12" OF #57 STONE.
6. CONTRACTOR SHALL PROVIDE SHOP DRAWING OF BOX WITH DIMENSIONS FOR APPROVAL BY CCUA.
7. THE COST OF THE METER WILL BE ASSESSED TO DEVELOPER UNDER SEPARATE AGREEMENT. THE METER ONLY WILL BE FURNISHED TO THE CONTRACTOR BY THE CLAY COUNTY UTILITY AUTHORITY AND THE CONTRACTOR SHALL INSTALL THE METER TO COMPLETE THE INSTALLATION SHOWN HEREON.
8. PIPES COMING IN AND GOING OUT OF BOX SHALL BE 36" DEEP. CONTRACTOR SHALL BE RESPONSIBLE TO ADJUST THE ELEVATION OF THESE PIPES, USE OF BENDS ARE PERMITTED TO ACHIEVE THIS.
9. FOR ANY SIZE WATER AND FIRE LINE METERS NOT LISTED, THE CONTRACTOR SHALL SUBMIT ALL NECESSARY SUBMITTALS TO BE APPROVED BY CCUA.

METER VAULT DIMENSIONS (OVER 8" CONTACT CCUA ENGINEERING DEPARTMENT)			
METER TYPE	3" and 4" VAULT DIMENSIONS	6" VAULT DIMENSIONS	8" VAULT DIMENSIONS
SENSUS TURBINE	4'-0" OUTSIDE 3-'0" INSIDE	4'-6" OUTSIDE 3'-6" INSIDE	4'-6" OUTSIDE 3'-6" INSIDE
SENSUS COMPOUND	4'-0" OUTSIDE 3'-0" INSIDE	4'-6" OUTSIDE 3'-0" INSIDE	4'-6" OUTSIDE 3'-0" INSIDE
SENSUS F2 FIRE LINE	5'-0" OUTSIDE 4'-0" INSIDE	6'-0" OUTSIDE 5'-0" INSIDE	6'-10" OUTSIDE 5'-6" INSIDE
"McCROMETER" PROPELLER	4'-0" OUTSIDE 3'-0" INSIDE	4'-6" OUTSIDE 3'-6" INSIDE	4'-6" OUTSIDE 3'-6" INSIDE

METER VAULT - 3" AND LARGER METERS (E)

NOT TO SCALE



VALVE BOX AND COVER (F)

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
7		RHD	
6		RHD	
5		RHD	
4	JUN 17	RHD	REVISED NOTES AND DETAILS
3	OCT 16	RHD	MODIFIED VAULT DIMENSION CHART
2	SEPT 16	RHD	ADDED PIPE JOINT SCHEDULES
1	JUNE 15	RHD	NEW DETAIL SHEET DESIGN

DESG ____
DRWN ____
CHKD ____
APRV ____
DATE ____

STANDARD WATER CASING, CROSSING TYPE AND PIPE RESTRAINT DETAILS

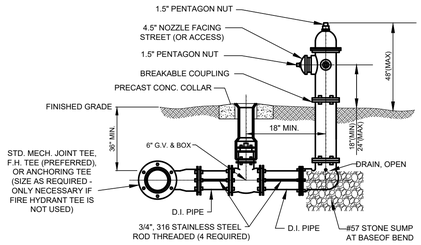
CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.
WAT 03

BACKFLOW PREVENTER NOTE:

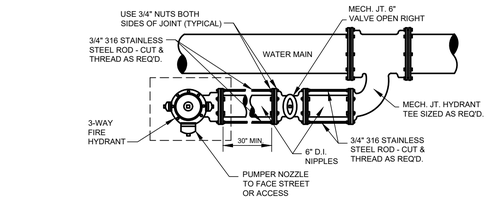
DESIGNS SHOWN FOR BACKFLOW PREVENTER INSTALLATIONS ARE REQUIRED FOR CCUA OWNED INSTALLATIONS - SEE CCUA APPROVED MATERIALS MANUAL. THE BOTTOM OF THE BACKFLOW PREVENTER VALVE IS TO BE NO LESS THAN 12" OR MORE THAN 36" ABOVE THE NATURAL FLOOD GRADE. (SEE CCUA PUMP STATION DETAIL SHEETS (ALL) FOR BACKFLOW PREVENTERS AT PUMP STATIONS)

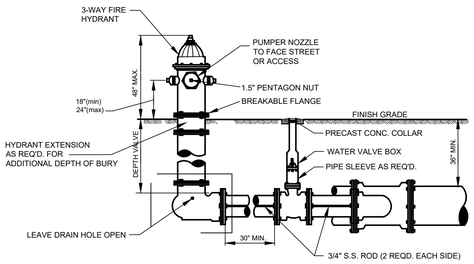


SEE CCUA APPROVED MATERIALS MANUAL

FIRE HYDRANT (STANDARD) — A

NOT TO SCALE





HYDRANT INSTALLATION FOR LIMITED SPACE WITH MECH. JOINT HYDRANT TEE

FIRE HYDRANT CANNOT BE LOCATED LESS THAN 5'-0" FROM BACK OF CURB AND NO MORE THAN 20'-0" BACK OF CURB.

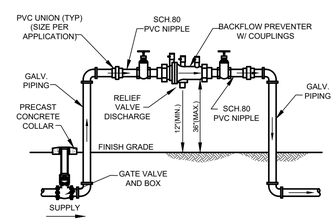
FIRE HYDRANT - LIMITED SPACE — B

NOT TO SCALE

NOTES:

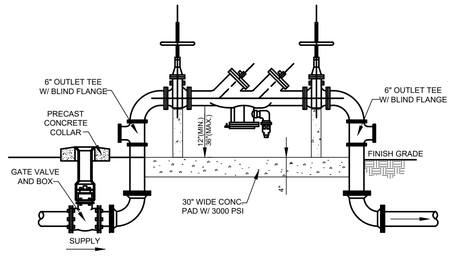
1. THERE SHALL BE CLEARANCES OF SEVEN AND ONE-HALF FEET (7'-6") IN FRONT OF AND TO THE SIDES OF THE FIRE HYDRANT, WITH A FOUR FEET (4') CLEARANCE TO THE REAR OF THE HYDRANT. *EXCEPTION: THESE DIMENSIONS MAY BE REDUCED BY THE APPROVAL OF THE FIRE OFFICIAL.*

2. THERE SHALL BE NO OBSTRUCTIONS PLACED IN FRONT OF ANY FIRE HYDRANT ASSEMBLY THAT WOULD PROHIBIT ACCESS.



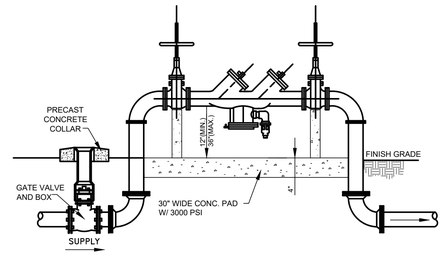
REDUCED PRESSURE BACKFLOW PREVENTER 2" DIAMETER AND SMALLER — C

NOT TO SCALE



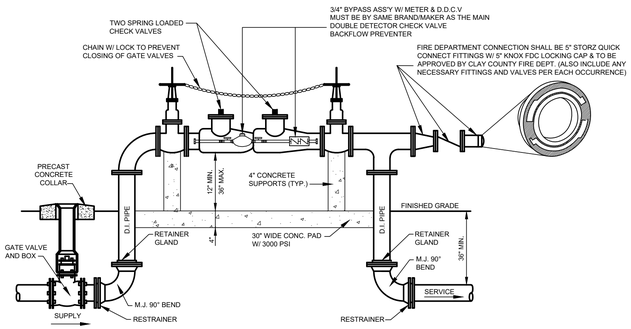
BACKFLOW PREVENTER SIZES 6" & ABOVE WHERE BACKFLOW IS BETWEEN RECLAIMED & POTABLE — D

NOT TO SCALE



REDUCED PRESSURE BACKFLOW PREVENTER SIZES 3" & ABOVE — E

NOT TO SCALE



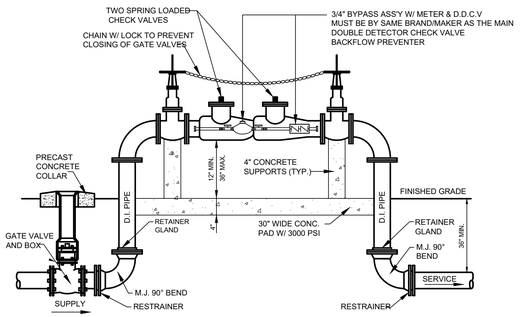
NOTES

1. DOUBLE DETECTOR CHECK VALVE W/ 3/4" BYPASS METER & 3/4" D.D.C.V ARE REQUIRED ON ALL ON-SITE FIRE SPRINKLER SYSTEMS.

2. PROVIDE FREEZE PROTECTION FOR COMPLETE ASSEMBLY.

DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER WITHOUT ABOVE GROUND ENCLOSURE - 3" AND ABOVE WITH FIRE DEPARTMENT CONNECTION — F

NOT TO SCALE



NOTES

1. DOUBLE DETECTOR CHECK VALVE W/ 3/4" BYPASS METER & 3/4" D.D.C.V ARE REQUIRED ON ALL ON-SITE FIRE SPRINKLER SYSTEMS.

2. PROVIDE FREEZE PROTECTION FOR COMPLETE ASSEMBLY.

DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER WITHOUT ABOVE GROUND ENCLOSURE - 3" & ABOVE WITHOUT FIRE DEPARTMENT CONNECTION — G

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
3			
2	FEB 24	RHD	REDRAW
1	JUNE 15	RHD	ADD IMPORTANT GENERAL NOTES
			NEW DETAIL SHEET DESIGN

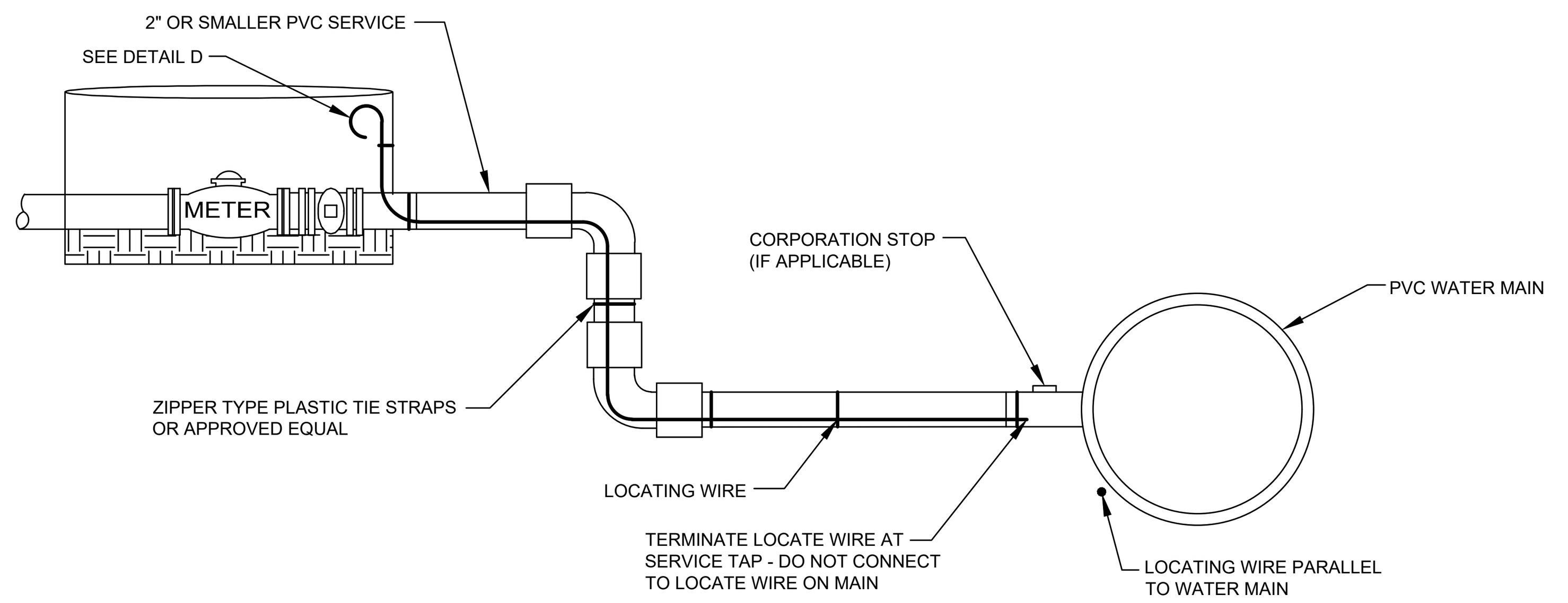
DESG
DRWN
CHKD
APRV
DATE

STANDARD FIRE HYDRANT AND D.D.C.V.BACKFLOW PREVENTER DETAILS

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

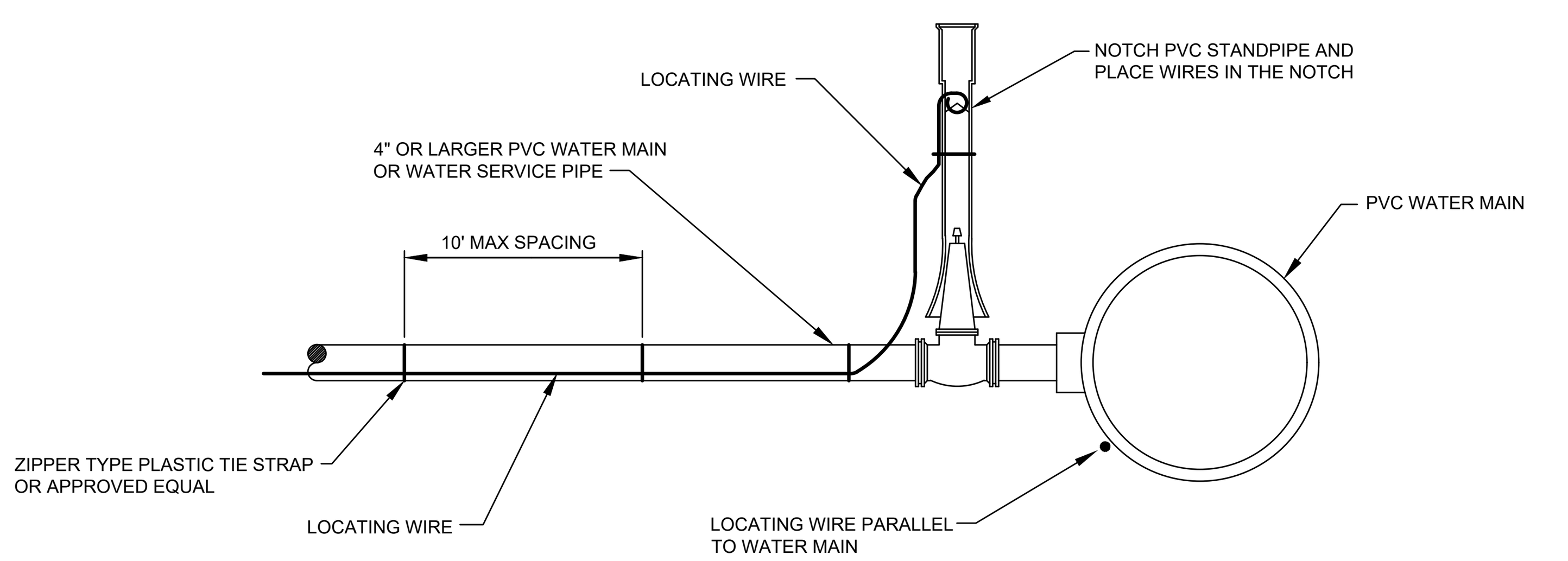
SHEET NO.
WAT 04



CONNECTION TO PVC MAINS
2" OR SMALLER WATER SERVICE (LONG SERVICES ONLY)

A

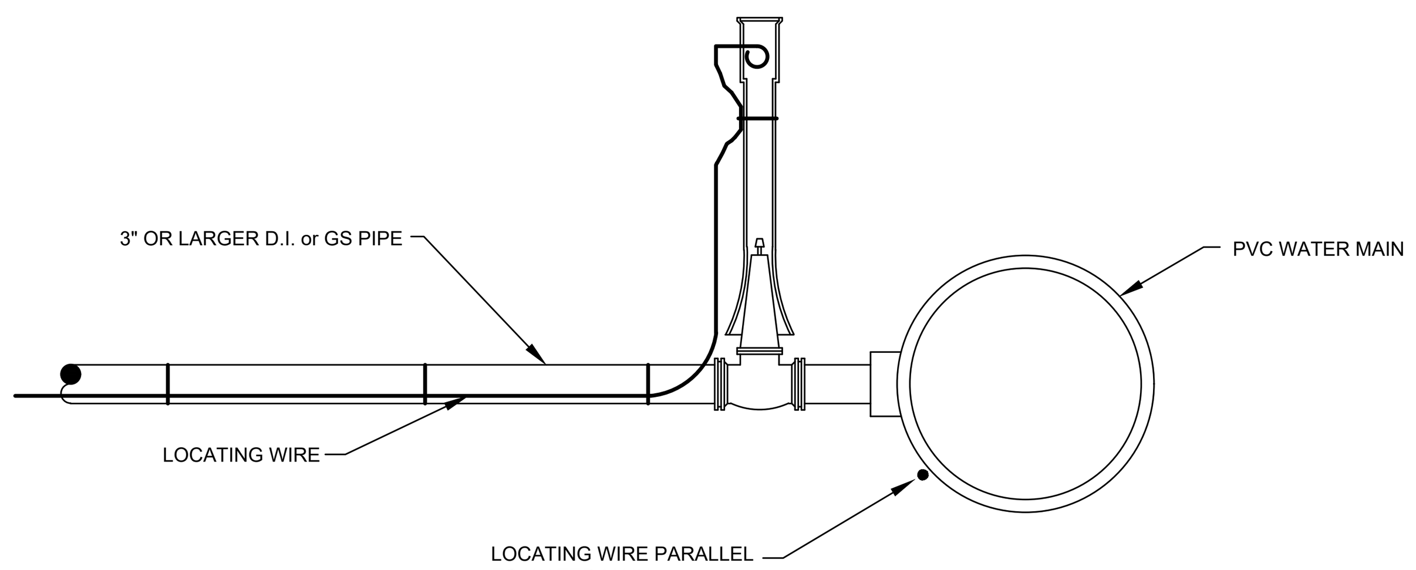
NOT TO SCALE



CONNECTION TO PVC MAINS
4" OR LARGER PVC WATER MAIN OR WATER SERVICE PIPE

B

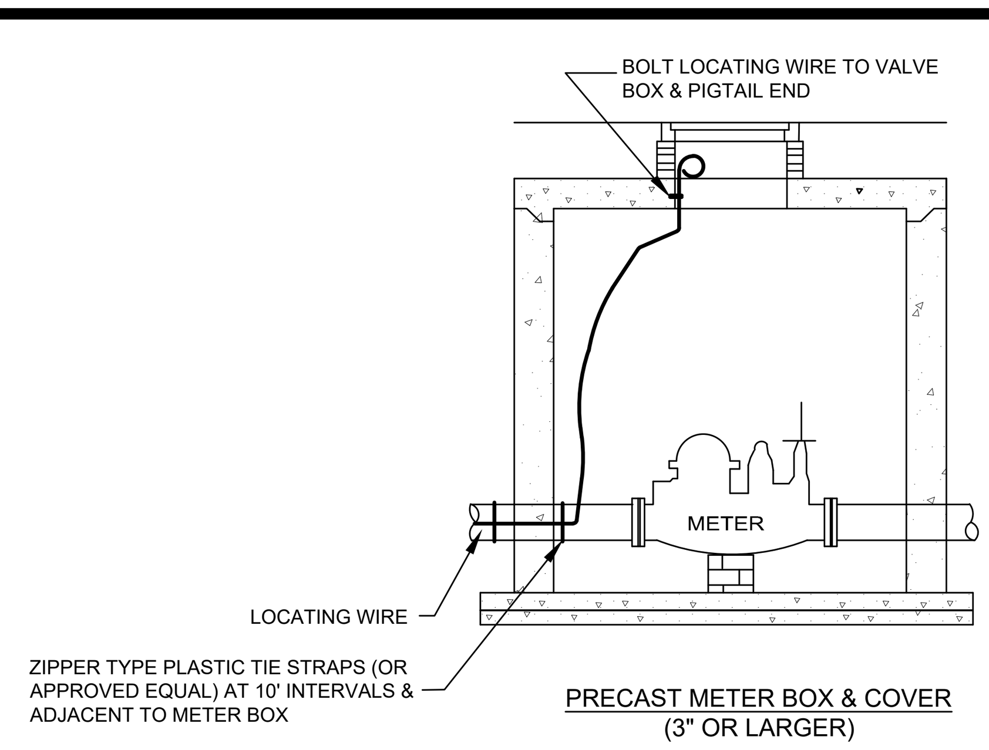
NOT TO SCALE



CONNECTION TO PVC MAINS
w/3" OR LARGER D.I. OR GS WATER SERVICE OR WATER MAIN

C

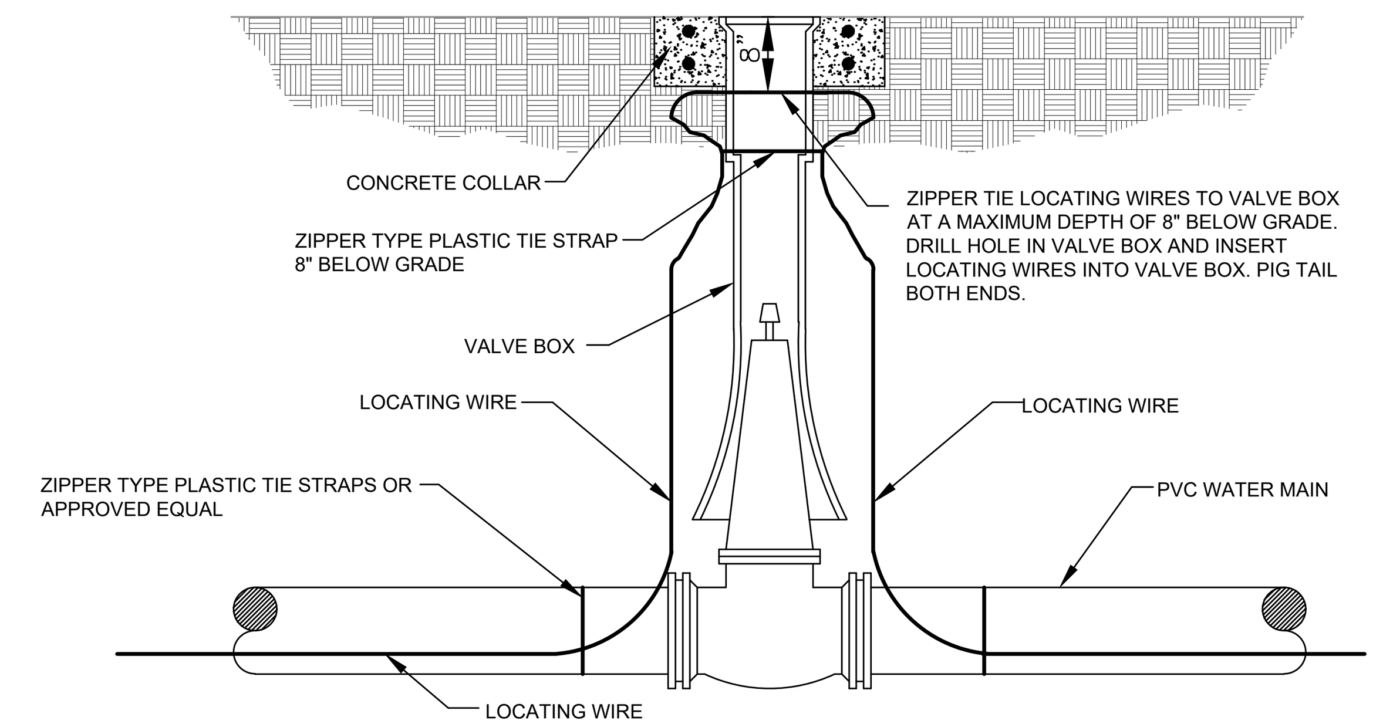
NOT TO SCALE



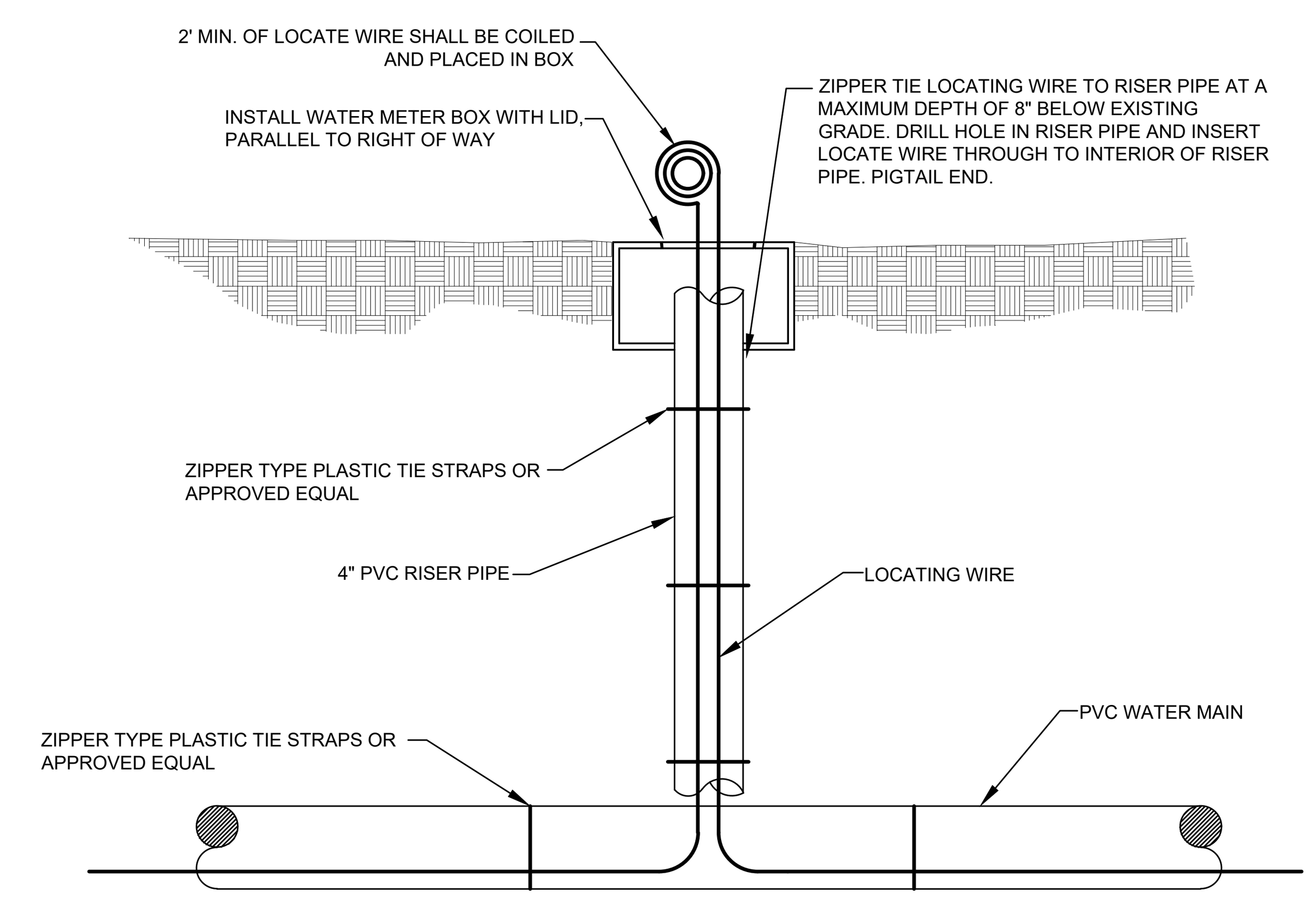
CONNECTION AT METERS BOXES
w/ PVC WATER SERVICE

D

NOT TO SCALE



VALVE BOX WITH VALVE



METER BOX

IN-LINE LOCATING STATION - PVC PIPE

E

NOT TO SCALE

LOCATE WIRE

LOCATE WIRE TESTING REQUIREMENTS

Installed locate wiring shall be tested by the contractor as part of the final inspection procedure, using a certified tester and approved testing equipment. The Contractor shall notify CCUA at least 48 hours in advance of the testing period. At this time the Contractor shall tell CCUA the number of locate personnel to be used for the wire testing, so that CCUA can assign an inspector to work with each locate wire tester. If CCUA has not been notified of the correct number of testing personnel to be used, then the only testers allowed to test the wire shall be those who have a CCUA assigned inspector to work with them. The CCUA inspector shall have the plans on-site, as shall the testing personnel, for the purpose of recording the required test information (ie passed and failed sections) and for as-built preparation. The CCUA field representative or inspector shall be present during the testing period, and have the authority to request tester to retest sections if inspector suspects any problems within that section. The contractor shall provide the Certified Tester a copy of the project site drawings (as-builts preferred). A tone shall be put on the locate wire. The technician shall trace the entire length of the installed wire and spot paint the location at least at 100-foot intervals along the route. The depth shall be tested at 100-foot intervals and tester shall record the depth of pipe/wire on the report at each 100' interval. The certified tester shall report (show on drawings), where the pipe/wire has less than the allowable minimum cover (36 inches) or more than the maximum allowable cover (60 inches) unless called for on the plans or requested and approved by CCUA during the installation of said piping. All lateral stub-outs shall be marked with pain and the depth recorded. A final Locate Wire Report (statement by the certified tester), shall be submitted to CCUA for review and approval. The report shall include a signed statement from the certified tester which certifies that all installed wire (where shown on the drawing), was successfully (sounded), traced with no open breaks. The report shall also include a copy of the project site drawings which indicate all field notes, breaks found/repaired, depths (if installed outside the acceptable cover limits), and other applicable field remarks by the certified tester. A Certified copy of the report and marked-up drawings shall be furnished to CCUA prior to final acceptance of the project or as approved otherwise by CCUA.

Definitions:

Approved Testing Equipment shall include variable frequency controls, digital depth read-out and tone continuity. The following is a list of approved equipment - Dynatel (3M)-2273 Cable/Fault Locator, Metrotech 9800XT, Ditch Witch 950 R/T or CCUA pre-approved equal.

Certified Tester - A person or company that has been certified by the Manufacturer of the approved testing equipment as proficient in the use of the equipment has 8 months experience in the use of the equipment including documented proof of past performance.

CCUA Approval: Clay County Utility Authority shall have the authority to approve Certified Tester, or deny the approval of Certified Tester to work on Utility's System. CCUA shall have the authority to remove any previously Certified Tester from its approved list of Certified Testers as CCUA deems necessary.

LOCATE WIRE INSTALLATION

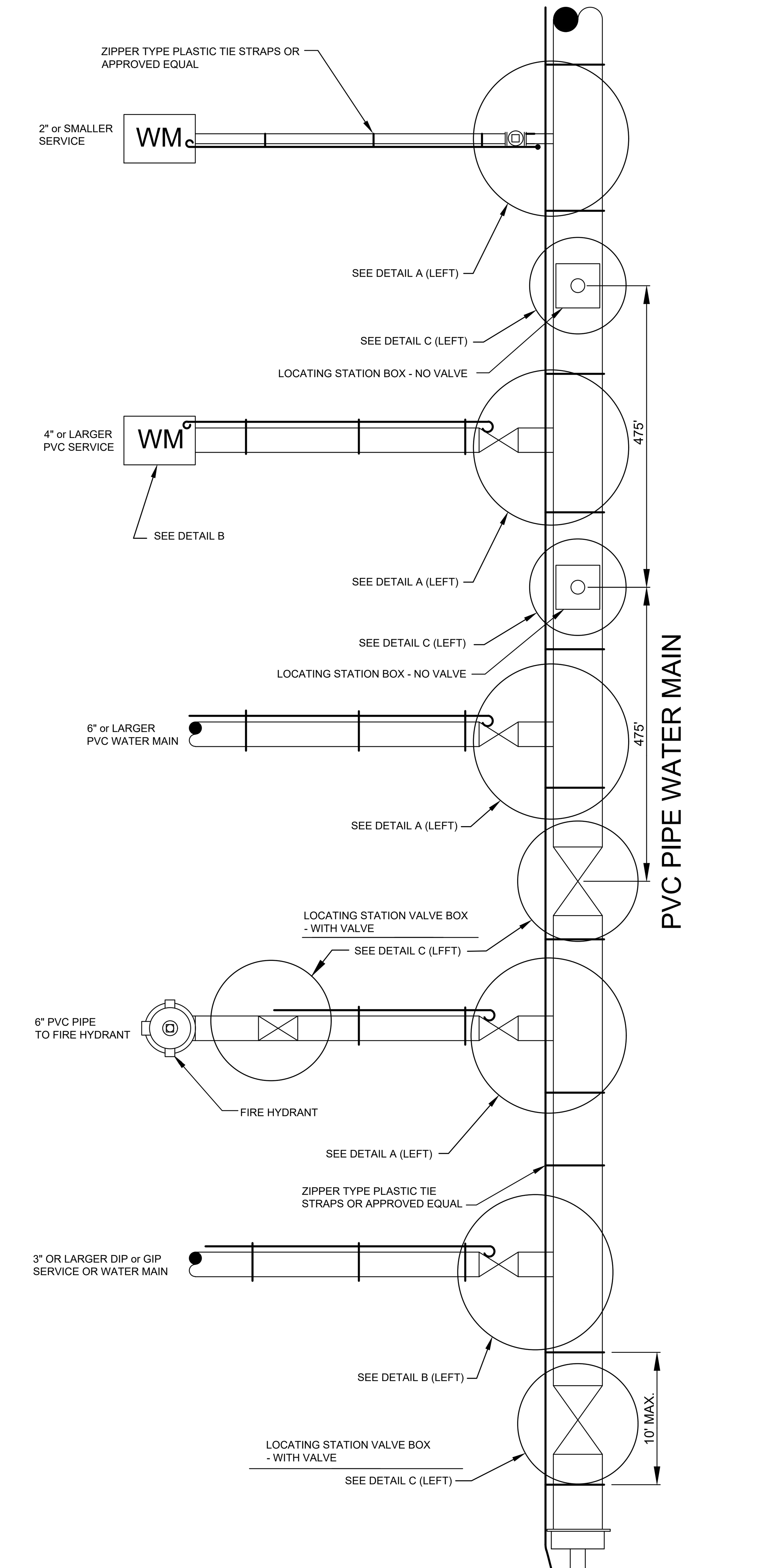
Contractor shall furnish and install locate wiring on all water mains, sewer force mains, and reclaimed water mains (both PVC and ductile 1" inch size and greater. Locate wire must be attached to mains and services with duct tape or approved iron) and on all service mains 1 2 plastic zipper ties, (pulled tight to keep wire from rotating out of location), at each side of bell joint or fitting and at 10 foot intervals along pipeline (at a minimum). Locate wire shall be brought to grade within a valve box or locating station box, as required, at 475 foot intervals (see note # 2 this page). Locate wire shall be installed in box and along pipeline as detailed in the CCUA Standard Details. Locate wire shall be installed beneath the pipe line at the 5:00 to 7:00 o'clock position on the pipe. Connection or splices underground which are not inside a locate box (or valve box), shall be prohibited unless approved otherwise by CCUA. The request to make an underground connection or wire splice shall be done in writing to CCUA. The request shall contain the complete job name, name of street, station number as shown on plans and scaled as close as possible to the location of splice or connection, and the reason for request. CCUA shall have at least 48 hrs. to respond verbally and 5 working days to respond in writing. If an underground connection is unavoidable and approved by CCUA, then the wire shall be first tied in a knot (to minimize future separation), then the wire ends shall be connected utilizing an electric wire nut, then make the connection water tight by using either vinyl mastic tape (4" wide X 0.09" thick by 3M-Scotch 2210), or plastic enclosure (Snaploo Model LV 9500/951-4 large by TKH) or CCUA approved equipment.

LOCATE WIRE BOX INSTALLATION

Where utility mains are to be installed beneath sidewalks, valve boxes shall be installed instead of locate wire boxes. The valve box lids shall indicate the type of line (i.e. water, sewer, or reclaimed water). The valve box shall be adjusted so the top of valve box is flush with the finished sidewalk grade. If for any reason a locate wire box must be offest from the C/L of pipeline, then the contractor shall have installed an adequate length of wire to avoid splices and the exact location of the locate box including the amount of the offset distance shall be recorded on the As-builts.

AS-BUILT DRAWINGS

Shall comply to the guidance set forth in CCUA's `As-built Specifications Standards Manual`, which can be obtained from CCUA's website (www.clayutility.org).



PLAN VIEW

NOTES:

1. LOCATING WIRE SHALL BE 10 GAUGE, SINGLE STRAND UF RATED (DIRECT BURIAL), COPPER WIRE, OR APPROVED EQUAL.

2) ALL DIRECTIONAL DRILLED PIPES SHALL HAVE 2-8 GUAGE STRAND COPPER-CLAD STEEL CONDUCTORS WITH 45mil HDPE EXTRUDED COATING, AND SHALL BE OF SUFFICIENT LENGTH TO AVOID SPLICING. UNDER NO CIRCUMSTANCES SHALL THE TRACER WIRE BE SPLICED; IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ORDER ROLLS OF WIRE OF THE REQUIRED LENGTH TO AVOID THE NEED FOR SPLICING THE TRACER WIRE.

3. LOCATE BOXES SHALL BE INSTALLED AT THE LOT LINE IN RESIDENTIAL SUBDIVISIONS, OR COMMERCIAL PROPERTIES; BOXES SHALL NOT BE LOCATED IN SIDEWALKS OR DRIVEWAYS. LOCATE BOXES SPACING SHALL NOT EXCEED 500 FEET.

4. WHERE IT IS NOT POSSIBLE TO LOCATE THE BOX OUTSIDE OF A PAVED STREET OR PARKING LOT, THE LOCATE WIRE SHALL BE PLACED IN A VALVE BOX INSTEAD OF A ROME BOX. VALVE BOX LID SHALL BE MARKED ACCORDING TO THE TYPE OF PIPE SERVED.

TYPICAL LOCATOR WIRING INSTALLATIONS

F

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
7	FEB 24	RHD	REDRAW
6	JUNE 17	RHD	REVISED NOTES AND DETAILS
5	DEC 2013	DGJ	REVISED NOTE REGARDING AS-BUILTS
4	JAN 2013	RHD	REVISED TRACER WIRE DIAGRAM NOTES
3	MAY 07	MRS	GENERAL UPDATES & REVISIONS
2	APRIL 06	MRS	GENERAL UPDATES & REVISIONS
1	JUNE 05	MRS	GENERAL UPDATES & REVISIONS

DESG
DRWN
CHKD
APRV
DATE

STANDARD LOCATOR
WIRING INSTALLATIONS

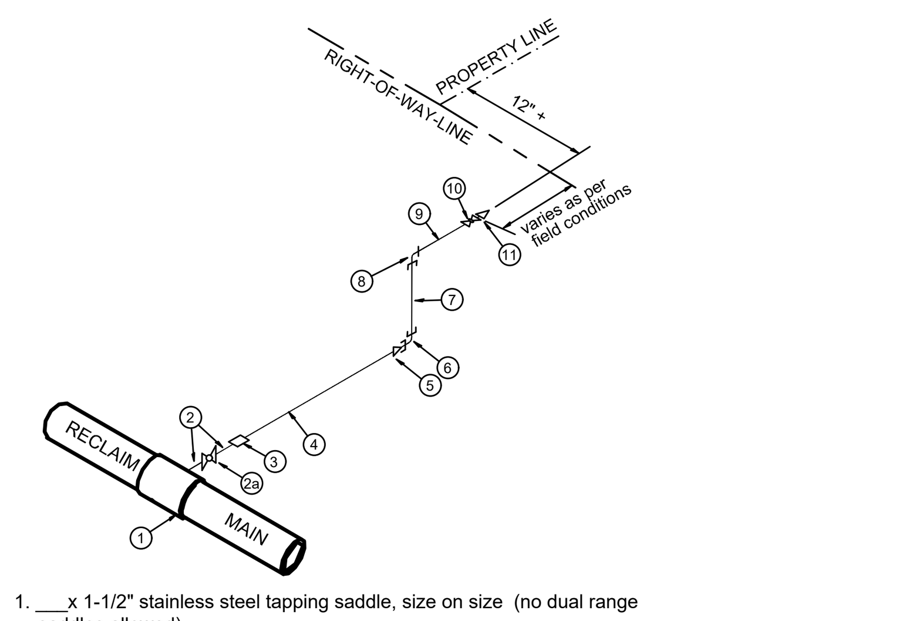
CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.

LW-STD

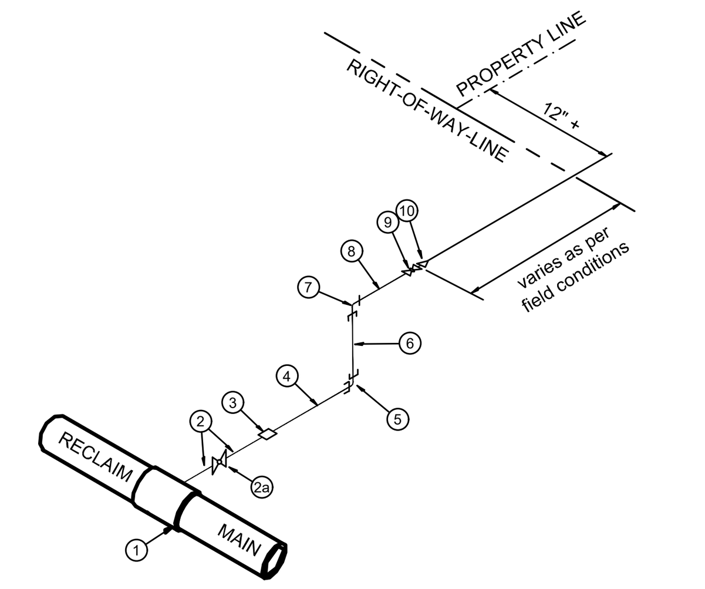
NO BRICK OR HDPE FOR ADJUSTMENTS, CONCRETE ADJUSTMENTS ONLY FOR RAISING MANHOLES
NEW FORCE MAIN
FORM NEW CHANNEL
FLOW CHANNEL
EXISTING EFFLUENT
EXISTING INFLUENT
EXISTING MANHOLE
5'-0" MIN. SEE NOTE #4
REDUCER
CUT OUT TOP 1/2 OF PVC END CAP
SOLVENT WELDED JOINTS
MATCH SPRING LINE OF EXIST. EFFLUENT
NEW PVC FORCE MAIN TO BE RESTRAINED UPSTREAM IN ACCORDANCE w/ MFGR'S. RECOMMENDATION.
6" MIN. LEVELING COURSE OF COMPACTED GRAVEL (#57 STONE). #57 STONE SHALL BE WRAPPED W/ FILTER FABRIC TO PREVENT SOIL MIGRATION INTO VOIDS WITHIN THE #57 STONE.
UNDISTURBED SOIL MIN. BEARING CAPACITY: 2000 P.S.F.
NOTE:
1. This manhole and the next two manholes downstream (as required by utility) are to have polyethylene liner as manufactured by AGRU American (Agru Sure Grip) or approved equal.
2. If connection is being made to an existing manhole, that manhole and the next two manholes downstream (as required by utility), shall be lined with "Spectrashield" or approved equal.
3. Size of drop pipe connection to manhole shall be designed by the project engineer. Minimum size shall be 4". connection and drop pipe shall be sized to reduce the velocity and prevent "splashover" within the manhole. 5'-0" minimum distance from manhole to reducer may be increased to assist in this velocity reduction.
4. Increase incoming pipe one standard pipe diameter larger than incoming force main minimum 4" diameter.
TYPICAL FORCE MAIN CONNECTION TO MANHOLE (A)
NOT TO SCALE
COMPACTION IN ROADWAYS AROUND MANHOLES
BACKFILL COMPACTION SHALL BE IN 12" LIFTS. THE LAST 18" WILL BE LIMEROCK, 2.0' AROUND MANHOLE TOP COMPACTED TO 98% MAXIMUM DENSITY WITH LBR OF 100 TO THE FINISHED LIMEROCK GRADE. NO BRICK ADJUSTMENTS WILL BE ALLOWED IN ROADWAYS (ONLY GRADE RINGS WILL BE ACCEPTED).
USF 170E MANHOLE FRAME & COVER
FINISHED GRADE WHEN MANHOLE IS WITHIN LIMITS OF PAVEMENT
FINISHED GRADE WHEN MANHOLE IS OUTSIDE LIMITS OF PAVEMENT
GROUT TYP.
PRECAST ECCENTRIC CONE SECTION AND SIDEWALLS PER ASTM C 478 LATEST EDITION 4000 P.S.I. CONCRETE TYPE II CEMENT
PRECAST CONCRETE ADJUSTING RINGS 0-6" NOMINAL, 12" MAX.
12" WIDE JOINT TAPE (SEE APPROVED MATERIALS)
TONGUE REINFORCING
PIPES OF DIFFERENT SIZES SHALL MATCH CROWNS
CCUA APPROVED BOOT w/ TYPE II LEAN CEMENT GROUT (SHOWN)
"O" RING JOINT OR APPROVED PREMOLDED PLASTIC JOINT SEALER WITH PROTECTIVE WRAPPER. (RAM-NEK)
RISER - 1'-0" MIN./6'-0" MAX.
BASE - 2'-0" MIN./5'-0" MAX.
D.O.T. CLASS I, TYPE II CEMENT GROUT WITH BRICK AND TROWEL TO A SMOOTH SURFACE FINISH. GROUT SURFACE SHALL BE 1" MIN. THICKNESS OVER BRICK
PIPE SHALL NOT BE IN CONSTRUCTION JOINT OF MANHOLE
UNDISTURBED SOIL MIN. BEARING CAPACITY:2000 P.S.F.
6" MIN. LEVELING COURSE OF COMPACTED GRAVEL (#57 STONE). #57 STONE SHALL BE WRAPPED W/ FILTER FABRIC TO PREVENT SOIL MIGRATION INTO VOIDS WITHIN THE #57 STONE.
SECTION VIEW
SANITARY SEWER MANHOLE (B)
NOT TO SCALE
1) 12" WIDE EXTERIOR JOINT WRAP TO BE INSTALLED ON ADJUSTMENT RINGS, LIFTING HOLES. ETC. (SEE APPROVED MATERIALS)
USF 170E MANHOLE FRAME & COVER RING IS 2'-0" ONLY
1/4" WALL SLEEVE SIZED TO ACCOMMODATE PVC SEWER THROUGH MANHOLE. CENTERING CASING SPACERS REQ'D. ON PVC SEWER THROUGH SLEEVE (3" MIN. SPACING WITHIN SLEEVE)
STORM SEWER (SEE NOTE #1)
INFLUENT
SANITARY SEWER
12" SUMP
NO JOINTS TO OCCUR WITHIN M.H. LENGTH AS PER DRAWING
SECTION VIEW
SEWER CONFLICT MANHOLE (C)
NOT TO SCALE
1) STORM SEWER PIPE SHOWN IS NOT CONTINUOUS THROUGH THE MANHOLE; PIPE TO BE GROUTED AT MANHOLE WALL. GRAVITY MAIN IS CONTINUOUS THROUGH THE MANHOLE.
2) 12" WIDE EXTERIOR JOINT WRAP TO BE INSTALLED ON ADJUSTMENT RINGS, LIFTING HOLES. ETC. (SEE APPROVED MATERIALS)
CUT OUT TOP 1/2 OF PVC END CAP
CCUA APPROVED BOOT
SPRING LINE
SEE NOTE
CCUA APPROVED BOOT
IF A SINGLE DROP OF 8" OR SMALLER PIPE M.H. DIA. IS TO BE 4'-0". IF MORE THAN ONE DROP OR PIPE SIZE IS GREATER THAN 8", M.H. DIA. IS TO BE 5'-0" MIN.
NOTE: FOR ADDITIONAL MANHOLE SPECIFICATIONS, SEE "SANITARY SEWER MANHOLE" DETAIL THIS SHEET. MAXIMUM ALLOWABLE DIFFERENCE IN INVERT ELEVATION WITHOUT INTERNAL DROP CONNECTION IS 24". SEE "ELEVATION DIFFERENCE ACROSS MANHOLE" THIS SHEET.
TYPICAL GRAVITY SEWER DROP PIPE CONNECTION TO MANHOLE (D)
NOT TO SCALE
NOTES:
1. CONCRETE BOX SHALL BE 42" MIN. DEPTH BUT SHALL BE DEEP ENOUGH TO ACCOMMODATE THE SIZE PIPE AND TYPE OF AIR RELEASE VALVE REQUIRED, WITH OPEN BOTTOM, PRECAST WITH NOTCH TO ACCOMMODATE PIPE INSTALLED WITH 36" COVER FROM TOP OF PIPE TO FINISH GRADE, ON 12" OF #57 STONE, w/ FILTER FABRIC ABOVE AND BELOW THE STONE.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWING OF BOX WITH DIMENSIONS FOR APPROVAL BY C.C.U.A.
3. DIMENSIONS SHOWN ARE MINIMUM AND SHALL BE INCREASED BASED UPON ACTUAL SIZE OF PIPE INSTALLED
FOR PIPE 10" OR SMALLER A 4' DIAMETER, NOTCHED MANHOLE CAN BE USED FOR AIR RELEASE VALVE.
SET MANHOLE ON MIN. OF 4 SOLID CONCRETE BLOCKS SPACED EVENLY AROUND THE MANHOLE W/ A MIN. OF 12"#57 STONE WITHFILTER FABRIC ABOVE AND BELOW THE STONE.
FILTER FABRIC
SANITARY SEWAGE FORCE MAIN AIR RELEASE VALVE VAULT (E)
TO BE USED ON ALL PIPES 10" OR SMALLER
NOT TO SCALE
1) RUBBER WATER STOP CLAMPED TO PVC SEWER PIPE AT MANHOLE WALL. CRETEX WS-25/WS-30 OR APPROVED EQUAL.
2) SEAL HOLE WITH NON-SHRINK GROUT.
3) BACKFILL AROUND MANHOLE PER CCUA SPECIFICATIONS.
4) AFTER REMOVAL OF DEWATERING DEVICES CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ANY AND ALL LEAKS TO PROVIDE A COMPLETELY LEAK PROOF MANHOLE.
5) HYDRAULIC CEMENT MAY BE USED TO STOP LEAKS.
SAW CUT TOP SECTION OF SEWER MAIN AFTER CONCRETE BASE IS POURED.
SITE POURED CONCRETE MANHOLE BASE. POURED IN PLACE 4000 PSI CONCRETE BASE.
NOTE: FOR ADDITIONAL MANHOLE SPECIFICATIONS, SEE "SANITARY SEWER MANHOLE" DETAIL THIS SHEET. MAXIMUM ALLOWABLE DIFFERENCE IN INVERT ELEVATION WITHOUT INTERNAL DROP CONNECTION IS 24".
SADDLE MANHOLE DETAIL
THIS DETAIL IS ONLY TO BE USED WITH SPECIFIC APPROVAL BY CCUA.
PRECAST MANHOLE
NON-SHRINK GROUT
PIPE
WATER STOP REQUIRED FOR PVC PIPE.
SADDLE MANHOLE DETAIL SECTION (F)
NOT TO SCALE
EXISTING FORCE MAIN
MATERIAL LIST
1. All stainless steel tapping saddle
2. 2" x 3" Stainless steel nipple
3. 2" H.D. bronze ball valve (full opening)
4. 2" SCH80 female adapter (S x FIPT)
5. 2" SCH80 pipe
6. 2", 90° SCH80 bend (S x S)
7. 2", 90° SCH80 bend (S x T)
8. 2" Bronze ball valve w/ locking wing (see table on water sheet)
9. 2" 508 Danfoss Flowmatic check valve (Part # 3235)
10. Meter/valve box, DFW 1324C-12-2 w/ "SEWER" on lid
11. 2" SCH80 cap (S)
1) ENGINEER TO VERIFY THAT THE SIZE OF SERVICE IS ADEQUATE AND IS TO ADJUST ACCORDING TO HIS FINDING.
2) A 2-INCH 508 DANFOSS FLOWMATIC CHECK VALVE (PART #3235) SHALL BE INSTALLED IN A VALVE BOX WITH LID ON A HORIZONTAL SECTION OF PIPE AT LEAST 2'-0" FROM THE GRINDER PUMP STATION.
2" SEWAGE FORCE MAIN MANIFOLD SERVICE CONNECTION DETAIL (G)
FOR MEDIUM TO HIGH PRESSURE CONNECTION SYSTEMS
NOT TO SCALE
MIN. SIZE FOR HOUSE SERVICE SEWERS SHALL BE 6", REDUCING TO 4" AT PROPERTY LINE.
NOTE:
1. Gravity sewer and service pipe shall be installed with the direction of flow from spigot to bell.
2. All tee-wyes shall be bell-spigot.
3. All tee-wyes shall be compatible with sewer pipe bells being used. Spigot end of tee-wye shall be a minimum of 2" beyond the bell gasket when "homed up".
4. All sewer service pipes shall have an electronic marker (green) placed on top of pipe at each end of pipe.
5. Detail shown is for residential connection. Commercial or other use requiring a 6" lateral can eliminate the 6"x4" reducer.
8"x 6" PVC TEE/WYE
PLAN VIEW
FINISHED GRADE
WIDTH OF TRENCH
6" PIPE
MARKER BALL (TYP)
S=0.60% MIN. PER FOOT
4' MIN. DEPTH TO TOP OF PIPE (5' MAX. DEPTH) (SEE WATER AND SEWER SYSTEM TECHNICAL SPECIFICATION SHEET FOR ADDITIONAL INFORMATION.)
MAX. 45° BEND FOR LATERAL CONNECTION
SECTION VIEW
DENOTES SERVICE MARKER POST
LOT LINE
R/W LINE
* CENTER ON LOT FOR SHORT SIDE SINGLES AND LONG SINGLES
6"x4" PVC DR26 INCREASER
SINGLE FAMILY RESIDENTIAL SERVICE
STANDARD SINGLE SEWER SERVICE LATERALS (H)
NOT TO SCALE
STRAIGHT THROUGH FLOW AND UP TO 30° OR LESS FLOW
FLOW 0.05' FALL FLOW
90° OR LESS FLOW
0.10' FALL
STRAIGHT THROUGH FLOW AND 90° OR LESS FLOW
ELEVATION DIFFERENCE ACROSS MANHOLE (I)
NOT TO SCALE
STAINLESS STEEL SCREEN
FINISHED FLOOR
FLOOR DRAIN, ZURN CO. MODEL NO. Z-415B WITH "Y" SEDIMENT BUCKET MODIFIED W/ 40 MESH S.S. SCREEN OR J.R. SMITH 2005-A-NB W/ SQ-2-2698
NOTE: FACILITIES WITH FLOOR DRAINS AND WITHOUT A GREASE TRAP SHALL INSTALL THIS MODEL FLOOR DRAIN AND ONLY WITH PRIOR APPROVAL FROM THE CCUA.
FLOOR DRAIN WITH STRAINER DETAIL (J)
NOT TO SCALE
FINISHED GRADE
VARIES
SPRINGLINE OF PIPE
3000 P.S.I. CONCRETE SEWER PIPE
REQUIRED WHERE TOP OF SEWER PIPE IS WITHIN 2' OF FINISHED GRADE UNLESS ALTERNATE DETAIL IS APPROVED BY THE CLAY COUNTY UTILITY AUTHORITY.
CONCRETE CAP FOR SEWER PIPES (K)
NOT TO SCALE
LOT LINE
4"x2" SCH40 REDUCER
SLEEVE ADAPTOR SDR26 TO SCH40 P.V.C.
R/W LINE
2" SCH40 PVC F.M.
4" SCH40 PVC F.M.
4" DR-26 PVC
6"x4" PVC DR-26 INCREASER
6" DR26 PVC
* CENTER ON LOT FOR SHORT SIDE SINGLES AND LONG SINGLES
SINGLE SERVICE
DENOTES SERVICE MARKER POST
GRINDER PUMP STATION FORCE MAIN CONNECTION TO SINGLE GRAVITY SERVICE (L)
NOT TO SCALE
PAINTED GREEN
FINISH GRADE
SEWER LATERAL PIPE TO HAVE 4' OF COVER
6"-6" LONG TREATED FENCE POST
GREEN ELECTRONIC MARKER BALL (3M-EMS1404 SAN. XR) SHALL BE ABOVE TOP OF PIPE, BUT NOT DEEPER THAN 3 FEET FROM FINISHED GRADE.
SEWER SERVICE
SEWER SERVICE MARKER POST (M)
NOT TO SCALE
MANHOLE COVER & FRAME, EMBEDDED IN MORTAR OR OTHER WATERTIGHT SEALANT
CLEAN OUT
FINISHED PAVEMENT
24" MIN.
4" MIN. INSPECTION SANITARY TEE (TYP)
PRE-CAST INTERIOR BAFFLE
4" MIN. THICKNESS
4" MIN. TWO-WAY CLEAN OUT TEE
RESILIANT CONNECTOR (TYP)
LONG RADIUS 90° BEND. MIN. 6" UPSIZE TO INLET SIZE 8" AND ABOVE
42" MIN. LIQUID LEVEL
12" MAX
FDOT APPROVED STONE BEDDING
BAFFLE SET IN MORTAR
2/3 L
1/3 L
GRAVITY INTERCEPTOR
RAISED LETTERS FLUSH WITH TOP OF COVER.
2-CONCEALED PICKHOLES
NOTE: FRAME & COVER SHALL BE MACHINED OR GROUND AT ALL BEARING SURFACES SO AS TO SEAT FIRMLY AND PREVENT ROCKING.
ALL MANHOLES INSTALLED WITHIN ROADWAY (see specifications)
SANITARY SEWER
COVER
FRAME
PICKHOLE DETAILS
RIB DETAIL
MANHOLE FRAME AND COVER SHALL BE USF CO. MOD. NO. 170E
SANITARY SEWER MANHOLE FRAME & COVER (N)
NOT TO SCALE
SEWER MAIN CONTINUES
MANHOLE
STUB-OUT
NOTE: Before connecting to any gravity stub, excavate and shoot the elevation of the stub invert and the elevation of the invert of the same pipe coming out of the immediate downstream manhole. Measure the distance from the manhole to the stub, and calculate the pipe grade. If the grade on the pipe is less than plan design, then contact CCUA and the project engineer before proceeding further. The project engineer and the CCUA will make the decision on how to resolve the discrepancy before the contractor can proceed further.
No work will be allowed on a gravity line upstream of the connection point to the CCUA's system without prior approval of CCUA.
PROCEDURES FOR CONNECTING TO A GRAVITY STUB (O)
NOT TO SCALE
ALUMINUM ACCESS HATCH DOUBLE-LEAF, SIZE TO ALLOW FULL, OPEN ACCESS. HALLIDAY CO. OR APPROVED EQUAL. (H20 WHEEL LOADING WHEN REQUIRED)
3'-6" MIN. SQUARE
6" WALLS TYP.
AIR RELEASE VALVE
NOTE: WIDTH VARIES TO ACCEPT PIPE SIZES OVER 8"
22" VALMATIC COMBINATION AIR/VACUUM VALVE SHORT BODY NO. 48/301. SBWA OR APPROVED EQUAL
PIPE SIZE x 2" S.S. TAPPING SADDLE 2"x4" S.S. NIPPLE APPROVED LOCK WING 2" BRONZE BALL VALVE
FILTER FABRIC
SIZE NOTCH TO FIT PIPE SIZE (3" MIN. CLEARANCE ALL AROUND)
SANITARY SEWAGE FORCE MAIN AIR RELEASE VALVE VAULT (S)
TO BE USED ON ALL PIPES 12" OR LARGER
NOT TO SCALE
STATIC WATER LINE
4" MIN. TWO-WAY CLEAN OUT TEE
ENGINEERED INLET AND OUTLET DIFFUSER
HYDROMECHANICAL INTERCEPTOR
NOTES:
1. GRAVITY GREASE INTERCEPTORS SHALL BE SIZED BY THE PROJECT ENGINEER USING THE PEAK FLOW IN ACCORDANCE WITH THE MOST CURRENT FLORIDA BUILDING CODE - PLUMBING. A MINIMUM OF 2,000 GALLON TOTAL CAPACITY SHOULD BE USED WITH A 4" GREASE WASTE LINE. A MINIMUM OF 3,000 GALLON TOTAL CAPACITY SHOULD BE USED WITH A 6" GREASE WASTE LINE.
2. HYDROMECHANICAL GREASE INTERCEPTORS SHALL BE SIZED BY THE PROJECT ENGINEER USING PEAK FLOW AND GREASE PRODUCTION SIZING METHOD IN ACCORDANCE WITH THE MOST CURRENT FLORIDA BUILDING CODE - PLUMBING.
3. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THROUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH GREASE INTERCEPTOR.
4. THE MATERIAL OF THE INTERCEPTOR SHOULD BE MADE FROM MATERIALS THAT ARE COMPATIBLE WITH A PH OF 3.0. GREASE INTERCEPTORS THAT ARE MADE FROM MATERIALS THAT ARE SUBJECT TO CORROSION SUCH AS CONCRETE OR STEEL, SHOULD BE LINED OR COATED WITH A DURABLE MATERIAL APPROVED BY THE UTILITY THAT IS COMPATIBLE WITH A PH OF 3.0 AND THAT CANNOT BE EASILY PENETRATED, SCRAPED OFF OR REMOVED.
GRAVITY & HYDROMECHANICAL GREASE INTERCEPTOR DETAIL (T)
NOT TO SCALE
MANHOLE INVERTS DESIGN CRITERIA
FALL ACROSS MANHOLE FROM INFLUENT TO EFFLUENT OF IN LINE PIPES SHALL BE 0.05 FT. MIN. INFLUENT TO EFFLUENT PIPES THAT ARE AT AN ANGLE SHALL BE 0.10 SEE "ELEVATION DIFFERENCE ACROSS MANHOLE" THIS SHEET.
PRECAST SIDEWALLS, BASES AND SLABS PER ASTM C 478 LATEST EDITION 4000 P.S.I. CONCRETE TYPE II CEMENT
12" WIDE EXTERIOR JOINT TAPE (SEE APPROVED MATERIALS)
D.O.T. CLASS I, TYPE II CEMENT GROUT WITH BRICK AND TROWEL TO A SMOOTH SURFACE FINISH. GROUT SURFACE SHALL BE 1" MIN. THICKNESS OVER BRICK
SECTION VIEW
SHALLOW SANITARY SEWER MANHOLE (P)
NOT TO SCALE
CLEAN OUT PLUG
PRECAST CONCRETE VALVE BOX COLLAR
6" OR 8"- 1/8 BEND
SEWER MAIN
CAP
INSTALL A CCUA APPROVED MARKING POST
TEE SIZE VARIES
TO BE INSTALLED AT ALL LOCATIONS CALLING FOR A SEWER STUBOUT REGARDLESS OF DISTANCE FROM MANHOLE. MINIMUM SIZE SHALL BE 6" PIPE AND CLEANOUT PLUG. CORRECT INVERT AND ELEVATIONS SHALL BE INCLUDED W/ THE ASBUILT DRAWING INFORMATION.
CLEANOUT DETAIL
STANDARD STUBOUT SURVEY ACCESSIBLE CLEANOUT (Q)
NOT TO SCALE
#57 STONE WITH FINES BACKFILL WITH FINES TIGHTLY COMPACTED TO SPRING LINE OF SEWER MAIN
PVC DOUBLE BELL REPAIR COUPLING
TEE WYE
MIN. 6" UNDER BOTTOM OF SEWER MAIN AND FITTING, COMPACTED TO GRADE PRIOR TO INSTALLING TEE WYE, AND REPAIR COUPLING STONE BACKFILL TO EXTEND MIN. OF 1.5' BEYOND ALL FITTINGS, AND UP TO SPRING LINE OF SEWER MAIN. COVER ALL OF THE ROCK BEDDING MATERIAL W/ FILTER FABRIC BEFORE CONTINUING BACKFILL. EXCAVATION TO BE DEWATERED AND DRY DURING ALL PHASES OF CUTTING IN NEW WYE.
CUTTING IN SERVICE LATERAL TO EXISTING SEWER MAIN (R)
NOT TO SCALE
REVISED NOTES & DETAILS
REVISION DESCRIPTION
NO DATE BY
DESG XXX
DRWN RHD
CHKD XXX
APPV XXX
DATE 00/00
STANDARD SEWER SYSTEM DETAILS
CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999
ACAD FILE NAME
SHEET NO.
S-SEW
6/4/2025 5:08:39 PM, PLOTTED BY RHD



1. ___x 1-1/2" stainless steel tapping saddle, size on size (no dual range saddles allowed)
2. 1-1/2" stainless steel nipple (only one req'd. when tapping main not under pressure)
2a. 1-1/2" bronze ball valve (req'd. only when tapping main under pressure)
3. 1-1/2" SCH80 female adapter (SxFIPT)
4. 1" SCH80 pipe (purple)
5. 1-1/2" x 1" SCH80 red. bushing (SxS)
6. 1" x 90° SCH80 bend (SxS)
7. 1" SCH80 pipe (purple)
8. 1" x 90° SCH80 bend (SxT)
9. 1" x 6" SCH80 nipple (TxT)
10. 1" locking wing ball valve (see table on water details sheet)
11. 1" x 3/4" brass bushing (TxFIPT)

LONG SINGLE RECLAIMED SERVICES (A)

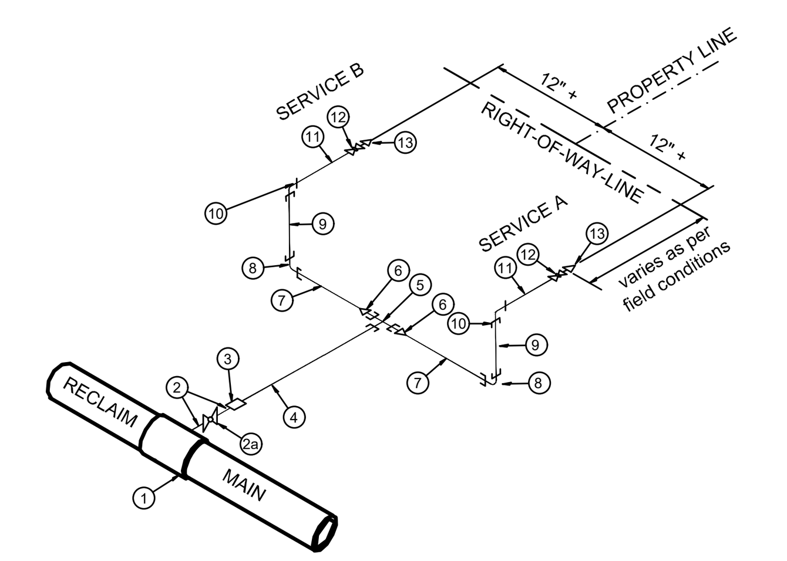
NOT TO SCALE



1. ___x 1" stainless steel tapping saddle, (no dual range saddles allowed) size on size.
2. 1" x3" stainless steel nipple (only one req'd when tapping main not under pressure)
2a. 1" bronze ball valve (req'd. only when tapping main under pressure)
3. 1" SCH80 female adapter (SxFIPT)
4. 1" x 6" SCH80 PVC pipe (purple)
5. 1" x 90° SCH80 PVC bend (SxS)
6. 1" SCH80 PVC pipe (purple)
7. 1" x 90° SCH80 PVC bend (SxFIPT)
8. 1" x 6" SCH80 PVC nipple (TxT)
9. 1" Locking wing ball valve (see table on water details sheet)
10. 1" x 3/4" brass reducer bushing (Tx FIPT)

SHORT SINGLE RECLAIMED SERVICES (B)

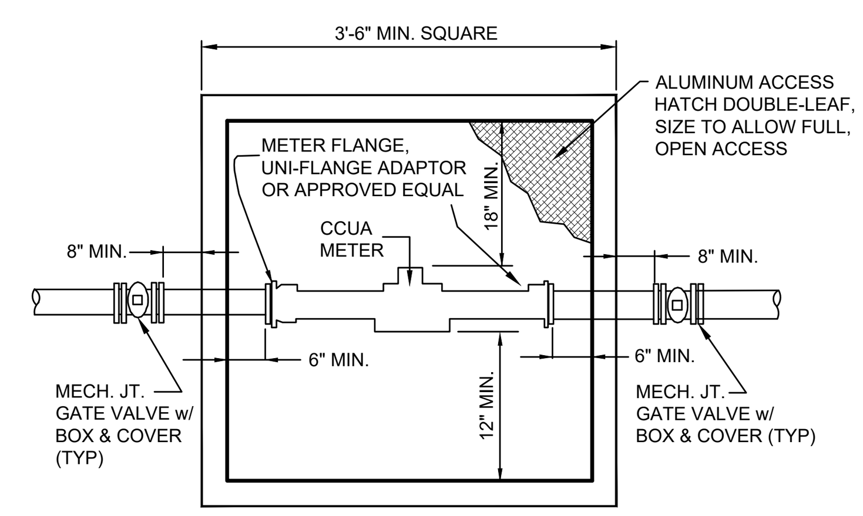
NOT TO SCALE



1. __x 1-1/2" stainless steel tapping saddle (no dual range saddles allowed)
2. 1-1/2" x 3" SCH80 stainless steel nipple (only one req'd. when tapping main not under pressure)
2a. 1-1/2" bronze ball valve (req'd. only when tapping main under pressure)
3. 1-1/2" SCH80 PVC female adapter
4. 1-1/2" SCH80 PVC pipe (purple)
5. 1-1/2" SCH80 PVC tee (SxSxS)
6. 1-1/2" x 1" SCH80 PVC reducing bushing (SxS), as required
7. 1" x 12" SCH80 PVC pipe (purple)
8. 1" x 90° SCH80 PVC bend (SxS)
9. 1" SCH80 PVC pipe (purple)
10. 1" x 90° SCH80 PVC bend (SxT)
11. 1" x 6" SCH80 PVC nipple (TxT)
12. 1" locking wing ball valve (see table on water details sheet)
13. 1" x 3/4" brass reducing bushing (TxFIPT)

DOUBLE RECLAIMED SERVICES (C)

NOT TO SCALE

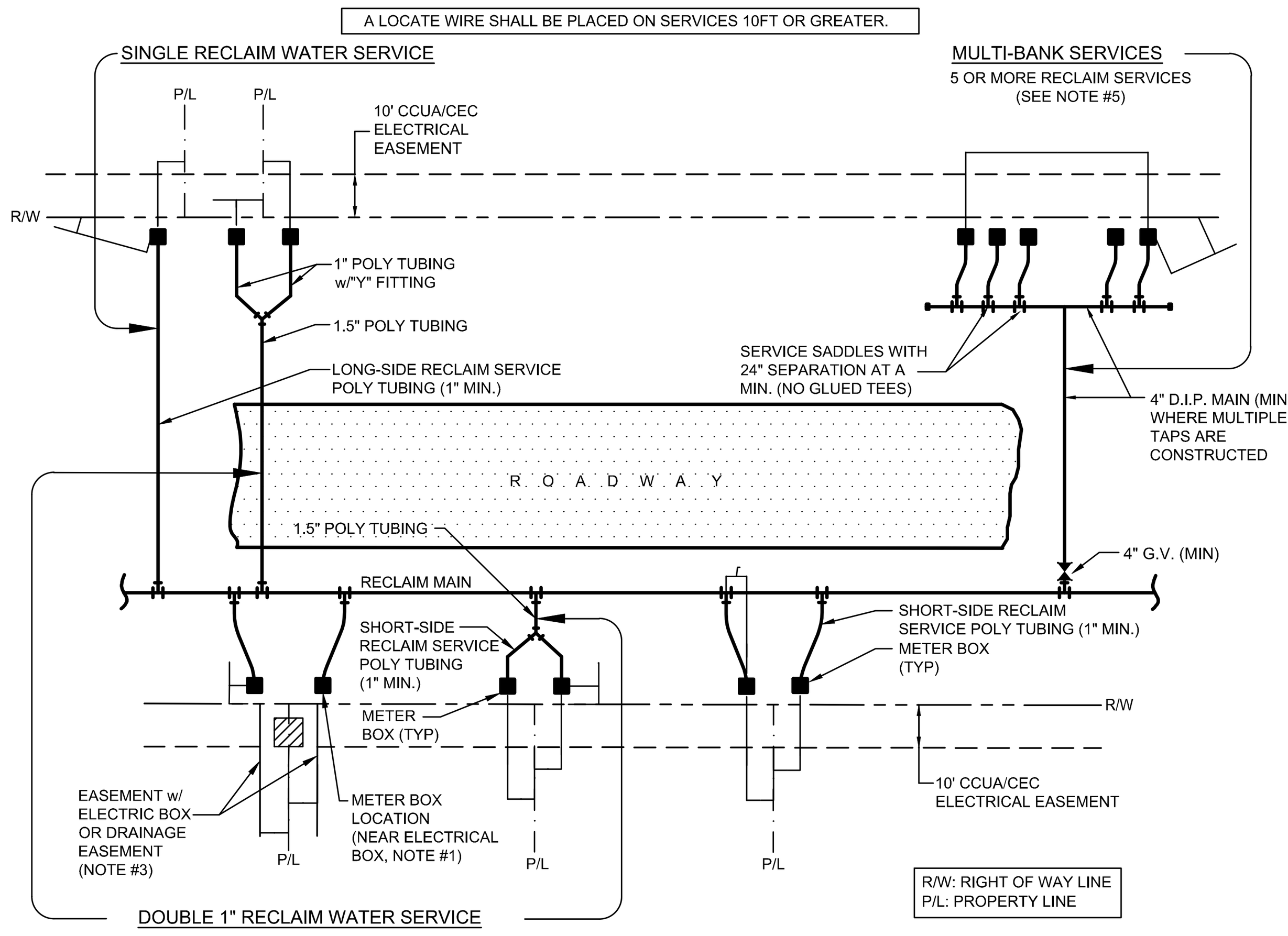


NOTES:
1. All pipe within vault must be ductile iron.
2. All fittings to be ductile iron.
3. Minimum length of 8 diameters of straight pipe to be installed on inlet side of meter.
4. All pipe and fittings to be same size as meter.
5. Concrete box shall be 42" deep with open bottom,precast with notch to accommodate pipe installed 36" deep, installed on 12" of #57 stone
6. Contractor shall provide shop drawing of box with dimensions for approval by CCUA.
7. Dimensions shown are minimum and shall be increased based upon actual size of meter provided.
8. The cost of the meter will be assessed to developer under separate agreement. The meter only will be furnished to the contractor by CCUA and the contractor shall install the meter to complete the installation shown hereon.

METER VAULT - 3" AND LARGER METERS (D)

NOT TO SCALE

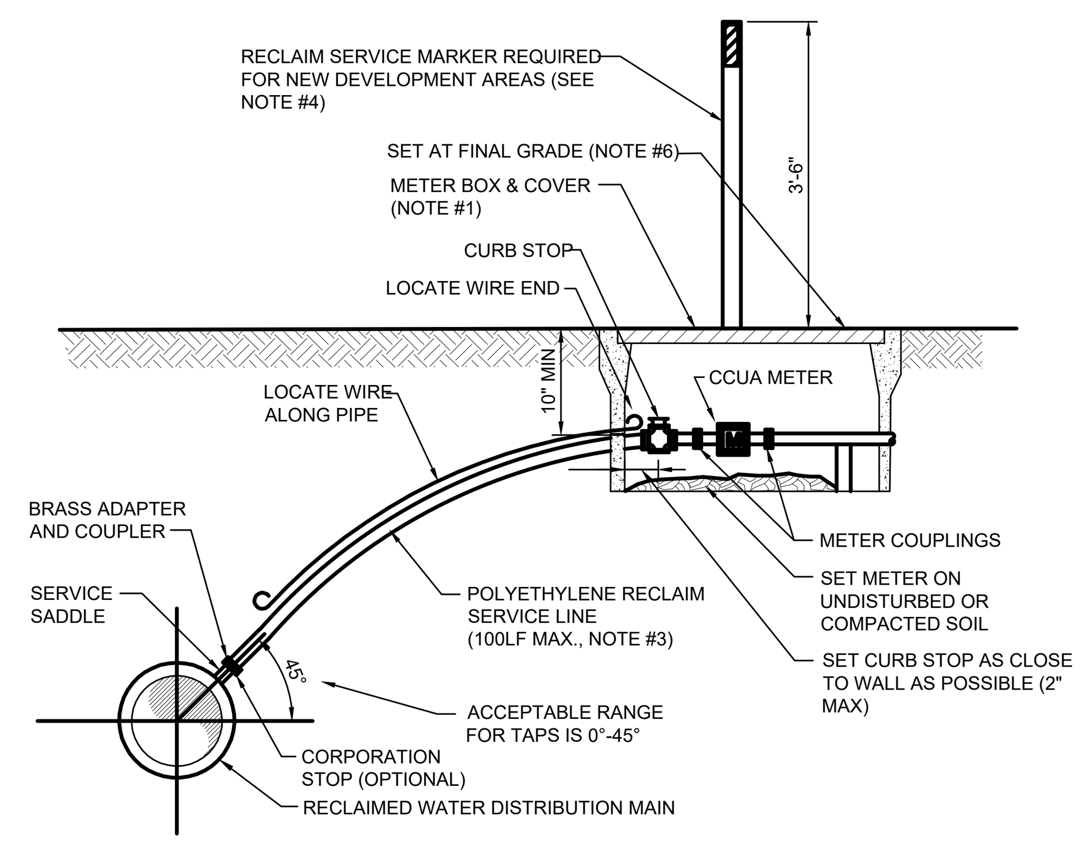
A LOCATE WIRE SHALL BE PLACED ON SERVICES 10FT OR GREATER.



NOTES
1. The sketches above indicate typical reclaim water service and meter box locations. Actual locations of boxes may vary slightly according to field conditions encountered. typically, the meter box shall located 1.0' off of the R/W line.
2. Unless specified otherwise by the applicable county (Clay or Bradford), 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 CCUA, the water meter box shall be located in non-traffic areas (not in sidewalks or driveways). If an unapproved meter box is identified by CCUA, 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. CCUA 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 1" services, the 1 ½" poly main shall be located centered between the two meter boxes. Locate wire is required on all services 10' or greater in length. If locate wire is required, 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 CCUA. This will assist in locating existing service lines in the future.
5. Multi-bank water services: for 3 or 4 services in one area, a ductile iron pipe (D.I.P.) 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 water main. For 5 or more services in one area, a 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" gate valve, 4" pipe, 4"x1" saddles and 1" curb stops (no glued tee fittings). The 4" or larger D.I.P. water main must be sized and designed by the engineer.
6. Double 1" reclaim water services is allowed for short side or long side services and where shown on the drawings.
7. Reclaimed water meter boxes or services shall be located at a min. of 10' from the existing potable water service and/or box, and not allowed in concrete or asphalt unless approved otherwise by CCUA.

RECLAIM WATER SERVICE INSTALLATIONS 2" AND SMALLER METER (E)

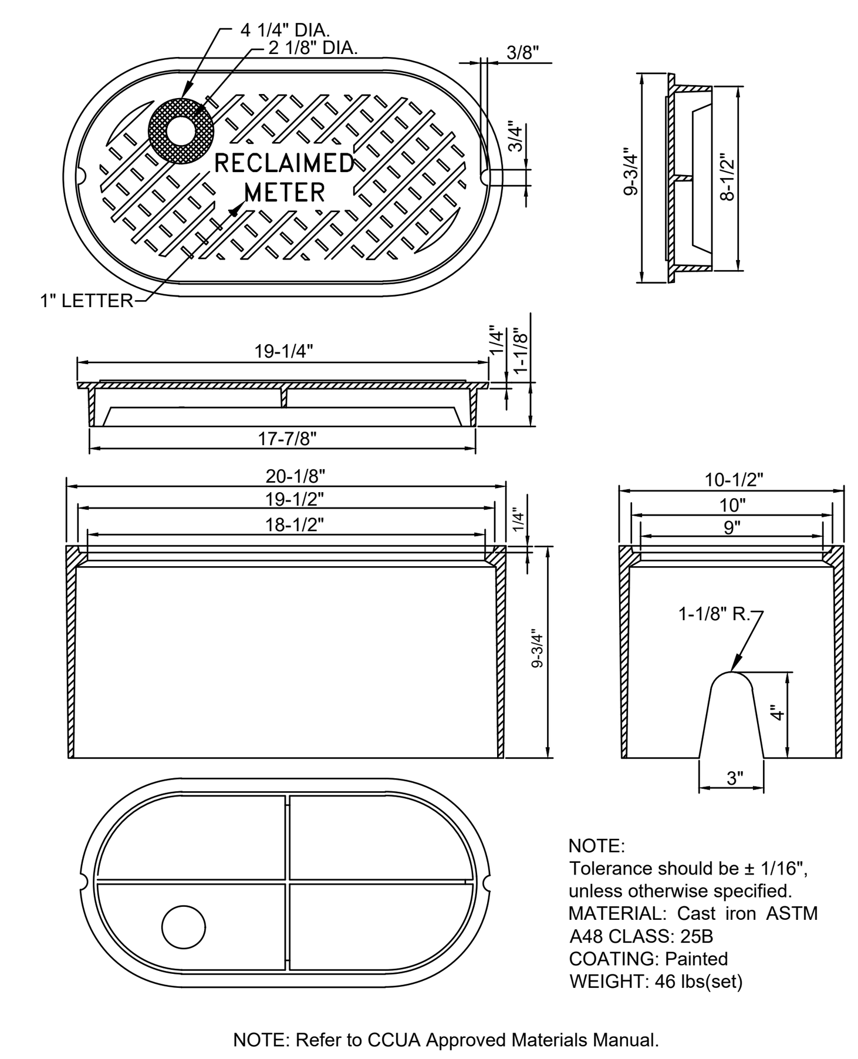
NOT TO SCALE



NOTES
1. See CCUA Approved Materials Manual and system details for requirements.
2. Single band saddles maybe utilized on new 1" reclaim water services which are installed on a dry 10" size or smaller reclaim water main (new reclaim water main construction). For wet taps or water mains 12" size and larger, a double band saddle is required.
3. No open cut under roadway paving allowed unless the roadway is being reconstructed or if directed otherwise by CCUA. Construct poly line with 36" (min.) cover under roadways. The poly reclaim water service line shall be same size as the meter (3/4" minimum) and be installed perpendicular to the main and not exceed 100 LF unless approved otherwise by CCUA.
4. Install PVC plug in all curb stops if reclaim water service is "not in use" (i.e.: if no meter is installed). In addition, install a 6" wide, 6'-6" long pressure treated fence post (top painted purple) 12" off the side of the meter box. The removal or transfer of a reclaim water service shall include brass meter couplings (hex on barrel type).
5. The contractor shall be responsible for the repair or replacement of the meter or electronic devices if damaged by the contractor during the construction period.
6. Meter box and top shall be clear of all debris to allow full access to box (i.e. no dirt, trash or other debris placed on top of box).
7. Locate wiring required on all services 10' or greater in length/offset greater than 2'.

RECLAIMED WATER SERVICE DETAIL 2" AND SMALLER METER (F)

NOT TO SCALE

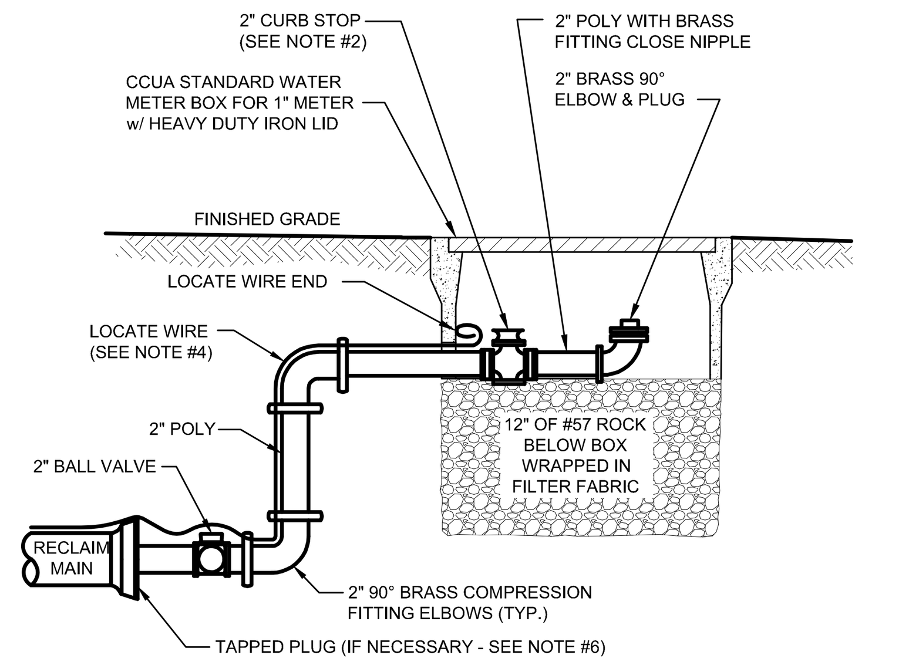


NOTE:
Tolerance should be ± 1/16", unless otherwise specified.
MATERIAL: Cast iron ASTM A48 CLASS: 25B
COATING: Painted
WEIGHT: 46 lbs(set)

NOTE: Refer to CCUA Approved Materials Manual.

METER BOX & LID w/ TOUCH READ HOLE (G)

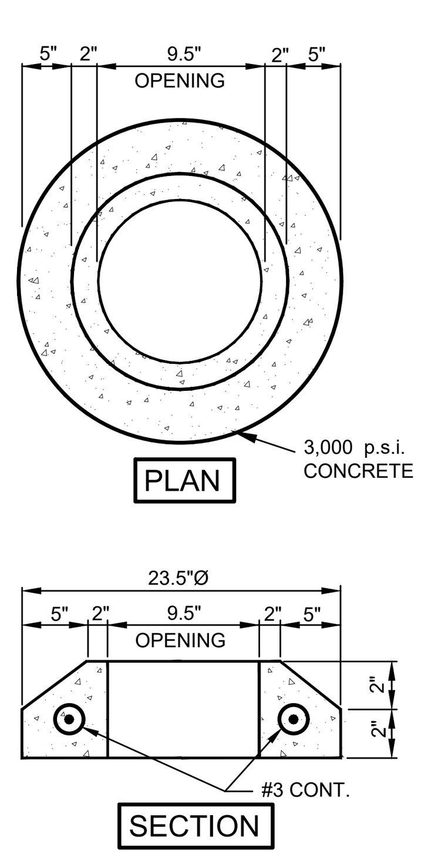
NOT TO SCALE



NOTES
1. Pipe shall be polyethylene. Fittings shall be brass.
2. The 2" curb stop shall be all bronze. Fittings shall be brass.
3. Locate wire for 10' or greater in length.
4. Cannot be placed under concrete or pavement.
5. Place 2 feet past last water main service connection.
6. See Pipe Restraint Chart on Sheet WAT 02.

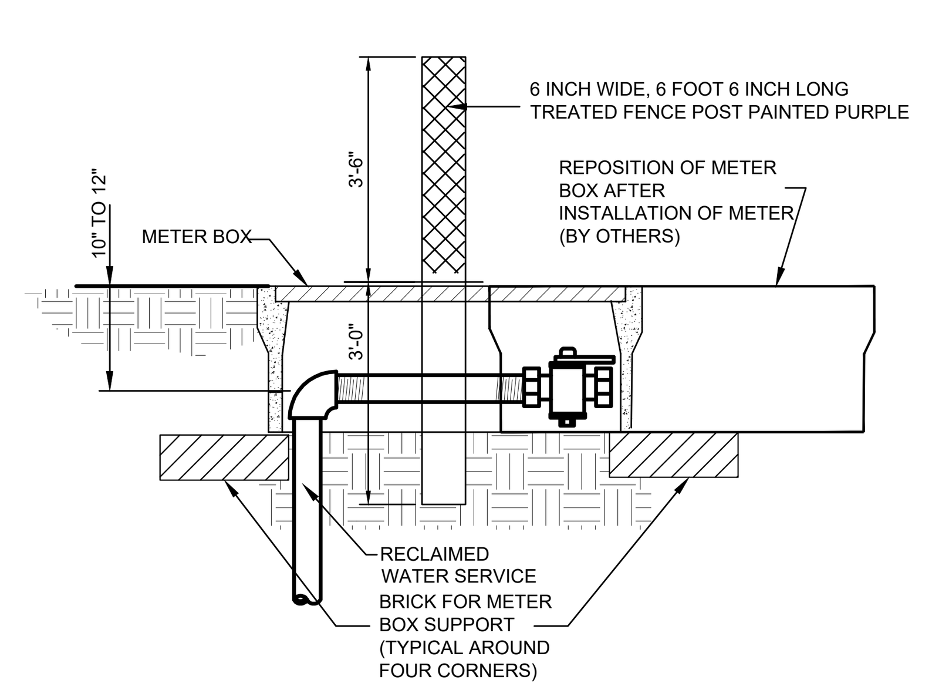
FLUSHING VALVE BELOW GRADE (H)

NOT TO SCALE



PRECAST CONCRETE VALVE BOX COLLAR (I)

NOT TO SCALE

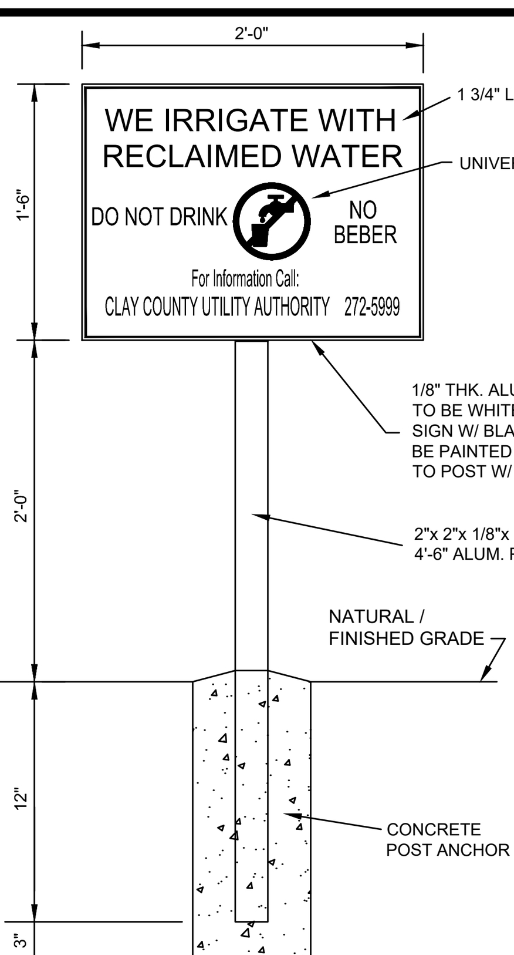


NOTES:

1. All services are to be clearly marked by a treated 6 inch wide, 6 foot 6 inch long marker (fence) post painted purple.
2. 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 locate wire ball valve at that elevation.
3. Set meter box over entire horizontal section of service line from last 90° bend to the end of the curb stop.
4. Box to be repositioned level when the meter is installed.
5. Marker post to be installed adjacent to and located at the mid section of the meter box.

RECLAIMED SERVICE MARKER POST (J)

NOT TO SCALE



RECLAIMED WATER USE/WARNING SIGN (K)

NOT TO SCALE

SPECIFICATIONS FOR CONSTRUCTION OF RECLAIMED WATER DISTRIBUTION SYSTEM

01. INTENTION. It is Clay County Utility Authority (CCUA) 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 CCUA Specifications and Details and Approved Materials Manual and Clay County Engineering 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 in conformance to National Sanitation Foundation (NSF) 61 and those listed in the CCUA Approved Materials Manual. 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, and valve boxes shall be adjusted to finished grade.

02.1 CONTRACTOR LICENSE AND APPROVAL. Utility reserves the right to approve or deny approval of Contractor prior to construction of any on-site or off-site utility facilities. Contractor must hold a State Of Florida Underground Utility 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, 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. 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. Copies of compaction density test reports from a licensed testing agency shall be made available to CCUA if requested.

05. JOINT RESTRAINT. All fittings shall be properly and adequately restrained against lateral movement at all water main tees, crosses, valves, bends and fire hydrants. Restrainers shall be as outlined in the CCUA Approved Materials Manual for acceptable restraints.(www.clayutility.org/engineering/materials_manual.aspx)

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 of 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 in length, and shall be clearly marked with pressure rating, thickness, class, height of pipe without lining, length, and Manufacturer. Ductile iron pipe for water service shall be furnished with cement lining per AWWA C110, C115 and C151. The pipe shall have design values of 60,000 p.s.i. minimum tensile strength, and 42,000 p.s.i. minimum yield strength. 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. Ductile iron pipe for reclaimed water or service lines shall be used in any easement, right-of-way, between lots, and any instance where a building foundation or other permanent appurtenance is within 10' of the main or a service line larger than 3".

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 water mains 4 inch through 24 inches in diameter, shall be DR18 (C900) Pressure Class 235 psi PVC 1120; reclaim mains above 24 inches in diameter shall be DR25 (C900) PVC 1120, Pressure Class 165 psi, conforming to ASTM D-1784, D-2241, D-3139 and F-477, latest, or P.V.C. C900, Class 165, DR-25, conforming to ASTM D-1784, Cell Class 12454, ASTM F-477, ASTM D-3139, latest, and shall bear the seal of the National Sanitation Foundation. Pipe shall be color coded and marked "RECLAIMED WATER" at every 12" along the barrel of the pipe, with lettering facing up. 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 Schedule 80 PVC. All piping smaller than 4" shall be Schedule 40 or Schedule 80 as detailed. Schedule 40 PVC pipe shall be Pantone purple 522C and marked "Reclaimed Water".

11. NOTE: All reclaimed water services are to be installed on one lot line and potable water services are to be installed on the other. This is to allow separation of the two water services. Sewer services are to be installed at the middle of the lot.

12. 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 3" and larger shall be iron body, bronze fitted with resilient seat. Valves shall be of DOMESTIC (American) manufacture and shall be those listed in CCUA Approved Material Manual. Valves 16" and larger shall be AWWA C-515. 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 valves smaller than 2" shall be heavy-duty bronze ball valves. Box covers to be primed and painted Pantone Purple 522C.

13. RECLAIMED WATER METER BOXES. Developer shall be responsible for installation of meter boxes on all water services as part of the water main installation. All curb stops shall be adjusted to the proper elevation and shall be accessible for the installation of the meter. The Contractor shall be required to open all boxes for the Authority's inspector at the final inspection. A treated 6'-6" fence post marker shall be installed at the side of and centered on the meter box and painted Pantone Purple 522C for identification. Meter boxes shall not be placed in any sidewalk or driveway without the approval of CCUA.

14. CURB STOPS. Curb stops shall be cast bronze, inverted key stop, roundway, with check, lock wing type, for locking in the closed position. See CCUA Approved Materials Manual for acceptable curb stops.

15. PRESSURE REDUCING VALVES. 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: See CCUA Materials manual.

16. INSTALLATION. The minimum cover over top of reclaimed water main shall be 48". 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 new and 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. All reclaimed mains shall be installed with tracer wire per CCUA standard location wire 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 three feet, outside-to-outside, shall be maintained between reclaimed water mains and either potable water mains or wastewater pipes. Reclaimed water mains 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 potable 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 in a rate of 2 feet per second (min.) utilizing full pipe diameter flushing. In cases where the water supply is inadequate to flush the full pipe diameter, flushing shall occur to the extent of the water supply that is available. All flushing must be contained.

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 CCUA's requirements and specifications. Curb and limerock may be installed after construction of the reclaimed water mains, however, limerock priming cannot proceed until such time as the CCUA 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 CCUA.

20. WARNING SIGN. Each development, subdivision, or commercial establishment, regardless of the number of buildings, shall install reclaimed water use warning signs at the entrance or any other street or driveway entering any properties which use reclaimed water. The signs shall meet the requirements of CCUA details and specifications. The signs shall be a requirement whether shown on plans or not. Direction of locating those signs shall be given by the CCUA inspector on site.

21. POLYETHYLENE TUBING SERVICE LINES AND MAINS (2 INCH AND SMALLER): Tubing shall be manufactured of PE 4710, High Density Polyethylene (HDPE), in accordance with AWWA C901, ASTM D1248, ASTM D2239, ASTM D3737 and ASTM D3350. The tubing shall have a minimum working pressure of 250 psi. Polyethylene tubing shall be copper tube size SDR-9 and shall be colored purple. HDPE pipe shall have ultraviolet (UV) inhibitors for protection against direct sunlight for 1 year. Inserts for polyethylene tubing may be utilized, at Contractors options, and, if used, shall be 316 stainless steel. The use of no-lead brass couplings, tees and "Y" fittings are acceptable on poly service tubing, if not located under a roadway. Tubing shall be approved for use with potable water by the National Sanitation Foundation (NSF-14) and shall be continuously marked at intervals of not more than four feet with the following:
Nominal size
Pressure rating
NSF seal
Manufacturer's name or trademark
Standard dimension ratio
ASTM specification

22. PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL PROVIDE THE FOLLOWING:
1. The pressure test and flushing report.
2. The Engineer of Record certification to FDEP; this can be done with preliminary as-builts.
3. Preliminary as-builts showing at least the following: location of valves, mains, services and manholes.
4. All services and valves to be plainly marked with a treated fence post.
5. The reclaimed water use warning sign/signs shall be installed.

23. PRIOR TO FINAL ACCEPTANCE FOR OWNERSHIP, THE FOLLOWING MUST BE COMPLETED:
1. Reclaimed water services must be lowered and meter boxes installed, valve boxes must be set on all gate valves, recast concrete valve box collar must be in place on all gate valves.
2. As-built drawings shall have been updated to accommodate the CCUA's comments (shall comply to the guidance set forth in CCUA's `As-built Specifications Standards Manual`, which can be obtained from CCUA's website www.clayutility.org).
3. As-builts must be accepted by the CCUA.
4. All valves and single services should be scribed in curb and painted the correct color for each.

NO	DATE	BY	REVISION DESCRIPTION
20	AUG 23	RHD	REVISED ALL NOTES AND DETAILS
19	JUNE 17	RHD	REVISED NOTES AND DETAILS
18	SEPT 16	RHD	REVISED SERVICE SIZES TO 1"
17	JUL 16	RHD	REVISED SINGLE/LONG SIDE SVC
16	MAR 16	RHD	REVISED METER TIE-DOWNS

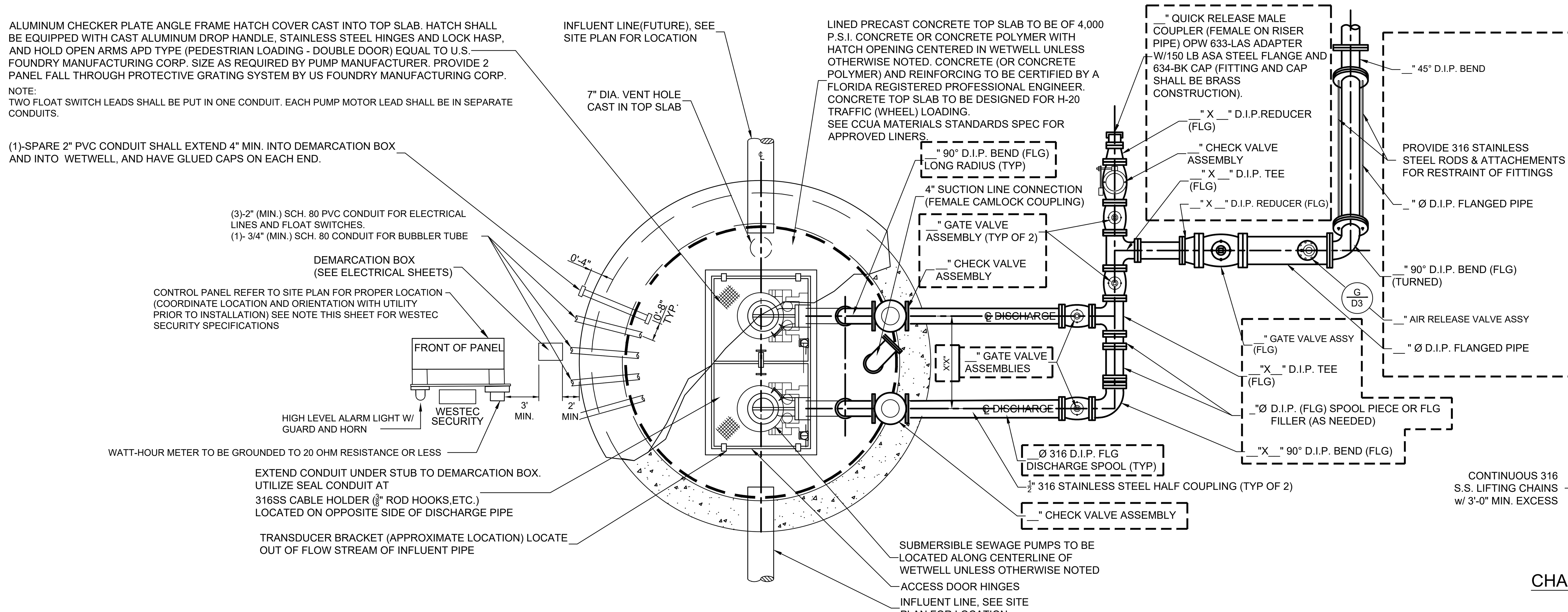
DESG XXX
DRAWN RHD
CHKD XXX
APRV XXX
DATE 00/00

RECLAIM WATER DISTRIBUTION SYSTEM DETAILS AND SPECIFICATIONS

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

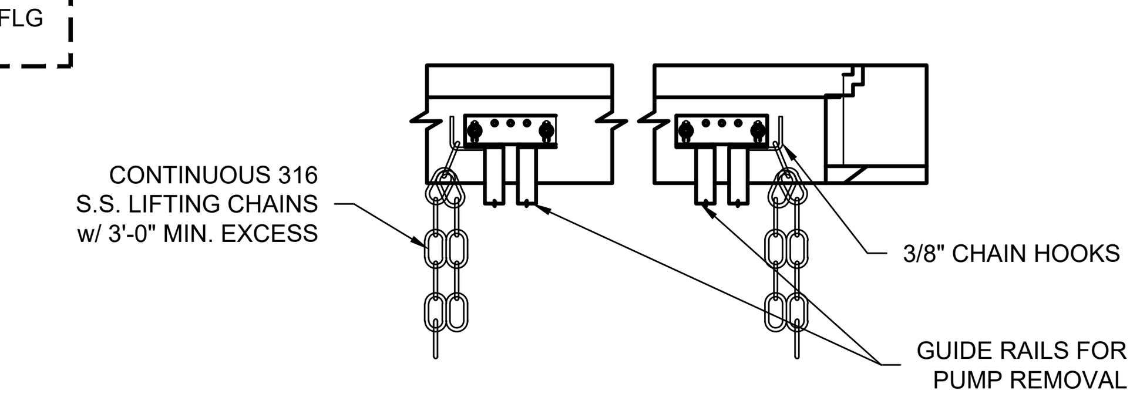
SHEET NO.
S-RE1



PLAN VIEW

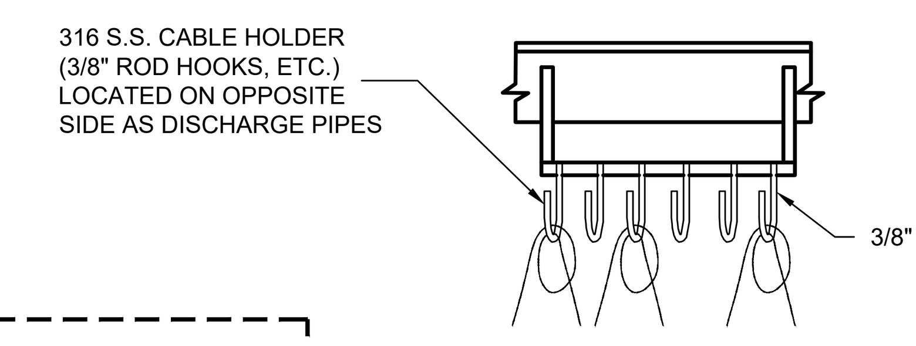
NOT TO SCALE

▭	= RECTANGLE DENOTES FIELDS FOR SPECIFIC DATA ENTRIES PERTAINING TO THIS PROJECT - DELETE RECTANGLES AFTER ADDING DATA TO DRAWING



CHAIN HOOK AND RAIL BRACKET DETAIL

NOT TO SCALE



CABLE HOOK DETAIL

NOT TO SCALE

GENERAL NOTES:

1. PUMPS: TWO (2) TOTALLY SUBMERSIBLE SEWAGE PUMPS WITH 230/460 VOLTS, 3 PHASE 60 HERTZ MOTORS, CAPABLE OF DELIVERING ____GPM @ ____TDH. (DEPENDENT UPON THE APPLICATION, THE PUMPS SHALL BE ABS CONTRABLOCK, FLYGT OR DAVIS EMU. (VERIFY WITH UTILITY AT THE TIME OF DESIGN).

PUMP MANUFACTURER:______________________
PUMP MODEL NUMBER:______________________
MOTOR HP: ______________________
MOTOR RPM: ______________________
PUMP RPM: ______________________
IMPELLER SIZE: ______________________

2. GAUGES: GAUGES SHALL BE FURNISHED WHERE SHOWN MOUNTED BRASS MOVEMENTS, COMPLETELY SEALED UNBREAKABLE PLEXIGLASS CRYSTAL, WITH NOT LESS THAN 90% GLYCERIN-FILLED STAINLESS STEEL CASE, EACH GAUGE SHALL HAVE A RANGE SUCH THAT THE NORMAL OPERATION PRESSURE SHALL BE APPROXIMATELY AT HALF OF THE RANGE. GAUGES SHALL BE EQUIPPED WITH A SAFETY BLOW-OUT PLUG AND DAMPENING SCREW. GAUGES SHALL BE MOUNTED USING ½" (NPT) STEEL PIPE WITH DIAPHRAGM PROTECTORS WITH STAINLESS STEEL DIAPHRAGM AND STOP COCKS BETWEEN DISCHARGE PIPES AND GAUGES.

3. ALL PIPE PENETRATIONS COMING INTO WE WELL TO BE WATERTIGHT. CONTRACTOR TO ENSURE WET WELL IS DRY FOR PRELIMINARY INSPECTION.

4. ALL PRECAST REINFORCED CONCRETE PRODUCTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478 (LATEST), WITH CLASS A CONCRETE, UNLESS OTHERWISE NOTED. ALL CONCRETE AND REINFORCING SHALL BE CERTIFIED BY AN ENGINEER REGISTERED WITH THE STATE OF FLORIDA.

5. ALL DISCHARGE PIPING FROM THE PUMPS THROUGH TO THE TRANSITION (RISER PIPE) FROM ABOVE GRADE TO BELOW GRADE SHALL BE 316 GRADE, SCH.40 STAINLESS STEEL. THIS INCLUDES ALL FITTINGS WITHIN THIS PRESCRIBED LIMIT.

6. PIPE FITTINGS 4" AND SMALLER SHALL BE EPOXY LINED OR POLY-LINED (40 MIL THICKNESS) DUCTILE IRON.

7. PUMP STATION SITE SHALL HAVE 50' X 25' X 6" THICK CONCRETE SLAB W/ 6' X6' JOINTS. SLAB SHALL BE 2500 PSI CONCRETE

8. ALL DUCTILE IRON FITTINGS AND PIPE SHALL BE HOLIDAY TESTED PRIOR TO INSTALLATION.

9. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN A.N.S.I. SPECIFICATIONS A21.51.

10. ALL EXTERIOR JOINTS OF PRECAST CONCRETE WETWELLS SHALL BE SEALED WITH A RUBBERIZED ASPHALT MEMBRANE TAPE.

11. EACH PUMP STATION SHALL BE EQUIPPED WITH A DSC 1550 MASTER CONTROL PANEL WITH LOCKED METAL ENCLOSURE w/ A DSC 1550 ACCESS KEYPAD MOUNTED ON THE PANEL ENCLOSURE w/ DIMENSIONS OF 4 3/4" X 4 3/4" X 1"; A 12 VOLT, 7 AMP BACK-UP BATTERY; A TRANSFORMER (16.5 VAC) OUTSIDE BOX IN ELECTRICAL OUTLET); PHONE CABLE AND RJ31X PHONE JACK (FOR DIALER HOOK-UP INSIDE BOX); PHONE LINE SURGE PROTECTOR (INSIDE BOX); AND ALL MISCELLANEOUS HARDWARE FOR A COMPLETE AND OPERATING SYSTEM (SEE ELECTRICAL SHEETS).
ALL COMPONENTS LISTED TO BE ENCLOSED IN THE ALARM PANEL BOX WITH EXCEPTION OF THE TRANSFORMER, THE ELECTRICAL SURGE PROTECTOR AND THE CONTROL PANEL KEYPAD (TO BE MOUNTED DIRECTLY ONTO THE ALARM PANEL).

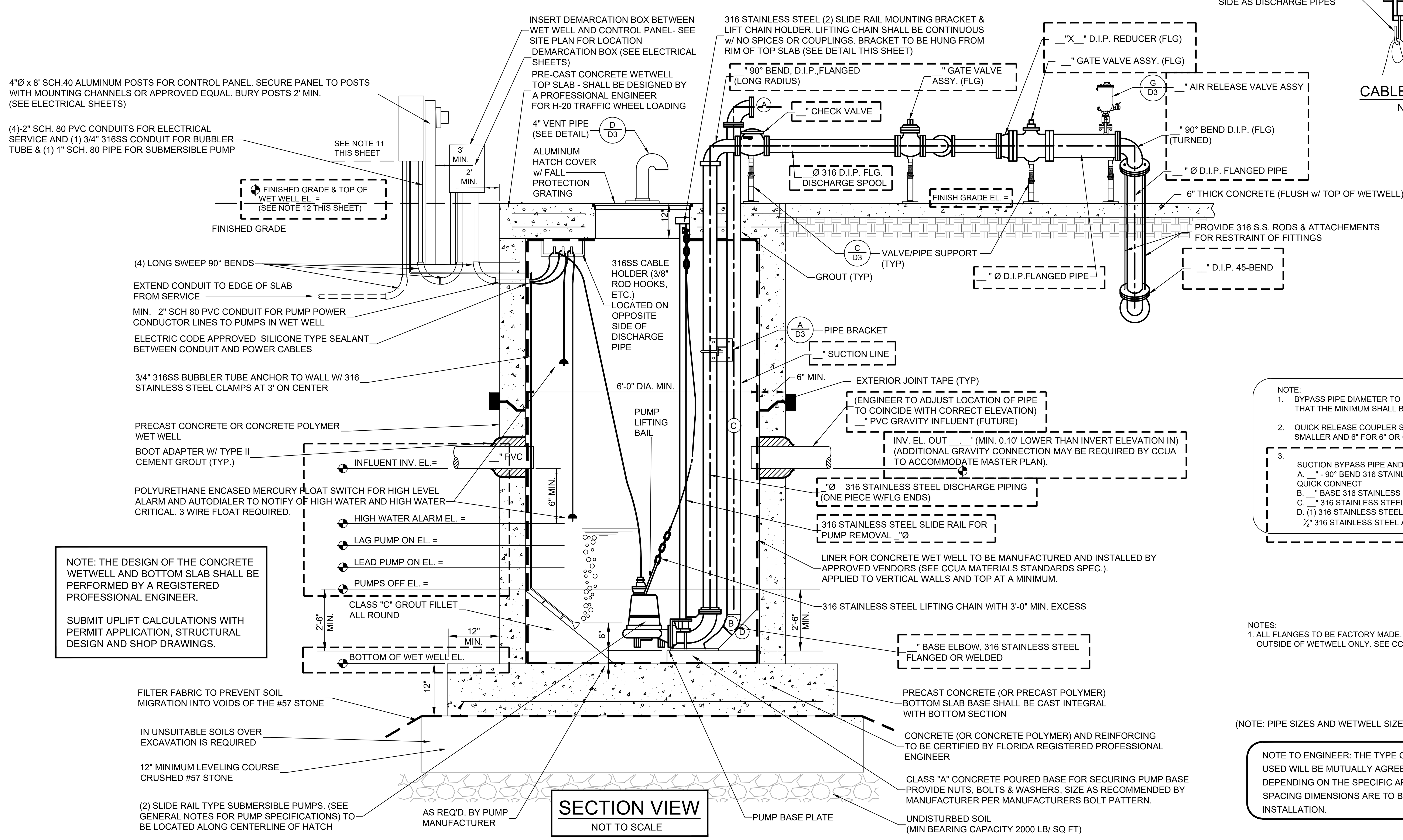
12. ENGINEER SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WETWELL, BOTTOM OF CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB ARE ALL ABOVE THE 100 YR. FLOOD ELEVATION. ENGINEER TO DELINEATE THE 100 YR. FLOOD ELEVATION HERE:

____

THEREFORE, I DO HEREBY CERTIFY THAT THE ABOVE ELEVATIONS HAVE BEEN MET.

____
NAME, FL P.E NO.

13. SUBMIT SHOP DRAWINGS TO CCUA FOR APPROVAL PRIOR TO ORDERING MATERIALS AND EQUIPMENT.



NOTE: THE DESIGN OF THE CONCRETE WETWELL AND BOTTOM SLAB SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER.

SUBMIT UPLIFT CALCULATIONS WITH PERMIT APPLICATION, STRUCTURAL DESIGN AND SHOP DRAWINGS.

SECTION VIEW

NOT TO SCALE

NOTE:
1. BYPASS PIPE DIAMETER TO MATCH DISCHARGE PIPE SIZE.EXCEPT THAT THE MINIMUM SHALL BE 4 INCHES.
2. QUICK RELEASE COUPLER SHALL BE 4" FOR PIPE SIZES 4" OR SMALLER AND 6" FOR 6" OR GREATER.
3. SUCTION BYPASS PIPE AND FITTINGS SCHEDULE
A. __" - 90° BEND 316 STAINLESS STEEL (FLANGED) w/ FEMALE QUICK CONNECT
B. __" BASE 316 STAINLESS STEEL ELBOW (FLANGED)
C. __" 316 STAINLESS STEEL PIPE
D. (1) 316 STAINLESS STEEL ANCHOR STRAP AND ½" 316 STAINLESS STEEL ANCHOR BOLTS AND NUTS

NOTES:
1. ALL FLANGES TO BE FACTORY MADE. RESTRAINED FLANGE ADAPTERS MAY BE USED OUTSIDE OF WETWELL ONLY. SEE CCUA MATERIAL STANDARDS.

(NOTE: PIPE SIZES AND WETWELL SIZES TO BE VERIFIED BY ENGINEER AND MODIFIED AS NECESSARY.)

NOTE TO ENGINEER: THE TYPE OF PUMP STATION ALLOWED AND THE SPECIFIC PUMPS TO BE USED WILL BE MUTUALLY AGREED TO BY ENGINEER AND UTILITY AT THE TIME OF DESIGN DEPENDING ON THE SPECIFIC APPLICATION. ALSO WETWELL SIZE AND PIPE SIZES AND SPACING DIMENSIONS ARE TO BE DETERMINED FOR EACH SPECIFIC PUMP STATION INSTALLATION.

AS-BUILT

INFORMATION PROVIDED BY: ______________________

ADDRESS: ______________________

PHONE #: ______________________

I HEREBY CERTIFY THAT THE

________ PAVEMENT	________ WATER MAIN
________ CURB AND GUTTER	________ SANITARY GRAVITY SYSTEM
________ STORMWATER DRAINAGE	________ FORCE MAIN
________ SYSTEM	________ LIFT STATION
________ UNDERDRAIN CONNECTIONS	________ RECLAIMED WATER

ARE AT THE HORIZONTAL AND VERTICAL LOCATIONS AS SHOWN ON THESE "AS-BUILT" SURVEYS MEET THE STANDARDS OF PRACTICE EFFECTIVE DATE JULY 1, 2014 AS PURSANT TO SECTION 472, FLORIDA STATUTES. UNLESS OTHERWISE DEFINED IN THE CLAY COUNTY UTILITY AUTHORITY SPECIFICATIONS FOR AS-BUILTS. NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

SIGNATURE: ______________________

FLORIDA PROPESIONAL SURVEYOR & MAPPER #: ______________________

NO	DATE	BY	REVISION DESCRIPTION
21	06-25	RHD	REVISED VARIOUS NOTES
20	01-25	RHD	REVISED GENERAL NOTES/SHOW WETWELL PIPING AS 316 STAINLESS STEEL
19	09-24	RHD	REVISED TO MOVE CONTROL PANEL 3' OFF DEM. BOX
18	06-22	RHD	REVISED TO APPLY 4W ADDITIONS & CORRECTIONS
17	03-22	4W	REVISED TO ABOVE GRADE PIPING
16	10-19	RHD	REVISED GENERAL NOTES
15	06-17	RHD	REVISED NOTES AND DETAILS

DESG	ABB
DRWN	JMC
CHKD	XXX
APRV	XXX
DATE	03/22

PROJECT:

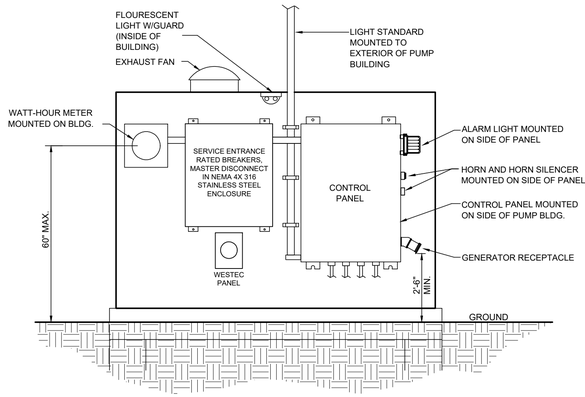
PERMANENT SUBMERSIBLE PUMP STATION WITH CONCRETE WETWELL

CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.

D-1



*ATLANTIC COMPANIES AUTO DIALER SPECIFICATIONS:

EACH PUMP STATION SHALL BE EQUIPPED WITH A DSC PC1616 MASTER CONTROL PANEL WITH LOCKED METAL ENCLOSURE W/ BOX DIMENSIONS OF 12"X 12" X 4 1/2"; A DSC PKP-IKON OR A DSC PK-5501 ACCESS KEYPAD MOUNTED ON THE PANEL ENCLOSURE W/ DIMENSIONS NO GREATER THAN 4 3/4"X 4 3/4"X 1"; A 12 VOLT, 7 AMP BACK-UP BATTERY; A TRANSFORMER (16.5 VAC) OUTSIDE BOX IN ELECTRICAL OUTLET; RESOLUTION PRODUCTS RE927X-03-00 OR RE928X-03-00 CELL COMMUNICATORS; ELECTRICAL SURGE PROTECTOR (OUTSIDE BOX IN ELECTRICAL OUTLET); AND ALL MISCELLANEOUS HARDWARE FOR A COMPLETE AND OPERATING SYSTEM.

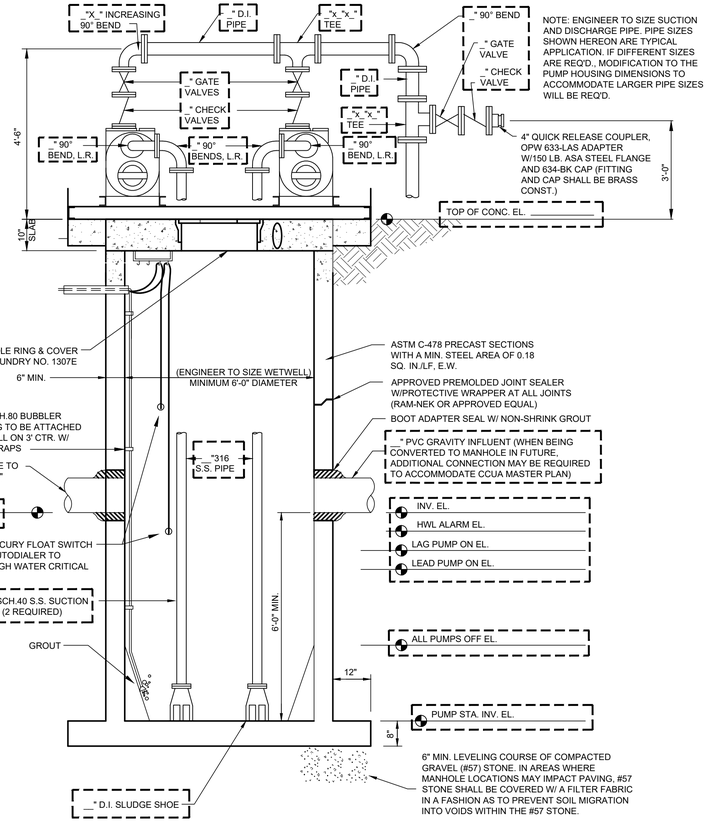
ALL COMPONENTS LISTED TO BE ENCLOSED IN THE ALARM PANEL BOX WITH EXCEPTION OF THE TRANSFORMER, THE ELECTRICAL SURGE PROTECTOR, CELLULAR COMMUNICATOR (INSIDE THE WEATHER PROOF ENCLOSURE) AND THE CONTROL PANEL KEYPAD (TO BE MOUNTED DIRECTLY ONTO THE ALARM PANEL ENCLOSURE).

STATION CONTROLS DETAIL - SIDE VIEW (A)

NOT TO SCALE

PUMP STATION SITE PLAN

ENGINEER TO PROVIDE DETAIL PUMP STATION SITE PLAN AS SHOWN ON PLAN SHEETS, INCLUDING FENCING, LANDSCAPING, DRIVEWAY, ENTRANCE ROAD IF APPLICABLE, WATER SERVICE, ELECTRICAL SERVICE/TRANSFORMER, UNDERGROUND SEWER MAIN ALIGNMENT TO FIRST MANHOLE OUT OF PUMP STATION. PUMP STATION AND MANHOLE "DO NOT" REQUIRE LINER.



PUMP STATION - SECTION (B)

NOT TO SCALE

NOTE TO ENGINEER: THE TYPE OF PUMP STATION ALLOWED AND THE SPECIFIC PUMPS TO BE USED WILL BE MUTUALLY AGREED TO BY ENGINEER AND UTILITY AT THE TIME OF DESIGN DEPENDING ON THE SPECIFIC APPLICATION. ALSO PIPE SIZES AND SPACING DIMENSIONS ARE TO BE DETERMINED FOR EACH SPECIFIC PUMP STATION INSTALLATION.

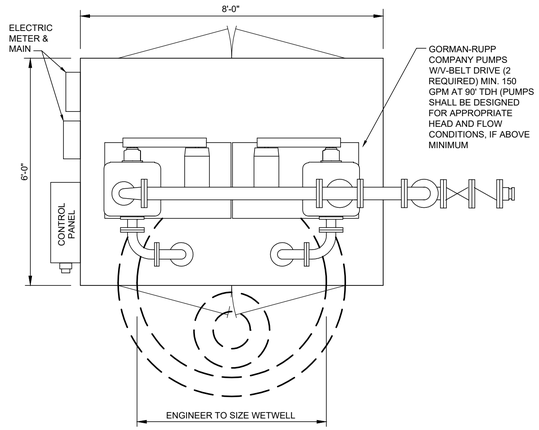
COORDINATE WITH CCUA PRIOR TO DESIGN OF TEMPORARY LIFT STATION.

GENERAL NOTES

1. SYSTEM TO INCLUDE WESTEC SECURITY SYSTEM WITH INDEPENDENT FLOAT CONTROL AND TELEPHONE DIALER SYSTEM, TELEPHONE LINE BY OWNER.

2. SITE LOCATION OF LIFT STATION, CONTROL PANEL AND GENERATOR SHALL BE ABOVE THE 100 YEAR STORM ELEVATION.

3. THIS PLAN IS FOR INFORMATIONAL PURPOSES ONLY. EXPLICIT APPROVAL OF PLANS BY THE UTILITY AUTHORITY IS REQUIRED PRIOR TO ANY CONSTRUCTION.



PUMP STATION - PLAN (C)

NOT TO SCALE

PUMP STATION BLDG. - ELEVATION (D)

NOT TO SCALE

= RECTANGLE DENOTES FIELDS FOR SPECIFIC DATA ENTRIES PERTAINING TO THIS PROJECT - DELETE RECTANGLES AFTER ADDING DATA TO DRAWING

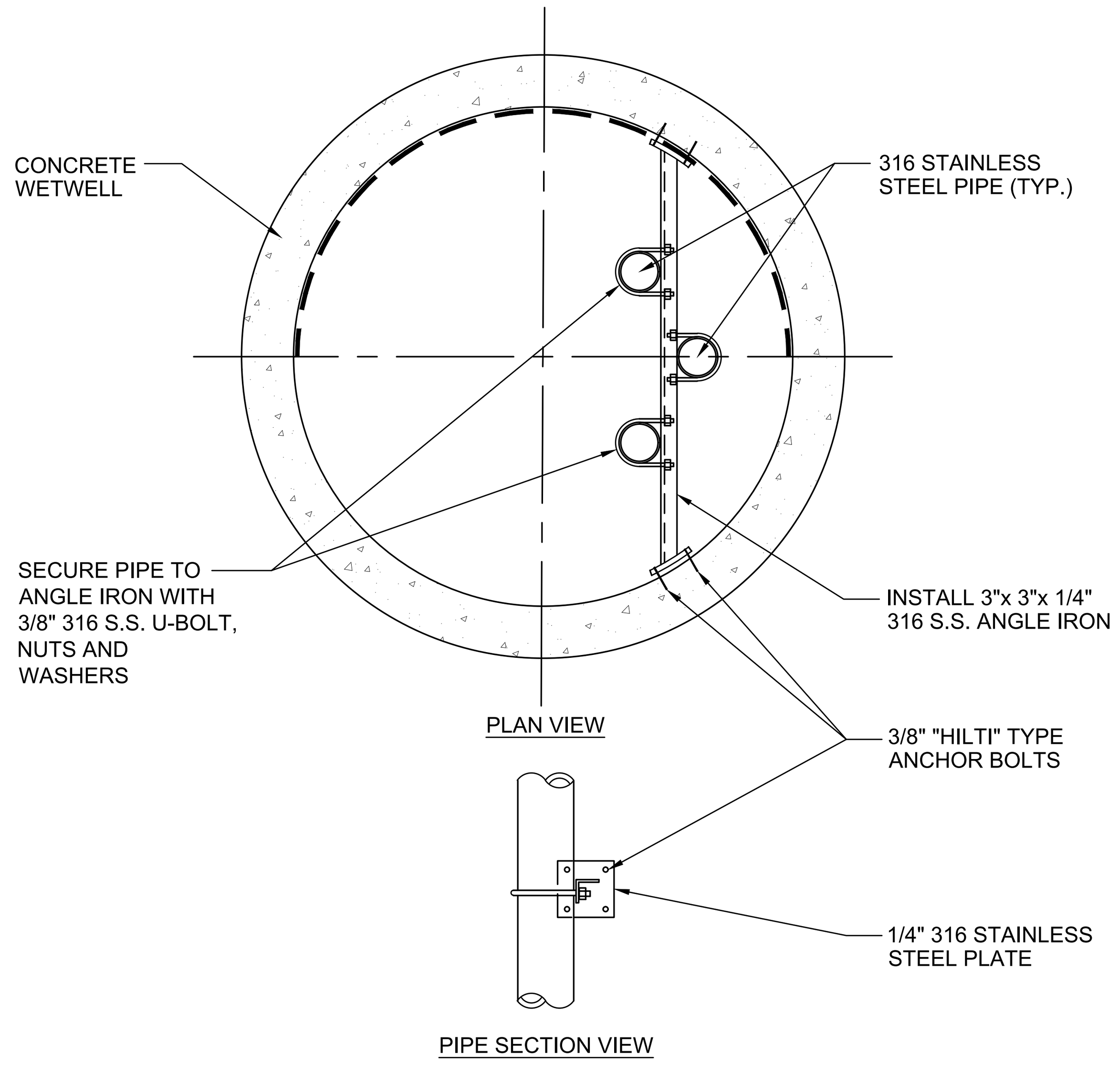
NO	DATE	BY	REVISION DESCRIPTION
3	06-25-25	RHD	REVISED VARIOUS NOTES
2	JUNE 05	MRS	REVISED NOTES AND DETAILS
1	MAY 05	MRS	GENERAL NOTES AND 7.5 SITE PLAN ADDED

DESG	ABB	APRV	XXX
DRWN	JMC	DATE	03/22
CHKD	XXX		

PROJECT:
TEMPORARY (INTERIM) ABOVE-GROUND
PUMP STATION DETAILS
CLAY COUNTY, ORANGE PARK, FL

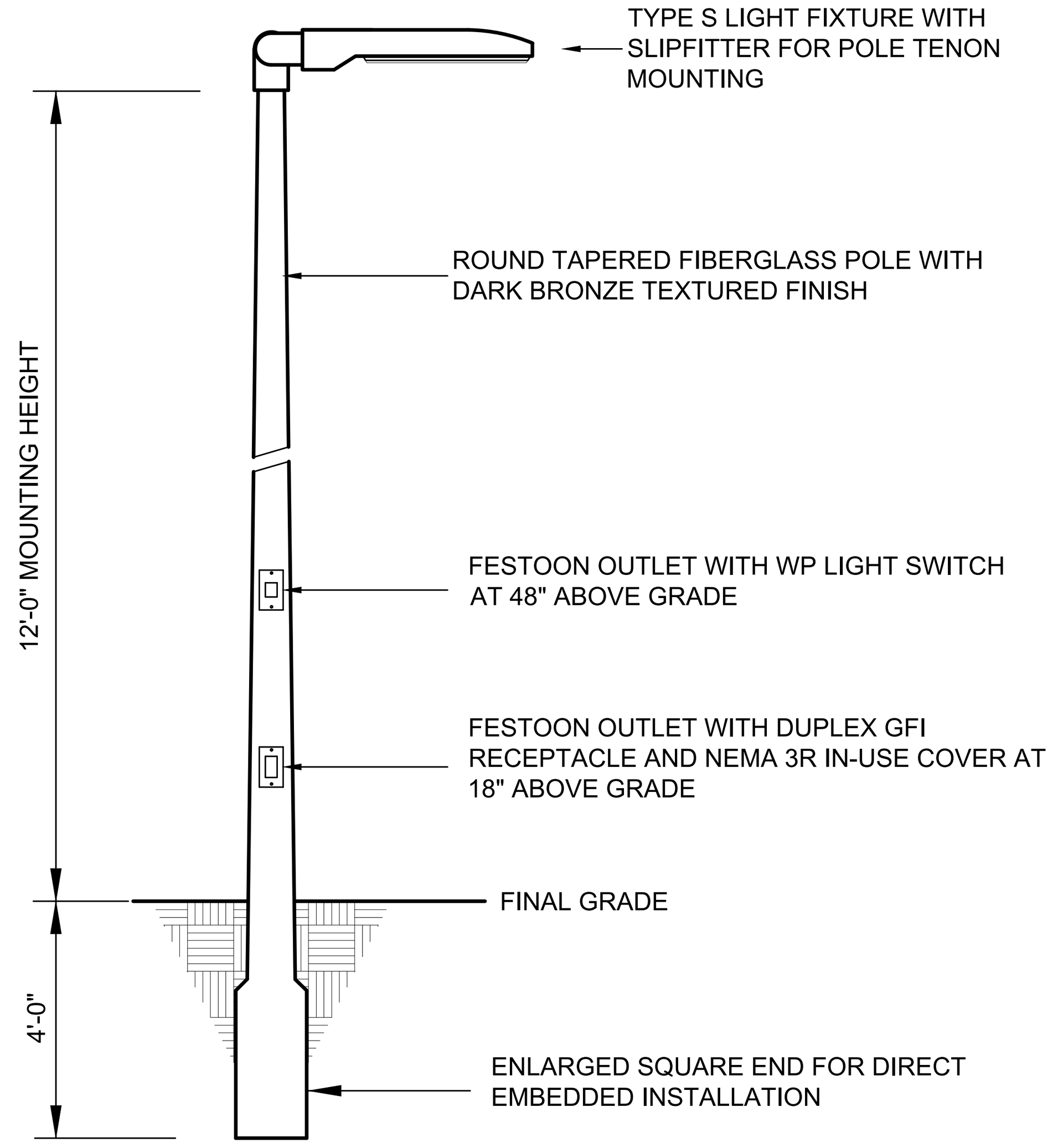
CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
D-2



PIPE ATTACHMENT TO WALL (A)

NOT TO SCALE



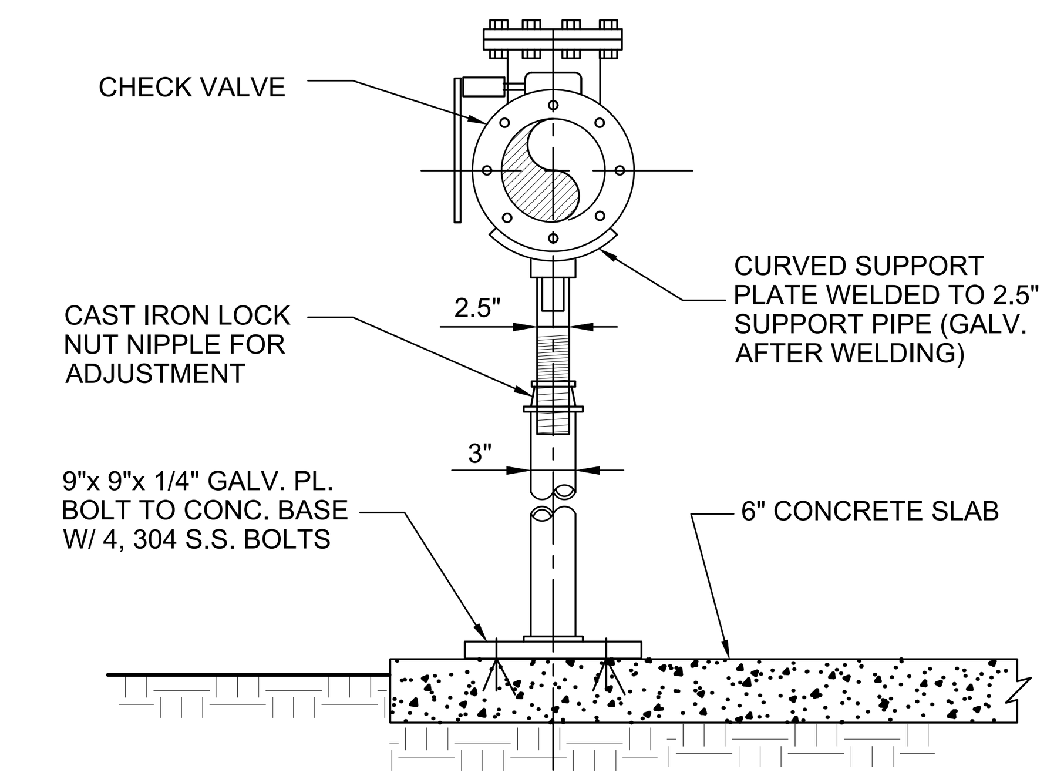
THE INSIDE DIAMETER OF THE EXCAVATION SHALL EXCEED THE OUTSIDE DIAMETER OF THE POLE BY A MINIMUM OF 6" AND SHALL BE BACK FILLED WITH CONCRETE.

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER & CATALOG NUMBER	LAMPS	VOLTS	WATTS
S	RAB A17 5T 100 SF N 120 WITH A17-SF-KIT	LED	120	100

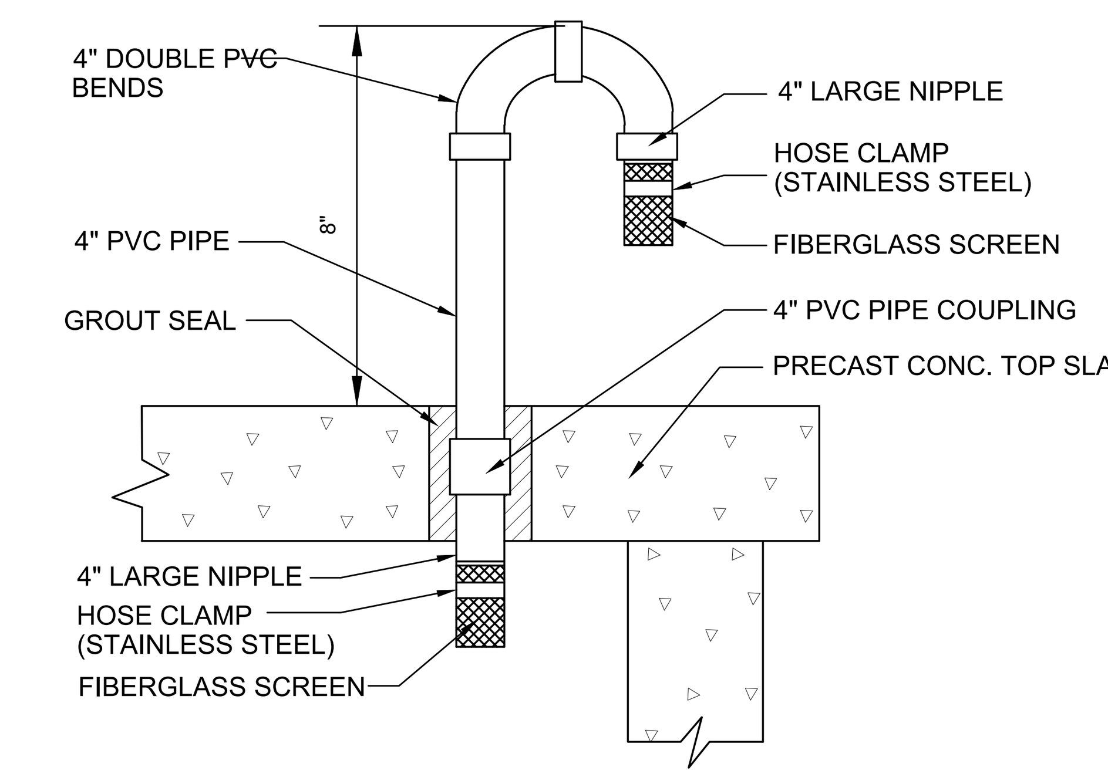
SITE LIGHT (STANDARD) (B)

NOT TO SCALE



PIPE SUPPORT (STANDARD) (C)

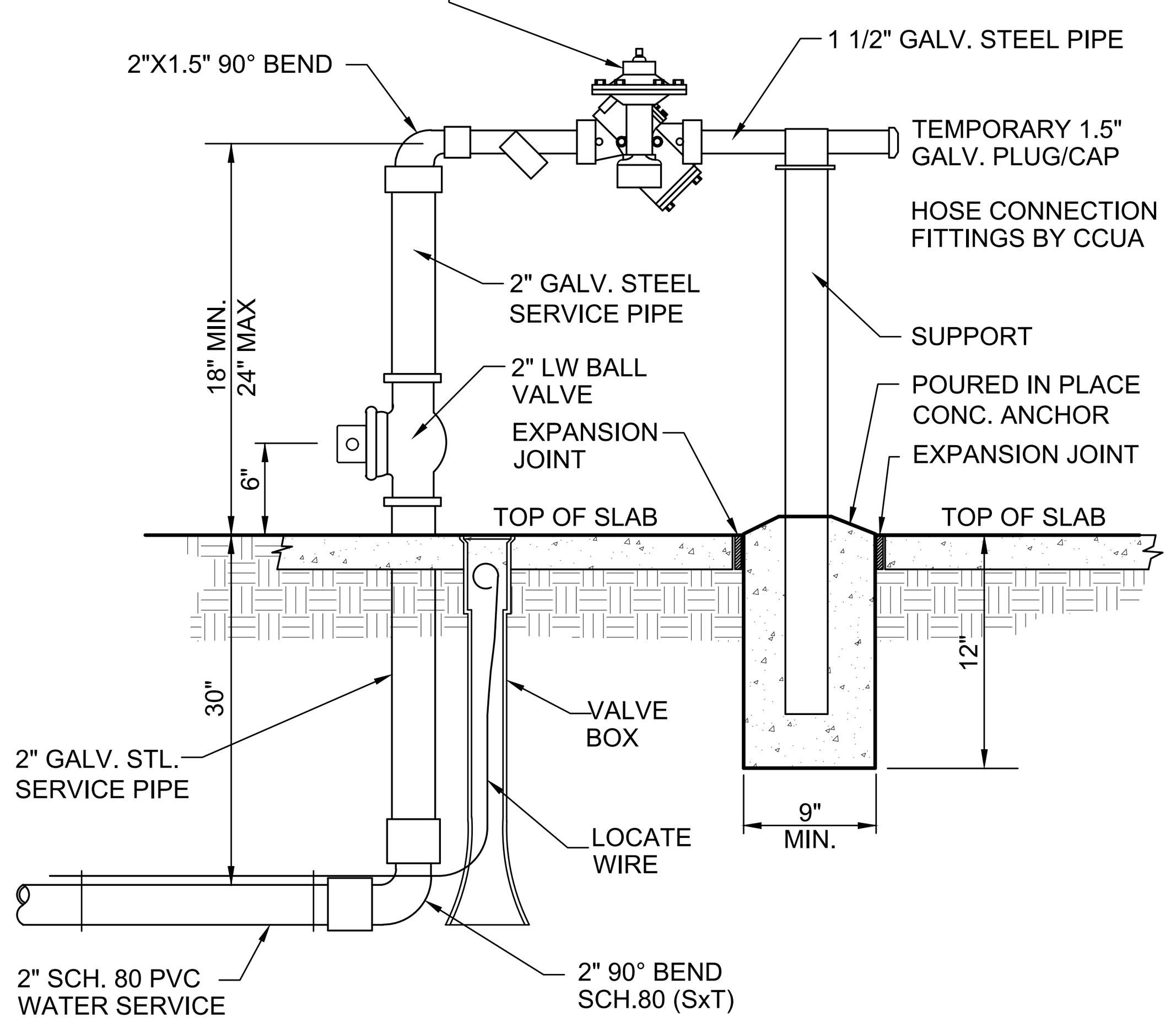
NOT TO SCALE



VENT PIPE (STANDARD) (D)

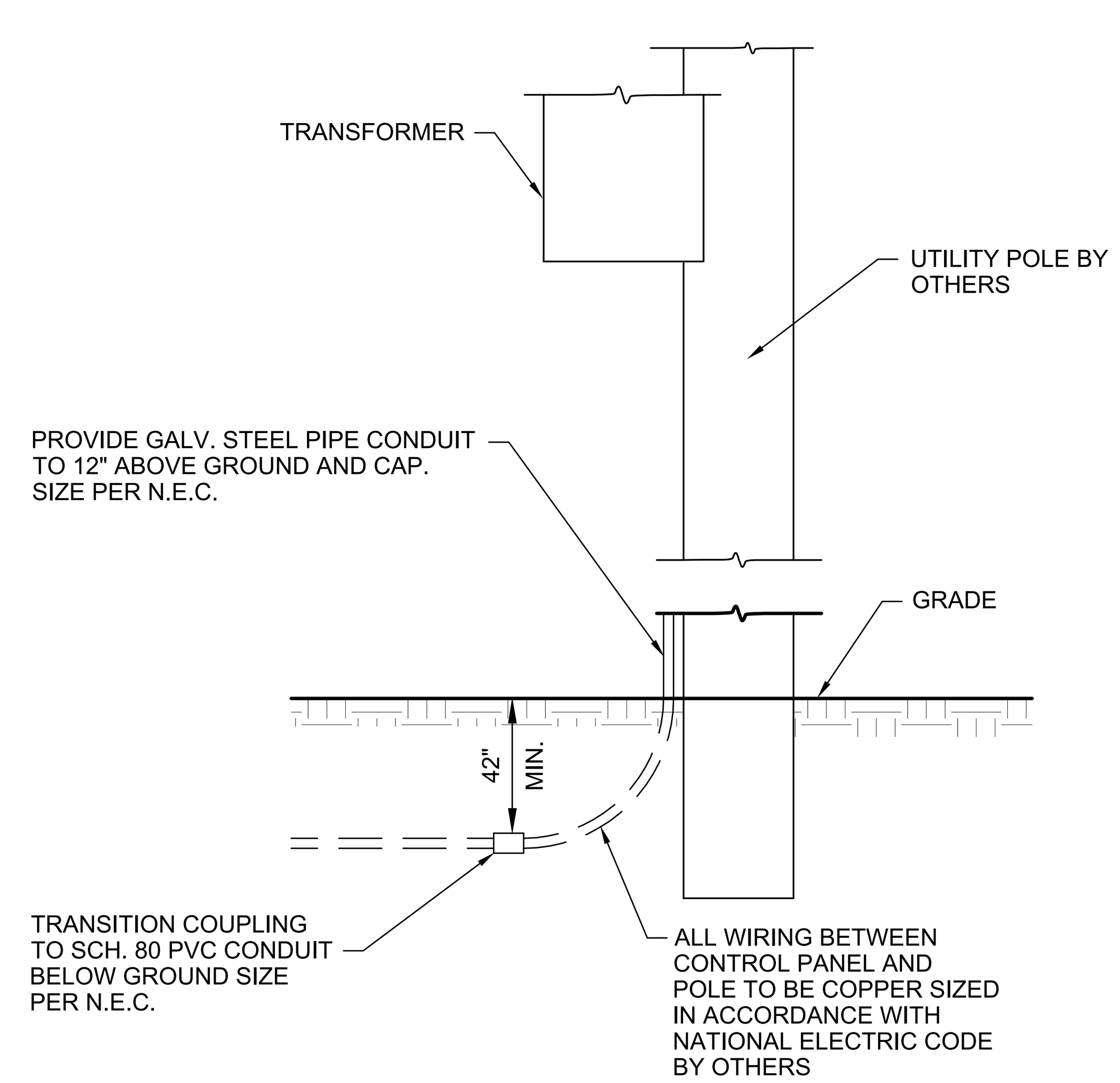
NOT TO SCALE

1.5" REDUCED PRESSURE ZONE BACKFLOW PREVENTION DEVICE OR APPROVED EQUAL. (SEE CCUA MATERIALS STANDARDS SPEC.)



WATER SERVICE (STANDARD) (E)

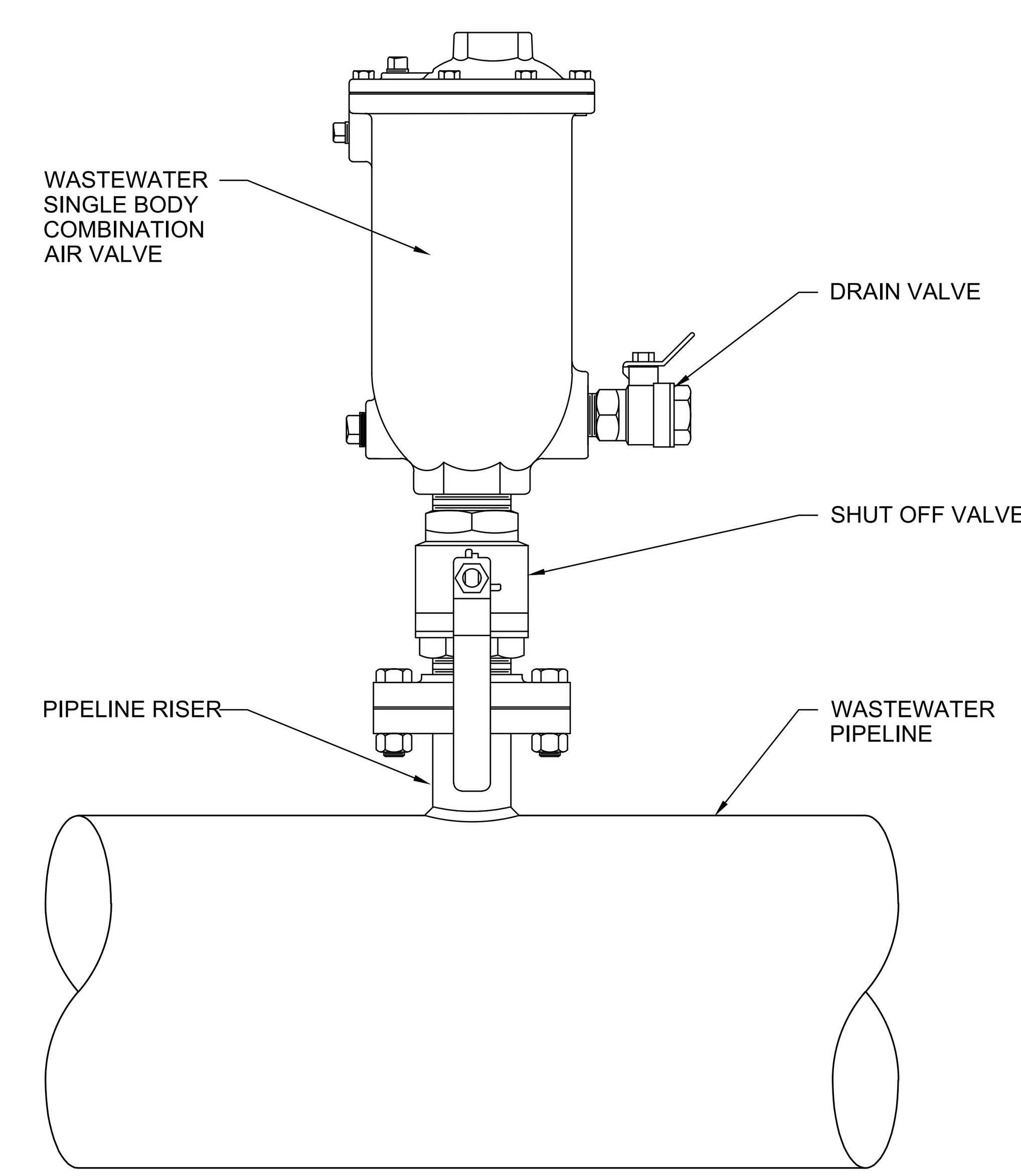
NOT TO SCALE



NOTE:
TO BE USED ONLY WHEN UNDERGROUND SERVICE IS NOT AVAILABLE.

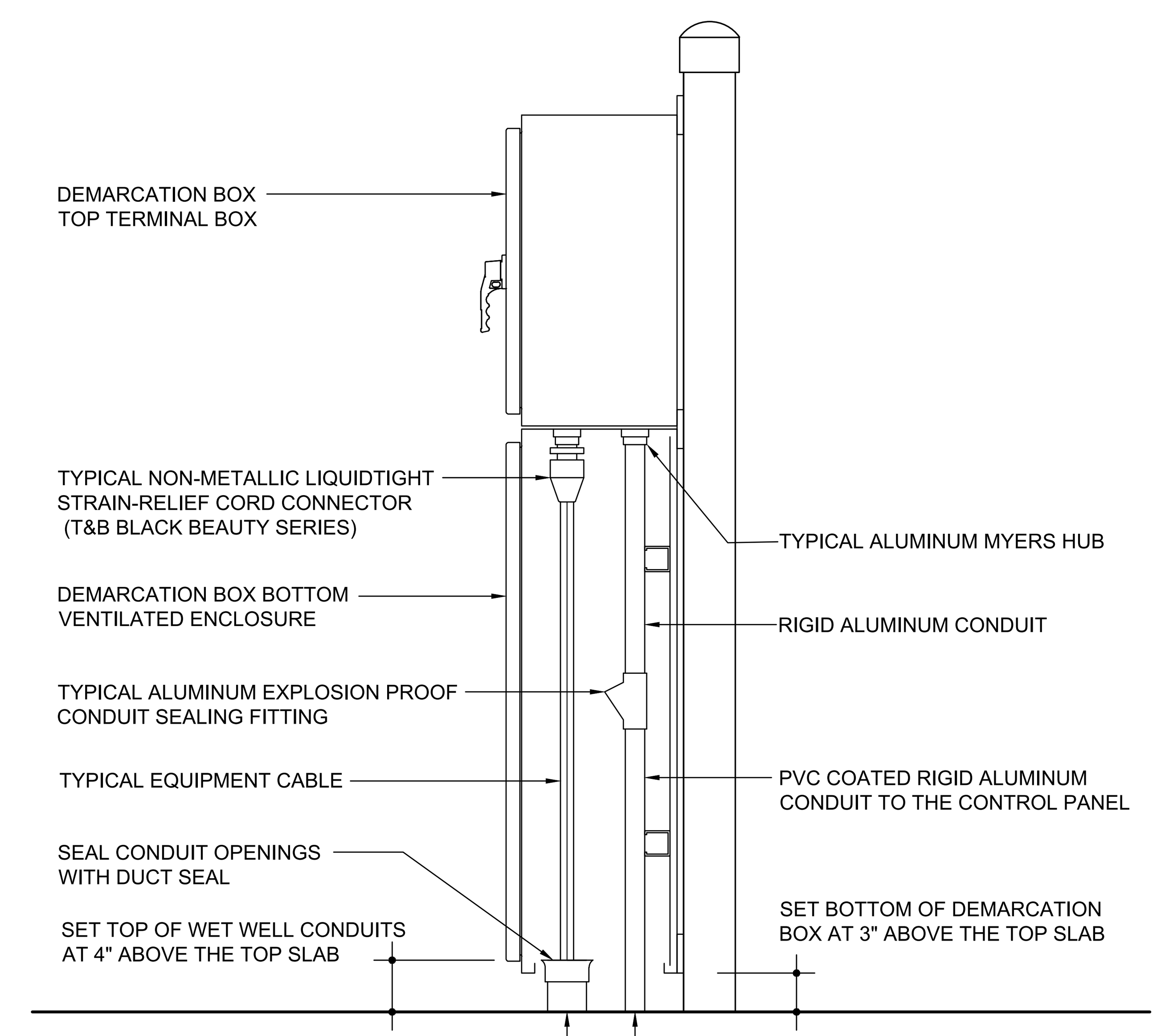
POWER RISER (STANDARD) (F)

NOT TO SCALE



COMBINATION AIR RELEASE VALVE (G)

NOT TO SCALE



FRONT ROW OF CONDUITS TO THE WET WELL:

- SCH 80 PVC CONDUIT WITH ENDBELL
- MINIMUM 3" MOTOR POWER
- MINIMUM 2" FLOAT CABLES

BACK ROW OF CONDUITS TO THE PUMP CONTROL PANEL

WET WELL DEMARCATION BOX CONDUIT DETAIL (G)

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
19	09-24	RHD	REVISED TO ADD DEMARCATION BOX DETAIL
18	06-22	RHD	REVISED TO APPLY 4W ADDITIONS & CORRECTIONS
17	03-22	4W	REVISED TO ABOVE GRADE PIPING
16	10-19	RHD	REVISED GENERAL NOTES
15	06-17	RHD	REVISED NOTES AND DETAILS

DESG	ABB
DRWN	JMC
CHKD	XXX
APRV	XXX
DATE	03/22

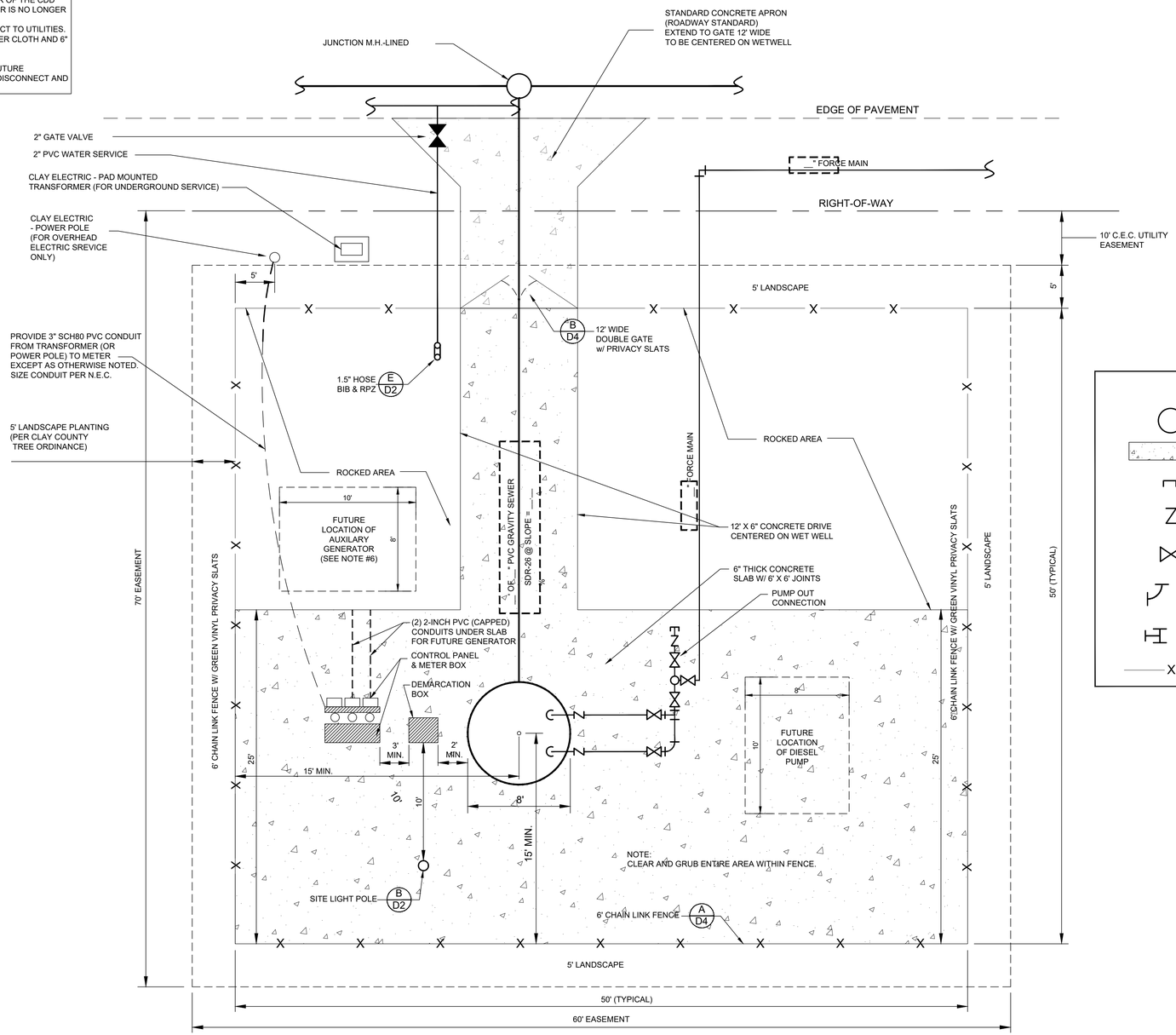
PROJECT:
PUMP STATION DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
D-3

NOTE:
1. ALL LANDSCAPE OR IRRIGATION INSTALLED AT OR AROUND THE LIFT STATION AS PART OF THE PROJECT TO BE MAINTAINED BY DEVELOPER OF THE CDD AND/OR HOMEOWNER'S ASSOCIATION AFTER THE DEVELOPER IS NO LONGER IN CHARGE OF THE PROJECT.
2. LANDSCAPING PLANS APPROVED BY CCUA TO MINIMIZE IMPACT TO UTILITIES.
3. CLEAR AND GRUB ENTIRE AREA WITHIN FENCE, INSTALL FILTER CLOTH AND 6" OF #57 STONE IN AREAS NOT COVERED BY CONCRETE.
4. TOP OF ROCK AREA TO MATCH TOP OF CONCRETE SLAB.
5. PROVIDE (2) 2" DIA. SCH80 PVC CONDUIT UNDER SLAB FOR FUTURE GENERATOR. CAP CONDUIT AT 6" OUTSIDE OF SLAB AND AT DISCONNECT AND AT THE CONTROL PANEL.

= RECTANGLE DENOTES FIELDS FOR SPECIFIC DATA ENTRIES PERTAINING TO THIS PROJECT - DELETE RECTANGLES AFTER ADDING DATA TO DRAWING



LEGEND

- DENOTES MANHOLE
- DENOTES CONCRETE
- DENOTES CAP
- DENOTES CHECK VALVE
- DENOTES GATE or WHEEL VALVE
- DENOTES 90-DEGREE BEND
- DENOTES TEE FITTING
- X DENOTES CHAIN LINK FENCE

TYPICAL PERMANENT PUMP STATION SITE PLAN A

NOT TO SCALE

NO	DATE	BY	REVISION DESCRIPTION
19	09-24	RHD	REVISED TO MOVE CONTROL PANEL 3', OFF DEM. BOX
18	06-22	RHD	REVISED TO APPLY 4W ADDITIONS & CORRECTIONS
17	03-22	4W	REVISED TO ABOVE GRADE PIPING
16	01-19	RHD	REVISED PER CCUA COMMENTS
15	08-17	RHD	REVISED NOTES AND DETAILS

DESG	ABB
DRWN	JMC
CHKD	XXX
APRV	XXX
DATE	03/22

PROJECT:

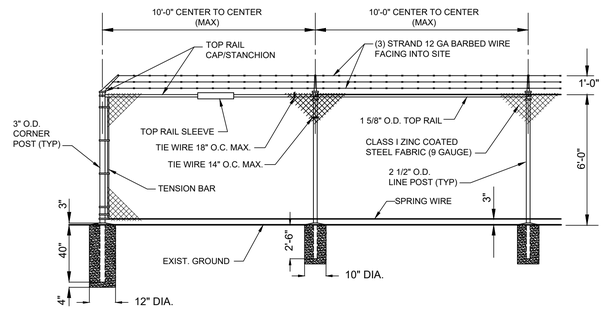
PUMP STATION DETAILS

CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

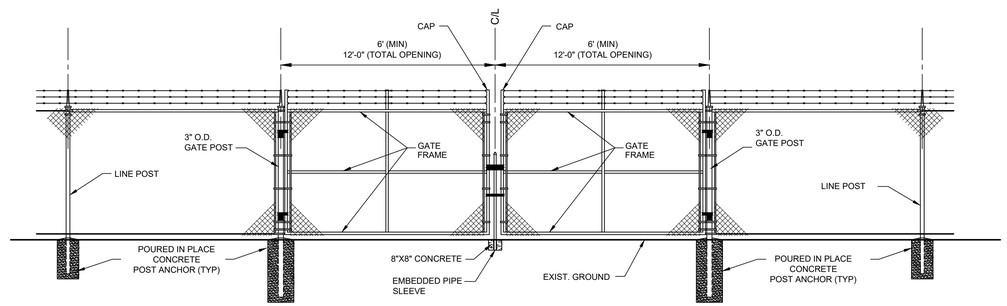
SHEET NO.

D-4



CHAIN LINK FENCE & CORNER POST A

NOT TO SCALE



GATE B

NOT TO SCALE

NOTE:
1. PROVIDE GREEN VINYL PRIVACY SLATS

2. TO MAKE A COMPLETE INSTALLATION, FENCING SHALL BE FURNISHED AND INSTALLED. FENCING SHALL COMPLY WITH ASTM A392-68T LATEST SPECIFICATIONS FOR ZINC COATED STEEL CHAIN LINK FENCE FABRIC AND AS DETAILED ON THE DRAWING. FITTINGS SHALL BE MALLEABLE IRON OR PRESSED STEEL FORGINGS. ALL FERROUS MATERIALS SHALL BE THOROUGHLY GALVANIZED BY THE HOT-DIP METHOD.

A. PRIVACY SLATS: SLATS SHALL BE FLAT/TUBULAR IN SHAPE, ± 0.003") THERMOPLASTIC WITH A WALL THICKNESS OF 0.030". LENGTH AND WIDTH OF SLATS SHALL BE PROVIDED TO ACCOMMODATE CHAIN-LINK FENCE FABRIC AS SPECIFIED HEREIN. SLATS SHALL HAVE A HORIZONTAL LOCKING STRIP TO PROVIDE SECURE ATTACHMENT TO CHAIN-LINK , THE FABRIC, AND PROVIDE A PRIVACY FACTOR OF 85%. MINIMUM WIDTH SLAT SHALL BE 1-1/8".

B. PRIVACY SCREENING: ENVIRONMENTAL PRIVACY SCREENING KNIT RASCHEL, 100%. SHALL BE 86 TO 90 % POLYETHYLENE UV STABILIZED FIBER, COLOR GREEN. SCREENING SHALL BE ATTACHED TO THE FENCE FABRIC WITH SUFFICIENT TIES TO SECURE THE SCREEN. ACCEPTABLE SCREEN: PRIVACY PLUS OR EQUAL.

NO	DATE	BY	REVISION DESCRIPTION
18	06-22	RHD	REVISED TO APPLY 4W ADDITIONS & CORRECTIONS
17	03-22	4W	REVISED TO ABOVE GRADE PIPING
16	09-19	RHD	REVISED DESIGN NOTES
15	06-17	RHD	REVISED NOTES AND DETAILS

DESG ABB
DRWN JMC
CHKD XXX
APRV XXX
DATE 03/22

PROJECT:
PUMP STATION DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
D-5

8/5/2025 11:09:21 AM, PLOTTED BY RHD

NOTES:

1. DESIGN DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH CLAY COUNTY UTILITY AUTHORITY (CCUA) DESIGN STANDARDS AND SPECIFICATIONS.

2. ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS' LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION, INSULATED POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.

3. THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.

4. ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.

5. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.

6. THE PROJECTS GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC SPECIFICATIONS, BONDED TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.

7. DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONALLY, DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.

8. UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/3R ALUMINUM OR 316 STAINLESS STEEL; CONDUCTORS SHALL BE STRANDED AWG TYPE XHHW-2 COPPER; CONDUCTORS WITHIN THE DEMARCATION BOXES SHALL BE TYPE XHHW-2 TINNED COPPER. UNDERGROUND CONDUIT SHALL BE SCH 40 PVC; EXPOSED CONDUIT SHALL BE SCH 80 PVC; CONDUIT INTO THE WET WELL SHALL BE SCHEDULE 80 PVC; CONDUIT FROM DEMARCATION TERMINAL BOXES SHALL BE PVC COATED RIGID ALUMINUM. SUPPORT CHANNEL AND MOUNTING STRUT SHALL BE MINIMUM 1.5" x 1.5" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, ETC. NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".

9. IN ACCORDANCE WITH THE LATEST CCUA STANDARDS, THE NEW PUMP CONTROL PANEL AND DEMARCATION BOX SHALL BE FURNISHED BY A CCUA APPROVED LIFT STATION CONTROL PANEL MANUFACTURER.

10. THE LIFT STATION PUMP CONTROL PANEL SHALL BE PER THE CCUA STANDARDS WITH THE LATEST UPDATES INCLUDING THE FOLLOWING:

    - SCHWEITZER SEL 2411 P STATION CONTROLLER
    - ASHCROFT PRESSURE TRANSMITTER
    - WESTEC CELLULAR ALARM DIALER EQUIPMENT KIT

11. CONTROL PANEL GENERATOR RECEPTACLE SHALL BE CCUA STANDARD COMPATIBLE WITH EXISTING CCUA PORTABLE GENERATOR CONNECTIONS. THE RECEPTACLE AMP RATING SHALL BE BASED ON THE CONTROL PANEL "GCB" RATING:

    - 100A CROUSE-HINDS AR1042-S22 WITH AJA1 ANGLE ADAPTER
    - 200A CROUSE-HINDS AR2042-S22 WITH AJA1 ANGLE ADAPTER

12. PROVIDE NEW ELECTRICAL SERVICE IN ACCORDANCE WITH ALL CLAY ELECTRIC CO-OPERATIVE (CEC) REQUIREMENTS. CONTRACTOR SHALL OBTAIN FAULT CURRENT LETTER FROM CEC FOR THE ELECTRICAL SERVICE. ALL ELECTRICAL EQUIPMENT RATINGS SHALL MEET OR EXCEED THE MAXIMUM AVAILABLE FAULT CURRENT INCLUDING AN ADDITIONAL MOTOR CONTRIBUTION OF 10 X TOTAL MOTOR FULL LOAD AMPS (MINIMUM 18 KAIC).

13. ELECTRICAL SERVICE RATING INCLUDING SERVICE ENTRANCE MAIN BREAKER AND CONTROL PANEL MAIN CIRCUIT BREAKER SHALL BE MINIMUM 100A. WHERE THE SERVICE LOAD AMPACITY EXCEEDS 100A THE ELECTRICAL SERVICE RATING SHALL BE MINIMUM 200A. WHERE THE SERVICE LOAD AMPACITY EXCEEDS 200A THE DESIGN ENGINEERS SHALL OBTAIN APPROVAL OF THE PROPOSED DESIGN FROM CCUA.

14. THE STANDBY GENERATOR SHALL BE CCUA STANDARD TRADEWINDS CUSTOM LIFT STATION PACKAGE WITH MARINE GRADE ALUMINUM WEATHERPROOF HOUSING, DOUBLE WALL BASE FUEL TANK, INTEGRAL INTERIOR MOUNTED AUTOMATIC TRANSFER SWITCH WITH NORMAL SOURCE SPD, AND INTEGRAL EXTERIOR MOUNTED LINE AND LOAD CIRCUIT BREAKERS.

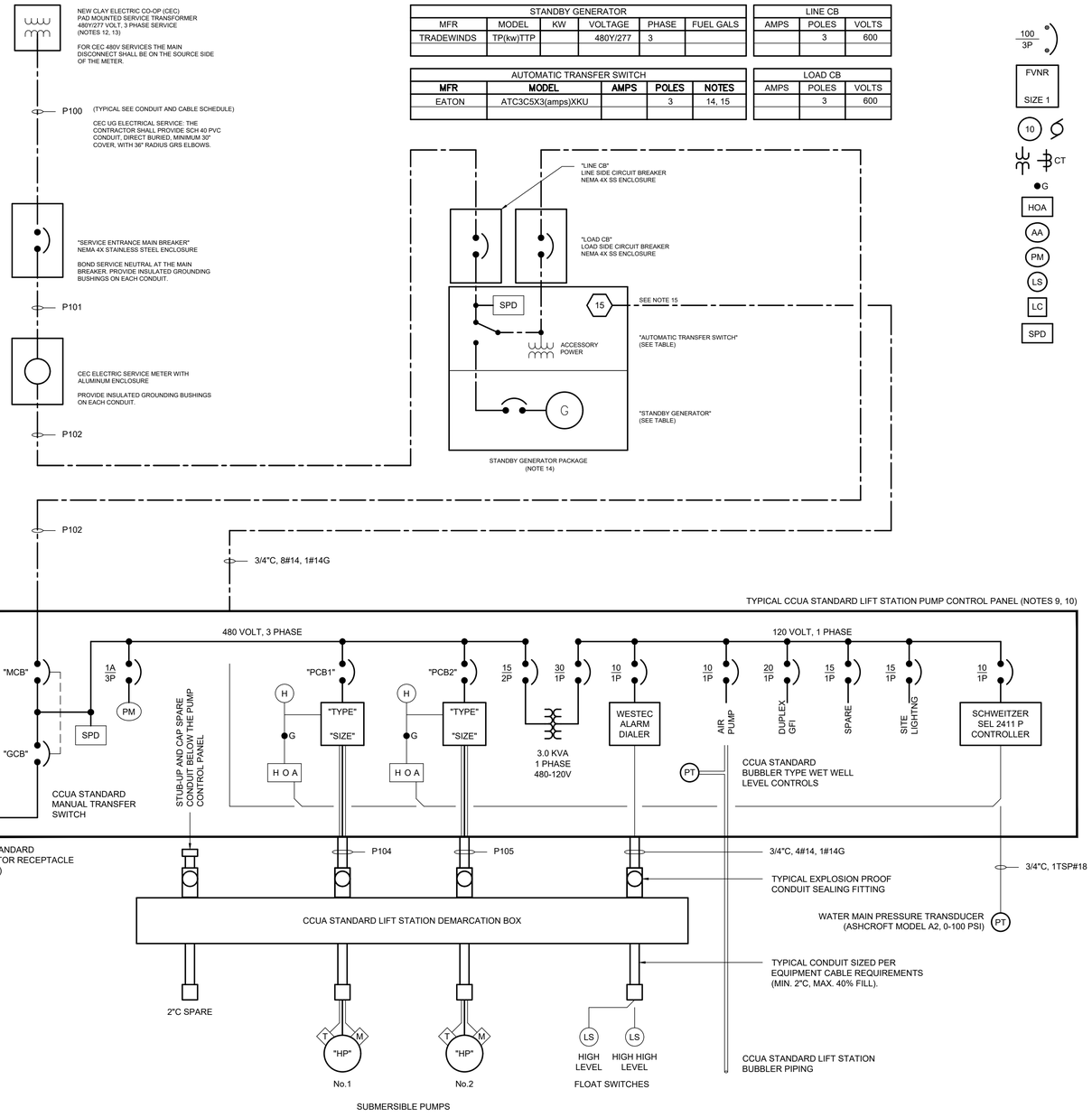
15. STANDBY GENERATOR AND ATS SHALL BE EQUIPPED WITH DRY CONTACTS FOR REMOTE MONITORING:

    - GENERATOR RUNNING
    - GENERATOR FAULT
    - ATS IN NORMAL POSITION
    - ATS IN EMERGENCY POSITION
    - ATS NORMAL SOURCE AVAILABLE
    - ATS EMERGENCY SOURCE AVAIALABLE

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1	__ HP	__	AMPS
LIFT STATION PUMP NO.2	__ HP	__	AMPS
TOTAL MOTOR LOAD		__	AMPS
LIGHTING AND CONTROLS	3 KVA	7	AMPS
TOTAL CONNECTED LOAD		__	AMPS
TOTAL NON-COINCIDENTAL LOAD		0	AMPS
PEAK DEMAND AMPS		__	AMPS
0.25 X LARGEST MOTOR		__	AMPS
MIN SERVICE AMPACITY 3 PHASE		__	AMPS
MIN MAIN BREAKER SIZE (NOTE 13)		__	AMPS

ELECTRICAL SERVICE:
AMP, 480Y/277 VOLT, 3 PHASE



STANDBY GENERATOR					
MFR	MODEL	KW	VOLTAGE	PHASE	FUEL GALS
TRADEWINDS	TP(kw)TTP		480Y/277	3	

LINE CB		
AMPS	POLES	VOLTS
	3	600

AUTOMATIC TRANSFER SWITCH				
MFR	**MODEL**	**AMPS**	**POLES**	**NOTES**
EATON	ATC3C5X3(amps)XKU		3	14, 15

LOAD CB		
AMPS	POLES	VOLTS
	3	600

ELECTRICAL LEGEND

- 100 / 3P — CIRCUIT BREAKER (TRIP RATING/POLES) "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER "PCB" PUMP MOTOR BREAKER
- FVNR / SIZE 1 — MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- 10 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- CT — TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
- G — GREEN "RUNNING" PILOT LIGHT (LED TYPE)
- HOA — HAND OFF AUTO SELECTOR SWITCH
- AA — AUTOMATIC ALTERNATOR
- PM — THREE PHASE POWER MONITOR
- LS — LEVEL SWITCH
- LC — LEVEL CONTROLLER
- SPD — SURGE PROTECTION DEVICE

CONDUIT AND CABLE SCHEDULE				
CONDUIT		CONDUCTORS		
NUMBER	SIZE	PHASE	NEUTRAL	GROUND
P100				– – –
P101				
P102			– – –	
P103			– – –	
P104			– – –	

SERVICE ENTRANCE MAIN BREAKER			
AMPS	POLES	VOLTS	KAIC
	3	600	NOTE 13

PUMP CONTROL PANEL												
DEVICES			PUMPS					PUMP BREAKERS			STARTERS	
TAG	AMPS	POLES	NUMBER	HP	VOLTS	PHASE	FLA	TAG	AMPS	POLES	TYPE	SIZE
MCB		3	1		460	3		PCB1		3	FVNR	
GCB		3	2		460	3		PCB2		3	FVNR	

SUBMERSIBLE PUMP STATION ELECTRICAL
SINGLE LINE DIAGRAM
480V 3PH FOR 40HP OR LESS

07–01–2025
08–01–2025

NO	DATE	BY	REVISION DESCRIPTION

DESG ABB
DRWN JMC
CHKD XXX
APRV XXX
DATE 02/22

PROJECT:
480 VOLT 3PH FOR 40HP OR LESS
SUBMERSIBLE PUMP STATION
ELECTRICAL SCHEMATIC AND DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
S-ELEC1

NOTES:

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    - ASHCROFT PRESSURE TRANSMITTER
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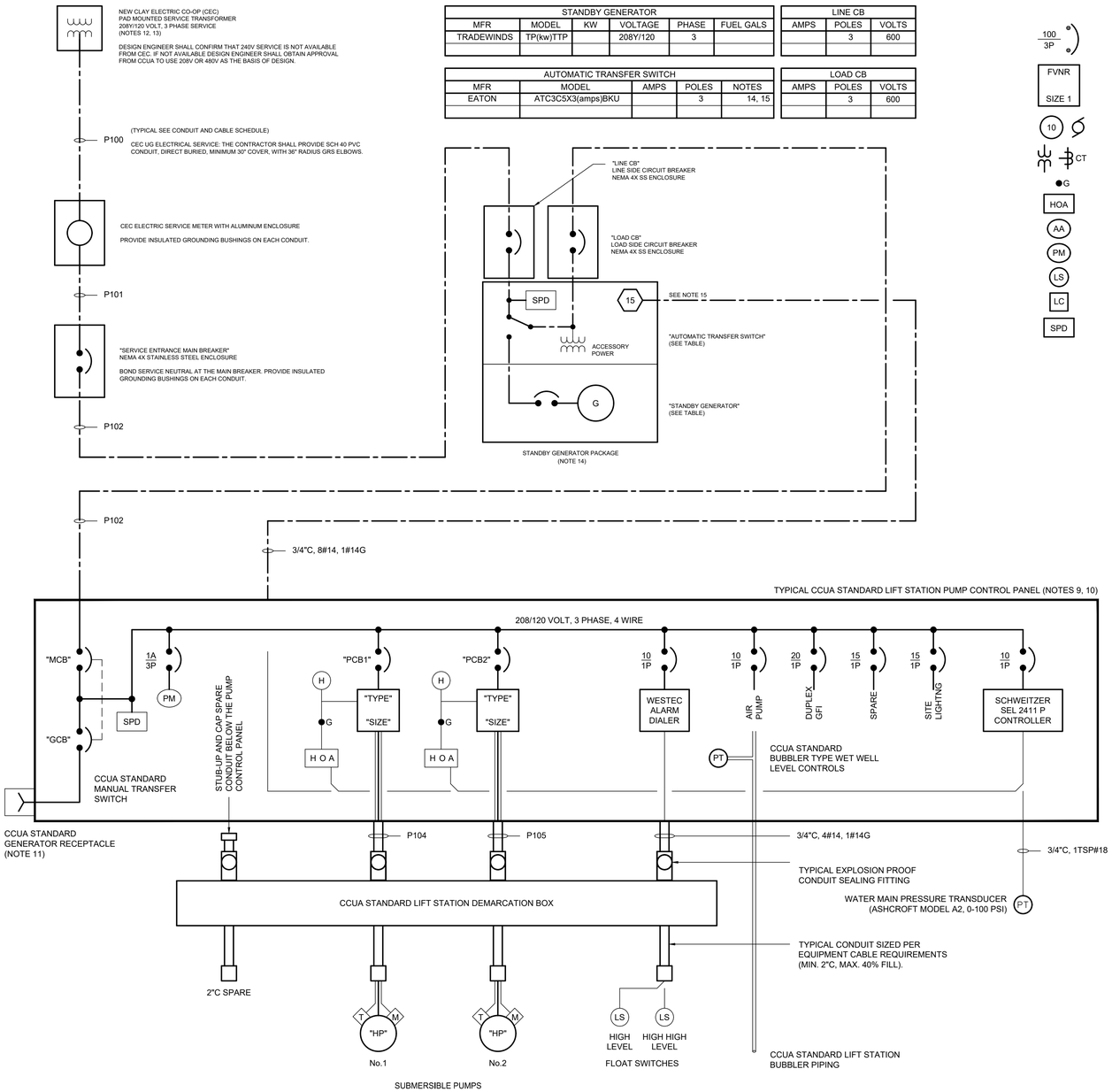
    - GENERATOR FAULT
    - ATS IN NORMAL POSITION
    - ATS IN EMERGENCY POSITION
    - ATS NORMAL SOURCE AVAILABLE
    - ATS EMERGENCY SOURCE AVAIALABLE

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1	__	HP	__	AMPS
LIFT STATION PUMP NO.2	__	HP	__	AMPS
TOTAL MOTOR LOAD			__	AMPS
LIGHTING AND CONTROLS	3	KVA	25	AMPS
TOTAL CONNECTED LOAD			__	AMPS
TOTAL NON-COINCIDENTAL LOAD			0	AMPS
PEAK DEMAND AMPS			__	AMPS
0.25 X LARGEST MOTOR			__	AMPS
MIN SERVICE AMPACITY 3 PHASE			__	AMPS
MIN MAIN BREAKER SIZE (NOTE 13)			__	AMPS

ELECTRICAL SERVICE:
AMP, 208Y/120 VOLT, 3 PHASE



STANDBY GENERATOR					
MFR	MODEL	KW	VOLTAGE	PHASE	FUEL GALS
TRADEWINDS	TP(kw)TTP		208Y/120	3	

LINE CB		
AMPS	POLES	VOLTS
	3	600

AUTOMATIC TRANSFER SWITCH				
MFR	MODEL	AMPS	POLES	NOTES
EATON	ATC3C5X3(amps)BKU		3	14, 15

LOAD CB		
AMPS	POLES	VOLTS
	3	600

ELECTRICAL LEGEND

- 100 / 3P — CIRCUIT BREAKER (TRIP RATING/POLES) "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER "PCB" PUMP MOTOR BREAKER
- FVNR / SIZE 1 — MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- 10 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- CT — TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
- G — GREEN "RUNNING" PILOT LIGHT (LED TYPE)
- HOA — HAND OFF AUTO SELECTOR SWITCH
- AA — AUTOMATIC ALTERNATOR
- PM — THREE PHASE POWER MONITOR
- LS — LEVEL SWITCH
- LC — LEVEL CONTROLLER
- SPD — SURGE PROTECTION DEVICE

CONDUIT AND CABLE SCHEDULE				
CONDUIT		CONDUCTORS		
NUMBER	SIZE	PHASE	NEUTRAL	GROUND
P100				---
P101				
P102				
P103			---	
P104			---	

SERVICE ENTRANCE MAIN BREAKER			
AMPS	POLES	VOLTS	KAIC
	3	600	NOTE 13

PUMP CONTROL PANEL													
DEVICES			PUMPS					PUMP BREAKERS			STARTERS	
TAG	AMPS	POLES	NUMBER	HP	VOLTS	PHASE	FLA	TAG	AMPS	POLES	TYPE	SIZE
MCB		3	1		208	3		PCB1		3	FVNR	
GCB		3	2		208	3		PCB2		3	FVNR	

SUBMERSIBLE PUMP STATION ELECTRICAL
SINGLE LINE DIAGRAM
208V 3PH FOR 20HP OR LESS

07–01–2025
08–01–2025

NO	DATE	BY	REVISION DESCRIPTION

DESG ABB
DRWN JMC
CHKD XXX
APRV XXX
DATE 02/22

PROJECT:
208 3PH VOLT FOR 20HP OR LESS
SUBMERSIBLE PUMP STATION
ELECTRICAL SCHEMATIC AND DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
S-ELEC2

NOTES:

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2. ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS' LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION, INSULATED POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.

3. THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.

4. ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.

5. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.

6. THE PROJECTS GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC SPECIFICATIONS, BONDED TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.

7. DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONALLY, DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.

8. UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/3R ALUMINUM OR 316 STAINLESS STEEL; CONDUCTORS SHALL BE STRANDED AWG TYPE XHHW-2 COPPER; CONDUCTORS WITHIN THE DEMARCATION BOXES SHALL BE TYPE XHHW-2 TINNED COPPER. UNDERGROUND CONDUIT SHALL BE SCH 40 PVC; EXPOSED CONDUIT SHALL BE SCH 80 PVC; CONDUIT INTO THE WET WELL SHALL BE SCHEDULE 80 PVC; CONDUIT FROM DEMARCATION TERMINAL BOXES SHALL BE PVC COATED RIGID ALUMINUM. SUPPORT CHANNEL AND MOUNTING STRUT SHALL BE MINIMUM 1.5" x 1.5" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, ETC. NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".

9. IN ACCORDANCE WITH THE LATEST CCUA STANDARDS, THE NEW PUMP CONTROL PANEL AND DEMARCATION BOX SHALL BE FURNISHED BY A CCUA APPROVED LIFT STATION CONTROL PANEL MANUFACTURER.

10. THE LIFT STATION PUMP CONTROL PANEL SHALL BE PER THE CCUA STANDARDS WITH THE LATEST UPDATES INCLUDING THE FOLLOWING:

    - SCHWEITZER SEL 2411 P STATION CONTROLLER
    - ASHCROFT PRESSURE TRANSMITTER
    - WESTEC CELLULAR ALARM DIALER EQUIPMENT KIT

11. CONTROL PANEL GENERATOR RECEPTACLE SHALL BE CCUA STANDARD COMPATIBLE WITH EXISTING CCUA PORTABLE GENERATOR CONNECTIONS. THE RECEPTACLE AMP RATING SHALL BE BASED ON THE CONTROL PANEL "GCB" RATING:

    - 100A CROUSE-HINDS AR1042-S22 WITH AJA1 ANGLE ADAPTER
    - 200A CROUSE-HINDS AR2042-S22 WITH AJA1 ANGLE ADAPTER

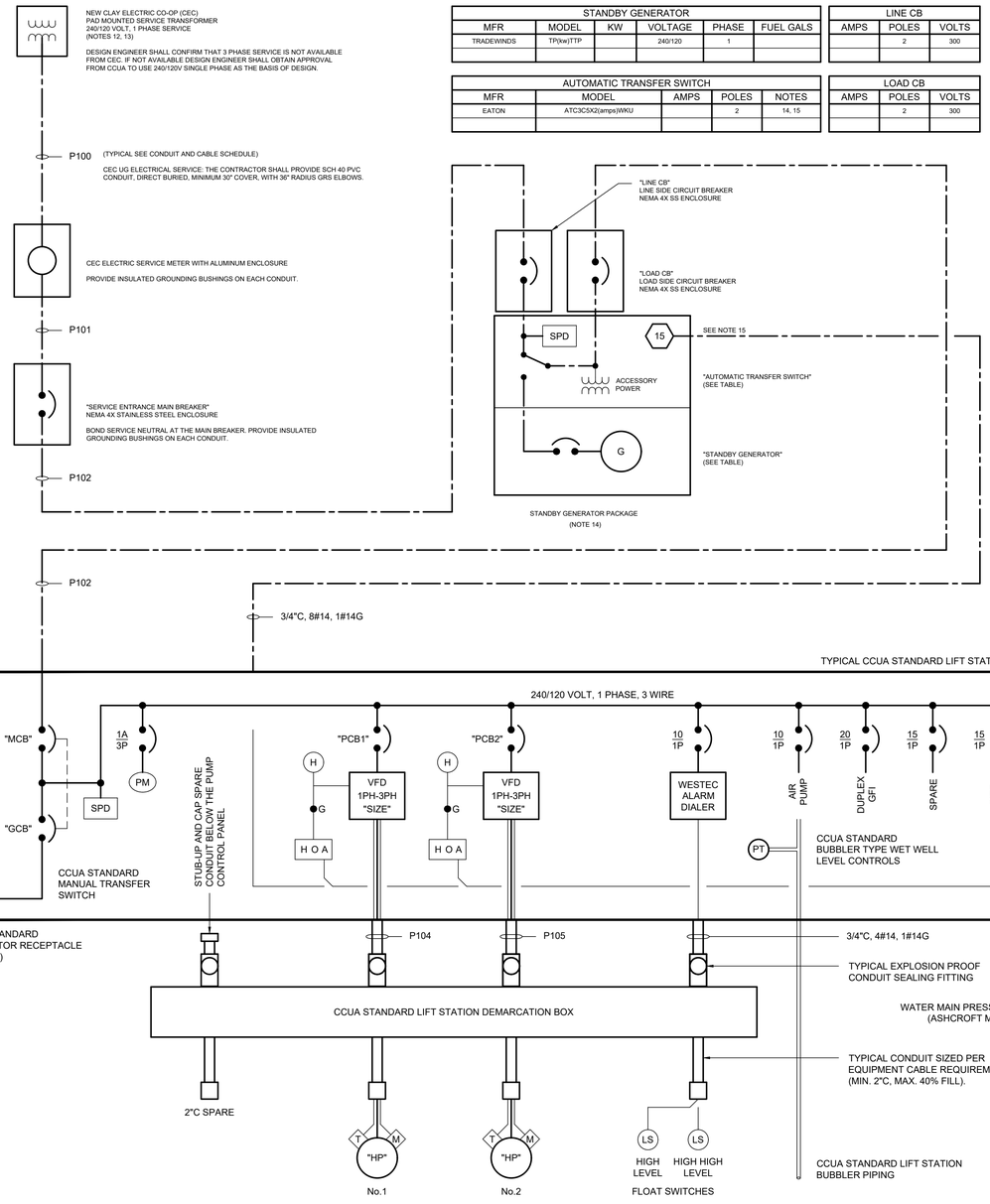
12. PROVIDE NEW ELECTRICAL SERVICE IN ACCORDANCE WITH ALL CLAY ELECTRIC CO-OPERATIVE (CEC) REQUIREMENTS. CONTRACTOR SHALL OBTAIN FAULT CURRENT LETTER FROM CEC FOR THE ELECTRICAL SERVICE. ALL ELECTRICAL EQUIPMENT RATINGS SHALL MEET OR EXCEED THE MAXIMUM AVAILABLE FAULT CURRENT INCLUDING AN ADDITIONAL MOTOR CONTRIBUTION OF 10 X TOTAL MOTOR FULL LOAD AMPS (MINIMUM 18 KAIC).

13. ELECTRICAL SERVICE RATING INCLUDING SERVICE ENTRANCE MAIN BREAKER AND CONTROL PANEL MAIN CIRCUIT BREAKER SHALL BE MINIMUM 100A. WHERE THE SERVICE LOAD AMPACITY EXCEEDS 100A THE ELECTRICAL SERVICE RATING SHALL BE MINIMUM 200A. WHERE THE SERVICE LOAD AMPACITY EXCEEDS 200A THE DESIGN ENGINEERS SHALL OBTAIN APPROVAL OF THE PROPOSED DESIGN FROM CCUA.

14. THE STANDBY GENERATOR SHALL BE CCUA STANDARD TRADEWINDS CUSTOM LIFT STATION PACKAGE WITH MARINE GRADE ALUMINUM WEATHERPROOF HOUSING, DOUBLE WALL BASE FUEL TANK, INTEGRAL INTERIOR MOUNTED AUTOMATIC TRANSFER SWITCH WITH NORMAL SOURCE SPD, AND INTEGRAL EXTERIOR MOUNTED LINE AND LOAD CIRCUIT BREAKERS.

15. STANDBY GENERATOR AND ATS SHALL BE EQUIPPED WITH DRY CONTACTS FOR REMOTE MONITORING:

    - GENERATOR RUNNING
    - GENERATOR FAULT
    - ATS IN NORMAL POSITION
    - ATS IN EMERGENCY POSITION
    - ATS NORMAL SOURCE AVAILABLE
    - ATS EMERGENCY SOURCE AVAIALABLE



STANDBY GENERATOR					
MFR	MODEL	KW	VOLTAGE	PHASE	FUEL GALS
TRADEWINDS	TP(kw)TTP		240/120	1	

LINE CB		
AMPS	POLES	VOLTS
	2	300

AUTOMATIC TRANSFER SWITCH				
MFR	MODEL	AMPS	POLES	NOTES
EATON	ATC3C5X2(amps)WKU		2	14, 15

LOAD CB		
AMPS	POLES	VOLTS
	2	300

ELECTRICAL LEGEND

- 100 / 3P — CIRCUIT BREAKER (TRIP RATING/POLES) "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER "PCB" PUMP MOTOR BREAKER
- FVNR / SIZE 1 — MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- 10 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- CT — TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
- G — GREEN "RUNNING" PILOT LIGHT (LED TYPE)
- HOA — HAND OFF AUTO SELECTOR SWITCH
- AA — AUTOMATIC ALTERNATOR
- PM — THREE PHASE POWER MONITOR
- LS — LEVEL SWITCH
- LC — LEVEL CONTROLLER
- SPD — SURGE PROTECTION DEVICE

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1	__ HP 1PH	__	AMPS
LIFT STATION PUMP NO.2	__ HP 1PH	__	AMPS
TOTAL MOTOR LOAD		__	AMPS
LIGHTING AND CONTROLS	3 KVA	25	AMPS
TOTAL CONNECTED LOAD		__	AMPS
TOTAL NON-COINCIDENTAL LOAD		0	AMPS
PEAK DEMAND AMPS		__	AMPS
0.25 X LARGEST MOTOR		__	AMPS
MIN SERVICE AMPACITY 3 PHASE		__	AMPS
MIN MAIN BREAKER SIZE (NOTE 13)		__	AMPS

ELECTRICAL SERVICE:
AMP, 240/120 VOLT, 1 PHASE

CONDUIT AND CABLE SCHEDULE				
CONDUIT		CONDUCTORS		
NUMBER	SIZE	PHASE	NEUTRAL	GROUND
P100				---
P101				
P102				
P103			---	
P104			---	

SERVICE ENTRANCE MAIN BREAKER			
AMPS	POLES	VOLTS	KAIC
	2	300	NOTE 13

PUMP CONTROL PANEL													
DEVICES			PUMPS					PUMP BREAKERS			STARTERS	
TAG	AMPS	POLES	NUMBER	HP	VOLTS	PHASE	FLA	TAG	AMPS	POLES	TYPE	SIZE
MCB		2	1		230	3		PCB1		2	VFD	
GCB		2	2		230	3		PCB2		2	VFD	

SUBMERSIBLE PUMP STATION ELECTRICAL SINGLE LINE DIAGRAM 240/120V 1PH VFD PANEL

07–01–2025
08–01–2025

NO	DATE	BY	REVISION DESCRIPTION

DESG ABB
DRWN JMC
CHKD XXX
APRV XXX
DATE 02/22

PROJECT:
240/120 VOLT FOR 25HP OR LESS SUBMERSIBLE PUMP STATION
ELECTRICAL SCHEMATIC AND DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
S-ELEC3

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1. DESIGN DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH CLAY COUNTY UTILITY AUTHORITY (CCUA) DESIGN STANDARDS AND SPECIFICATIONS.

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    - ATS IN NORMAL POSITION
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    - ATS EMERGENCY SOURCE AVAIALABLE

NEW CLAY ELECTRIC CO-OP (CEC)
PAD MOUNTED SERVICE TRANSFORMER BANK
240/120 VOLT, 3 PHASE, OPEN DELTA SERVICE
(NOTES 12, 13)

DESIGN ENGINEER SHALL CONFIRM THAT 240V SERVICE IS AVAILABLE FROM CEC. IF NOT AVAILABLE DESIGN ENGINEER SHALL OBTAIN APPROVAL FROM CCUA TO USE 208V OR 480V AS THE BASIS OF DESIGN.

P100 (TYPICAL SEE CONDUIT AND CABLE SCHEDULE)

CEC UG ELECTRICAL SERVICE: THE CONTRACTOR SHALL PROVIDE SCH 40 PVC CONDUIT, DIRECT BURIED, MINIMUM 30" COVER, WITH 36" RADIUS GRS ELBOWS.

CEC ELECTRIC SERVICE METER WITH ALUMINUM ENCLOSURE

PROVIDE INSULATED GROUNDING BUSHINGS ON EACH CONDUIT.

P101

"SERVICE ENTRANCE MAIN BREAKER"
NEMA 4X STAINLESS STEEL ENCLOSURE

BOND SERVICE NEUTRAL AT THE MAIN BREAKER. PROVIDE INSULATED GROUNDING BUSHINGS ON EACH CONDUIT.

P102

STANDBY GENERATOR					
MFR	MODEL	KW	VOLTAGE	PHASE	FUEL GALS
TRADEWINDS	TP(kw)TTP		240/120	3	

LINE CB		
AMPS	POLES	VOLTS
	3	600

AUTOMATIC TRANSFER SWITCH				
MFR	MODEL	AMPS	POLES	NOTES
EATON	ATC3(C5X3(amps)WKU		3	14, 15

LOAD CB		
AMPS	POLES	VOLTS
	3	600

"LINE CB"
LINE SIDE CIRCUIT BREAKER
NEMA 4X SS ENCLOSURE

"LOAD CB"
LOAD SIDE CIRCUIT BREAKER
NEMA 4X SS ENCLOSURE

SPD

15 SEE NOTE 15

ACCESSORY POWER

"AUTOMATIC TRANSFER SWITCH"
(SEE TABLE)

G "STANDBY GENERATOR"
(SEE TABLE)

STANDBY GENERATOR PACKAGE
(NOTE 14)

P102

3/4"C, 8#14, 1#14G

TYPICAL CCUA STANDARD LIFT STATION PUMP CONTROL PANEL (NOTES 9, 10)

240/120 VOLT, 3 PHASE, 4 WIRE

"MCB" 1A 3P PM

"GCB" SPD

CCUA STANDARD MANUAL TRANSFER SWITCH

STUB-UP AND CAP SPARE CONDUIT BELOW THE PUMP CONTROL PANEL

"PCB1" H G "TYPE" "SIZE" H O A

"PCB2" H G "TYPE" "SIZE" H O A

10 1P WESTEC ALARM DIALER

10 1P AIR PUMP

20 1P DUPLEX GFI

15 1P SPARE

15 1P SITE LIGHTING

10 1P SCHWEITZER SEL 2411 P CONTROLLER

PT CCUA STANDARD BUBBLER TYPE WET WELL LEVEL CONTROLS

CCUA STANDARD GENERATOR RECEPTACLE (NOTE 11)

P104 P105

3/4"C, 4#14, 1#14G

TYPICAL EXPLOSION PROOF CONDUIT SEALING FITTING

3/4"C, 1TSP#18

WATER MAIN PRESSURE TRANSDUCER (ASHCROFT MODEL A2, 0-100 PSI) PT

CCUA STANDARD LIFT STATION DEMARCATION BOX

TYPICAL CONDUIT SIZED PER EQUIPMENT CABLE REQUIREMENTS (MIN. 2"C, MAX. 40% FILL).

2"C SPARE

T M "HP" No.1

T M "HP" No.2

LS LS HIGH LEVEL HIGH HIGH LEVEL FLOAT SWITCHES

CCUA STANDARD LIFT STATION BUBBLER PIPING

SUBMERSIBLE PUMPS

ELECTRICAL LEGEND

- 100 / 3P — CIRCUIT BREAKER (TRIP RATING/POLES) "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER "PCB" PUMP MOTOR BREAKER
- FVNR / SIZE 1 — MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- 10 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- CT — TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
- G — GREEN "RUNNING" PILOT LIGHT (LED TYPE)
- HOA — HAND OFF AUTO SELECTOR SWITCH
- AA — AUTOMATIC ALTERNATOR
- PM — THREE PHASE POWER MONITOR
- LS — LEVEL SWITCH
- LC — LEVEL CONTROLLER
- SPD — SURGE PROTECTION DEVICE

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1		HP		AMPS
LIFT STATION PUMP NO.2		HP		AMPS
TOTAL MOTOR LOAD				AMPS
LIGHTING AND CONTROLS	3	KVA	25	AMPS
TOTAL CONNECTED LOAD				AMPS
TOTAL NON-COINCIDENTAL LOAD			0	AMPS
PEAK DEMAND AMPS				AMPS
0.25 X LARGEST MOTOR				AMPS
MIN SERVICE AMPACITY 3 PHASE				AMPS
MIN MAIN BREAKER SIZE (NOTE 13)				AMPS

ELECTRICAL SERVICE:
AMP, 240/120 VOLT, 3 PHASE OPEN DELTA

CONDUIT AND CABLE SCHEDULE				
CONDUIT		CONDUCTORS		
NUMBER	SIZE	PHASE	NEUTRAL	GROUND
P100				---
P101				
P102				
P103			---	
P104			---	

SERVICE ENTRANCE MAIN BREAKER			
AMPS	POLES	VOLTS	KAIC
	3	600	NOTE 13

PUMP CONTROL PANEL												
DEVICES			PUMPS					PUMP BREAKERS			STARTERS	
TAG	AMPS	POLES	NUMBER	HP	VOLTS	PHASE	FLA	TAG	AMPS	POLES	TYPE	SIZE
MCB		3	1		230	3		PCB1		3	FVNR	
GCB		3	2		230	3		PCB2		3	FVNR	

SUBMERSIBLE PUMP STATION ELECTRICAL SINGLE LINE DIAGRAM 240V 3PH FOR 20HP OR LESS

07-01-2025
08-01-2025

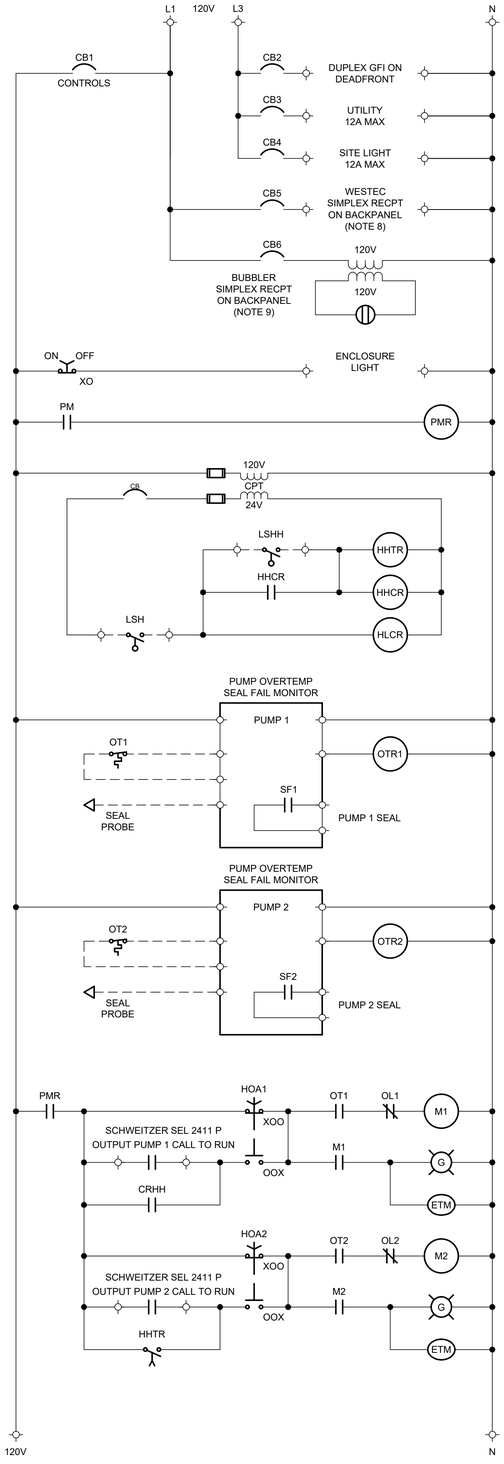
NO	DATE	BY	REVISION DESCRIPTION

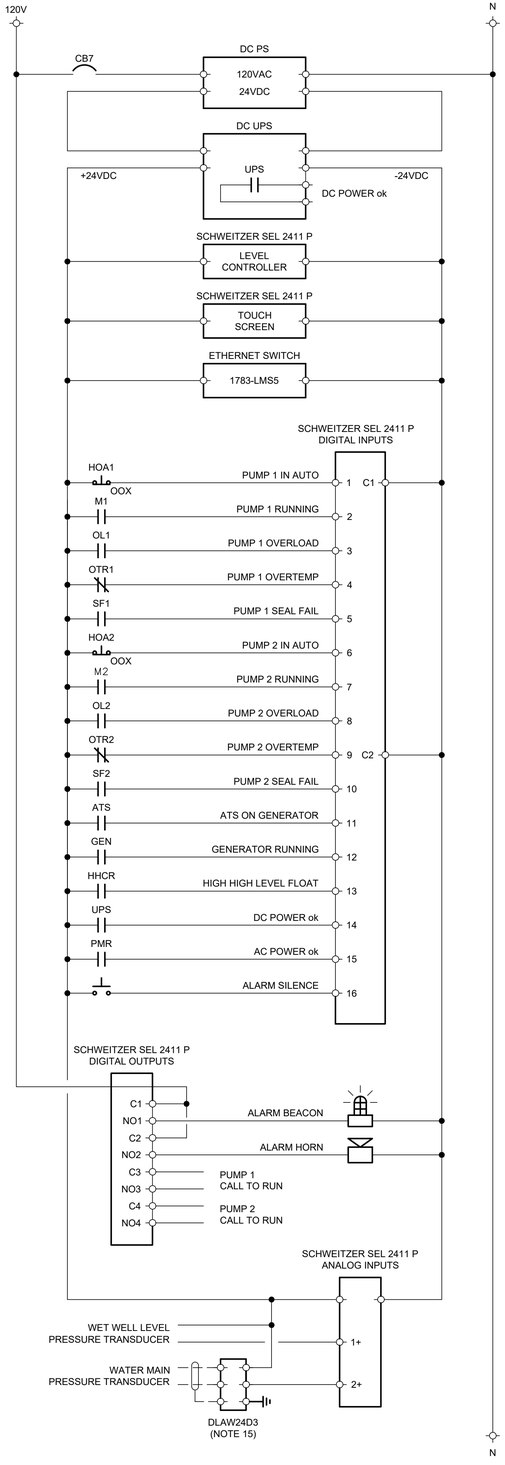
DESG ABB
DRWN JMC
CHKD XXX
APRV XXX
DATE 02/22

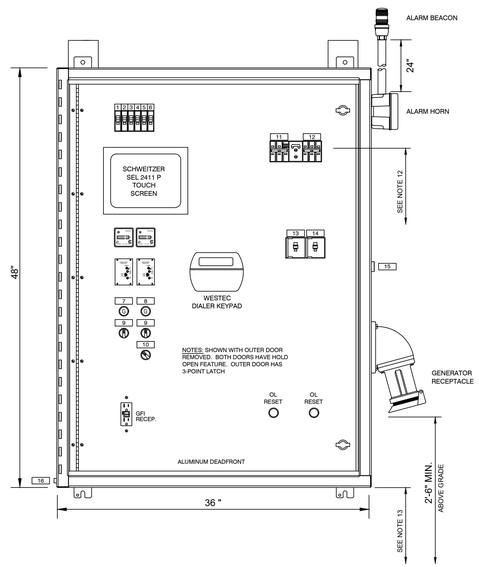
PROJECT:
240 VOLT 3PH FOR 20HP OR LESS
SUBMERSIBLE PUMP STATION
ELECTRICAL SCHEMATIC AND DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.
S-ELEC4



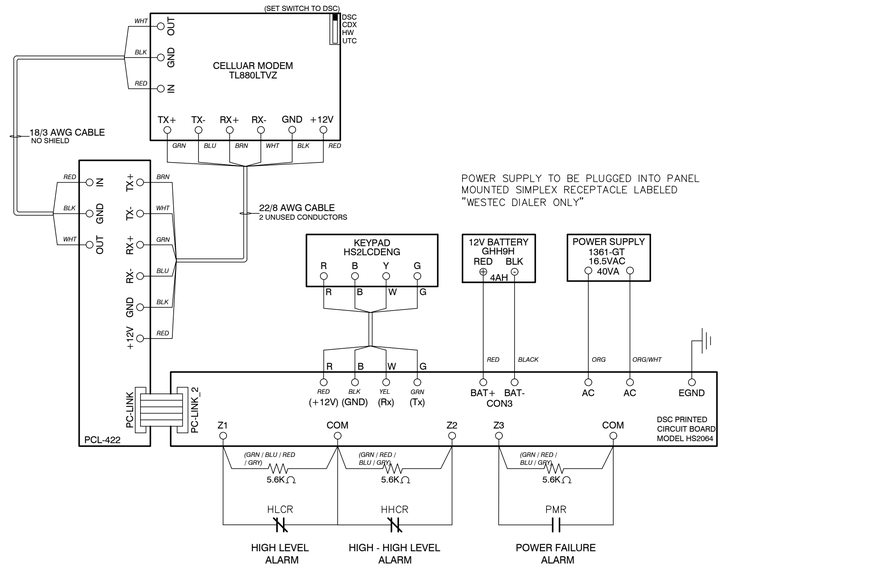




NAMEPLATE SCHEDULE			
1	CONTROL	9	HAND OFF AUTO
2	GFI RECEPTACLE	10	PANEL LIGHT / OFF-ON
3	UTILITY	11	MAIN
4	SITE LIGHT	12	EMERGENCY
5	WESTEC	13	PUMP 1
6	AIR PUMP	14	PUMP 2
7	PUMP 1 RUNNING	15	HORN SILENCE
8	PUMP 2 RUNNING	16	BUBBLER OUTLET

NOTES:

1. THE PUMP CONTROL PANEL SHALL BE A CCUA STANDARD LIFT STATION PUMP CONTROL PANEL WITH THE LATEST UPDATES INCLUDING THE FOLLOWING:
   - SCHWEITZER SEL 2411 P STATION CONTROLLER
   - ASHCROFT PRESSURE TRANSMITTER
   - WESTEC CELLULAR ALARM DIALER EQUIPMENT KIT
2. THE PUMP CONTROL PANEL, DEMARCATION BOXES AND MOTOR CONTROL CETNER SHALL BE FURNISHED BY A CCUA APPROVED LIFT STATION PUMP CONTROL PANEL MANUFACTURER.
3. THE PUMP CONTROL PANEL ENCLOSURE SHALL BE NEMA 4X TYPE 304 STAINLESS STEEL DOOR-IN-DOOR ENCLOSURE WITH 3-POINT PADLOCKABLE HANDLE. INNER AND OUTER DOORS SHALL INCLUDE HOLD OPEN KIT. INNER DOOR SHALL BE FABRICATED FROM 0.125 ALUMINUM. BACKPANEL SHALL HAVE BAKED ON WHITE ENAMEL FINISH.
4. MOTOR STARTERS SHALL BE A MINIMUM OF 8" ABOVE BOTTOM OF CONTROL PANEL WITH NO OBSTRUCTION TO WIRING.
5. GROUNDING BUSS SHALL BE EASILY ACCESSIBLE.
6. REDUCED VOLTAGE, NON REVERSING SOLID STATE MOTOR STARTERS (SOFT START) SHALL BE USED ON 208V OR 240V ELECTRIC SERVICE FOR PUMP MOTORS GREATER THAN 20 HP, AND ON 480V ELECTRIC SERVICE FOR PUMP MOTORS GREATER THAN 40 HP.
7. ALL CIRCUIT BREAKERS AND SWITCHES SHALL BE SQUARE D OR EATON ONLY. VERIFY WITH UTILITY AT TIME OF DESIGN.
8. BACKPANEL MOUNTED SIMPLEX RECEPTACLE TO BE USED FOR THE WESTEC POWER SUPPLY SHALL BE LABELED "WESTEC DIALER ONLY".
9. BACKPANEL MOUNTED SIMPLEX RECEPTACLE TO BE USED FOR THE BUBBLER SYSTEM AIR PUMP SHALL BE LABELED "AIR PUMP ONLY".
10. FINAL APPROVED "AS BUILT" SCHEMATIC DRAWINGS SHALL BE LAMINATED TO THE INSIDE OF THE OUTER DOOR.
11. ALL EXTERIOR FASTENERS, ANCHORS, AND HARDWARE SHALL BE 316 S.S.
12. MOUNT ENCLOSURE SO THAT HEIGHT OF CIRCUIT BREAKER HANDLE IS 68" MAXIMUM FROM GROUND.
13. MOUNT ENCLOSURE SO THAT THE BOTTOM OF THE CONTROL PANEL IS ABOVE THE 100 YR. FLOOD ELEVATION.
14. PUMP VOLTAGE AND CONTROL PANEL VOLTAGE SHALL MATCH THE SERVICE VOLTAGE.
15. PROVIDE SIGNAL LINE SURGE PROTECTOR FOR THE WATER MAIN PRESSURE TRANSDUCER ANALOG INPUT SIGNAL.



WESTEC ALARM DIALER DIAGRAM

SUBMERSIBLE PUMP STATION PUMP CONTROL PANEL SCHEMATIC

07–01–2025
08–01–2025

NO	DATE	BY	REVISION DESCRIPTION

DESG	ABB	APRV	XXX
DRWN	JMC	DATE	02/22
CHKD	XXX		

PROJECT:
SUBMERSIBLE PUMP STATION
PUMP CONTROL PANEL SCHEMATIC
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY
UTILITY AUTHORITY
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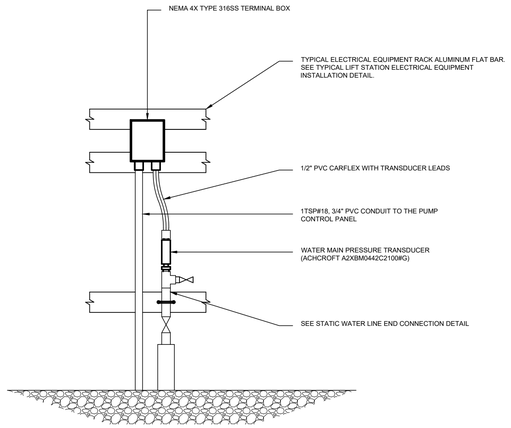
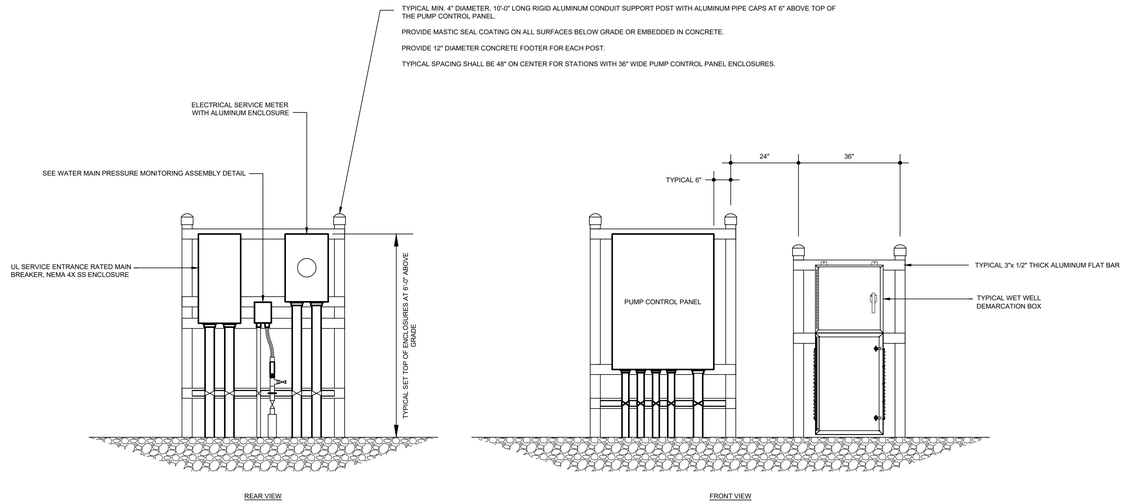
SHEET NO.
S-ELEC5



TYPICAL WATER MAIN PRESSURE MONITORING ASSEMBLY DETAIL

NOT TO SCALE



TYPICAL LIFT STATION ELECTRICAL EQUIPMENT INSTALLATION DETAIL

NOT TO SCALE

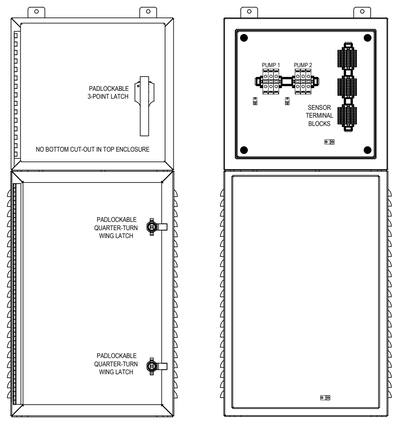
SUBMERSIBLE PUMP STATION ELECTRICAL DETAILS

TOP SECTION:

- NEMA 4X ENCLOSURE 24"H, 24"W, 12"D
- MINIMUM 0.08 ALUMINUM OR 316SS
- GROUNDING STUDS ON BODY & DOOR
- SUBPANEL

BOTTOM SECTION:

- NEMA 3R ENCLOSURE 42"H, 24"W, 12"D
- MINIMUM 0.125 ALUMINUM OR 316SS
- GROUNDING STUDS ON BODY & DOOR
- TOP CUTOUT 9.5" x 21.5"
- BOTTOM CUTOUT 9.5" x 21.5"
- 4" WIDE, 1" HIGH LOUVERS ON BACK AND BOTH SIDES



TERMINAL BLOCKS:

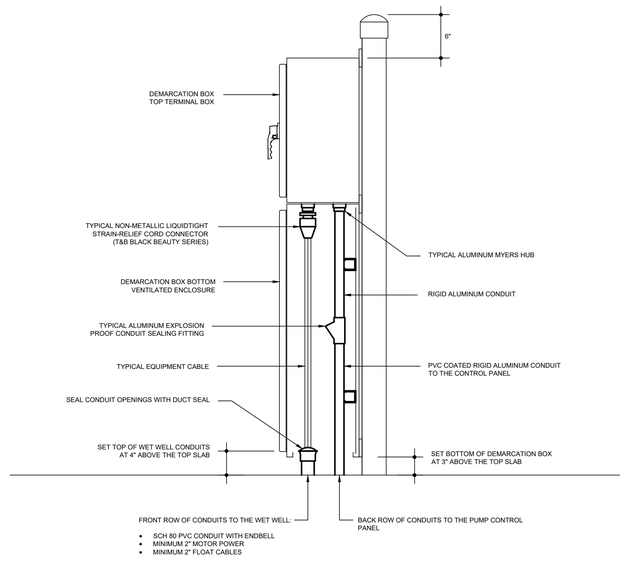
- PUMP POWER TERMINAL BLOCKS: SQUARE-D 9080LBA
- SENSOR TERMINAL BLOCKS: ALLEN-BRADLEY 1492-J4
- GROUND LUGS: PANDUIT LAMA2-14-Q

GENERAL NOTES:

- SEAMS TO BE CONTINUOUSLY WELDED AND GROUND SMOOTH
- SEAMLESS FOAM-IN-PLACE GASKETS
- ROLLED LIP AROUND THREE SIDES OF DOORS
- REMOVE DOORS BY PULLING STAINLESS STEEL CONTINUOUS HINGE PIN
- PROVIDE COLLAR STUDS ON INSIDE REAR FOR MOUNTING OPTIONAL PANELS
- STAINLESS STEEL HARDWARE
- BONDING PROVISION ON DOORS; GROUNDING STUDS ON BODIES

TYPICAL WET WELL DEMARCATION BOX DETAIL

NOT TO SCALE



TYPICAL WET WELL DEMARCATION BOX CONDUIT DETAIL

NOT TO SCALE

07-01-2025

NO	DATE	BY	REVISION DESCRIPTION

DESG	ABB
DRWN	JMC
CHKD	XXX
APRV	XXX
DATE	02/22

PROJECT:

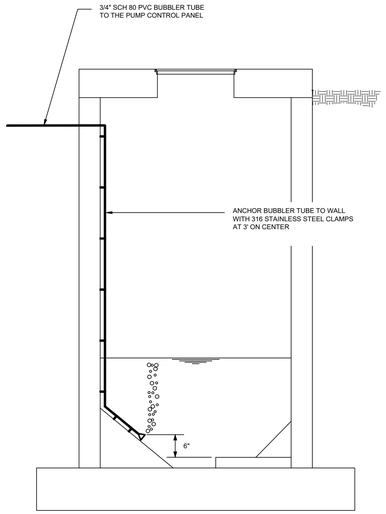
SUBMERSIBLE PUMP STATION ELECTRICAL DETAILS

CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

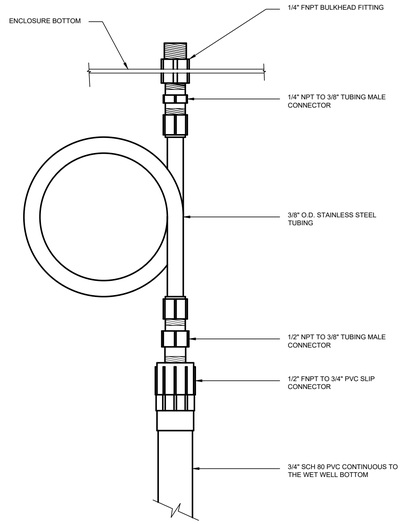
SHEET NO.

S-ELEC6



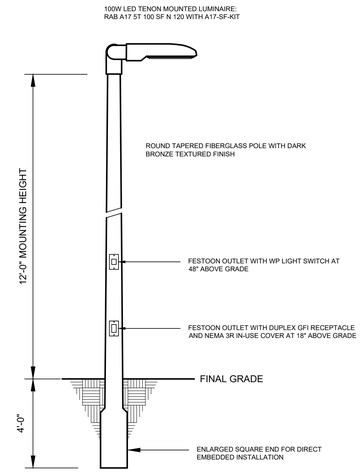
WET WELL BUBBLER TUBE DETAIL

NOT TO SCALE



BUBBLER TUBE CONNECTION DETAIL

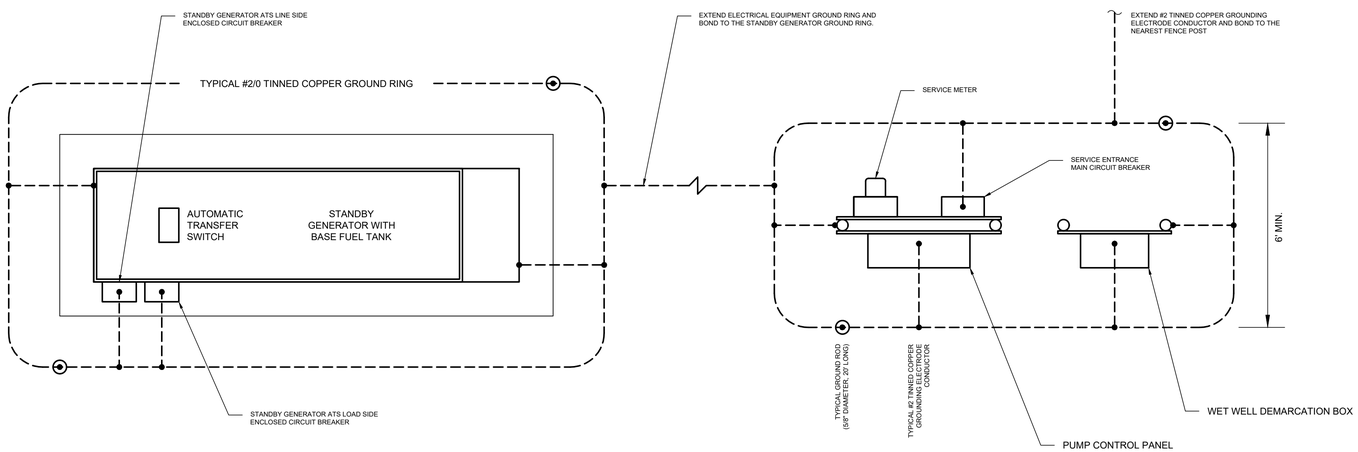
NOT TO SCALE



THE INSIDE DIAMETER OF THE EXCAVATION SHALL EXCEED THE OUTSIDE DIAMETER OF THE POLE BY A MINIMUM OF 6" AND SHALL BE BACK FILLED WITH CONCRETE.

TYPICAL SITE LIGHT POLE DETAIL

NOT TO SCALE



TYPICAL LIFT STATION GROUNDING PLAN

NOT TO SCALE

GROUNDING NOTES:

1. GROUNDING ELECTRODE SYSTEM: PROVIDE GROUND RINGS PER NEC 250.52, ENCIRCLING THE ELECTRICAL SERVICE EQUIPMENT,AND ENCIRCLING THE STANDBY GENERATOR, CONSISTING OF CONTINUOUS #2/0 TINNED COPPER CONDUCTOR AT 30" BELOW GRADE.
2. PROVIDE GROUND RODS (MINIMUM 3/4" DIAMETER, 20' LONG COPPER CLAD STEEL) BONDED TO EACH END OF EACH GROUND RING, AT LEAST 10' APART. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING ELECTRODE SYSTEM.
3. GROUNDING ELECTRODE CONDUCTOR: PROVIDE MINIMUM #2 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR FROM THE GROUND RINGS TO THE SERVICE ENTRANCE MAIN BREAKER, PUMP CONTROL PANEL, DEMARCATION BOX, STANDBY GENERATOR CIRCUIT BREAKERS, ELECTRICAL EQUIPMENT RACK END POSTS, AND FENCE. USE GROUND CLAMPS RATED FOR DIRECT BURIAL FOR CONNECTIONS TO END POSTS AND FENCE POSTS.
4. INSTALL EACH GROUNDING ELECTRODE CONDUCTOR IN 3/4" SCH 80 PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION.

SUBMERSIBLE PUMP STATION ELECTRICAL DETAILS

07-01-2025

NO	DATE	BY	REVISION DESCRIPTION

DESIG	ABB
DRWN	JMC
CHKD	XXX
APRV	XXX
DATE	02/22

PROJECT:
SUBMERSIBLE PUMP STATION
ELECTRICAL DETAILS
CLAY COUNTY, ORANGE PARK, FL

CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

SHEET NO.

S-ELEC7

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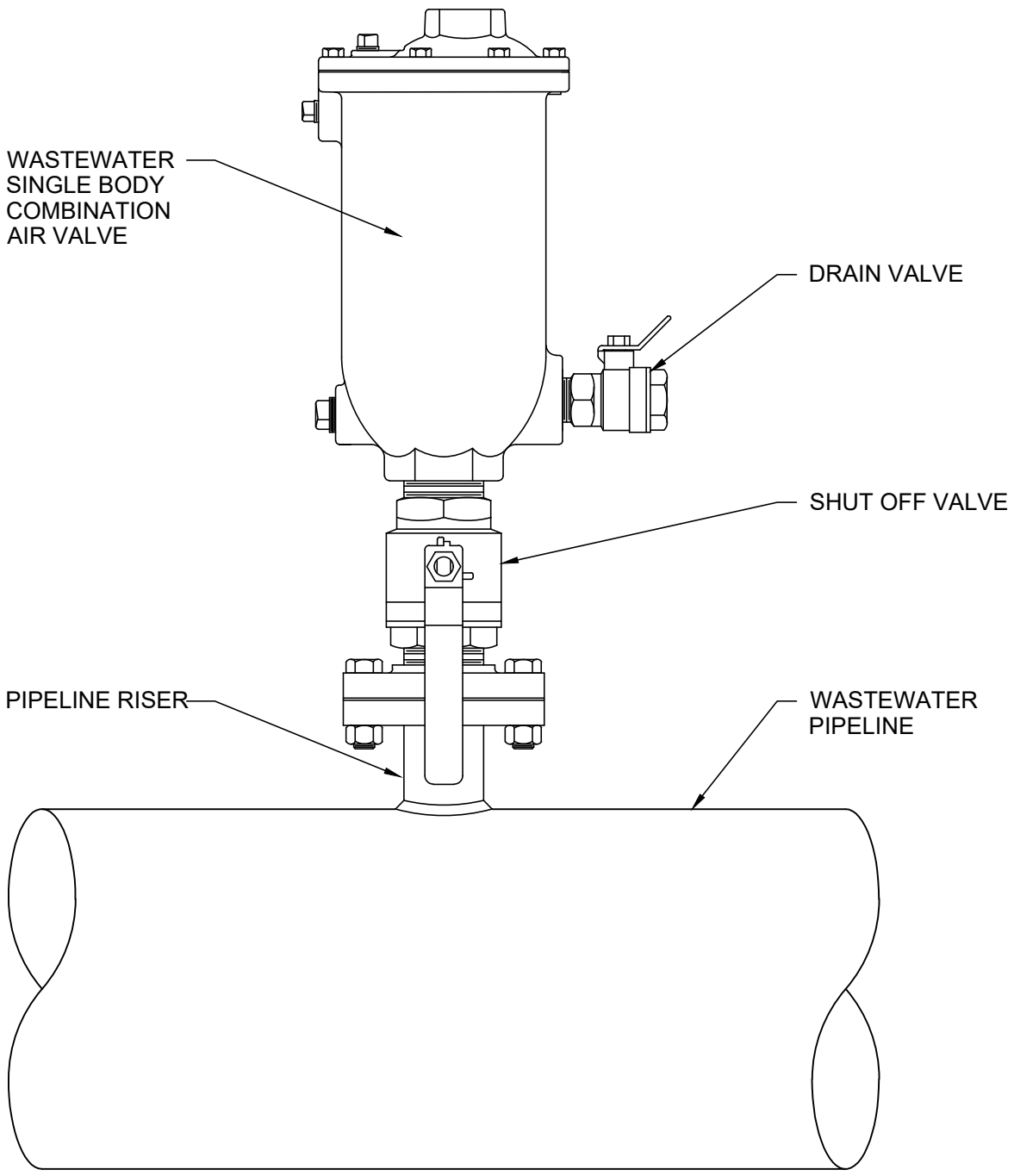

COMBINATION AIR RELEASE VALVE H

NOT TO SCALE

CLAY COUNTY
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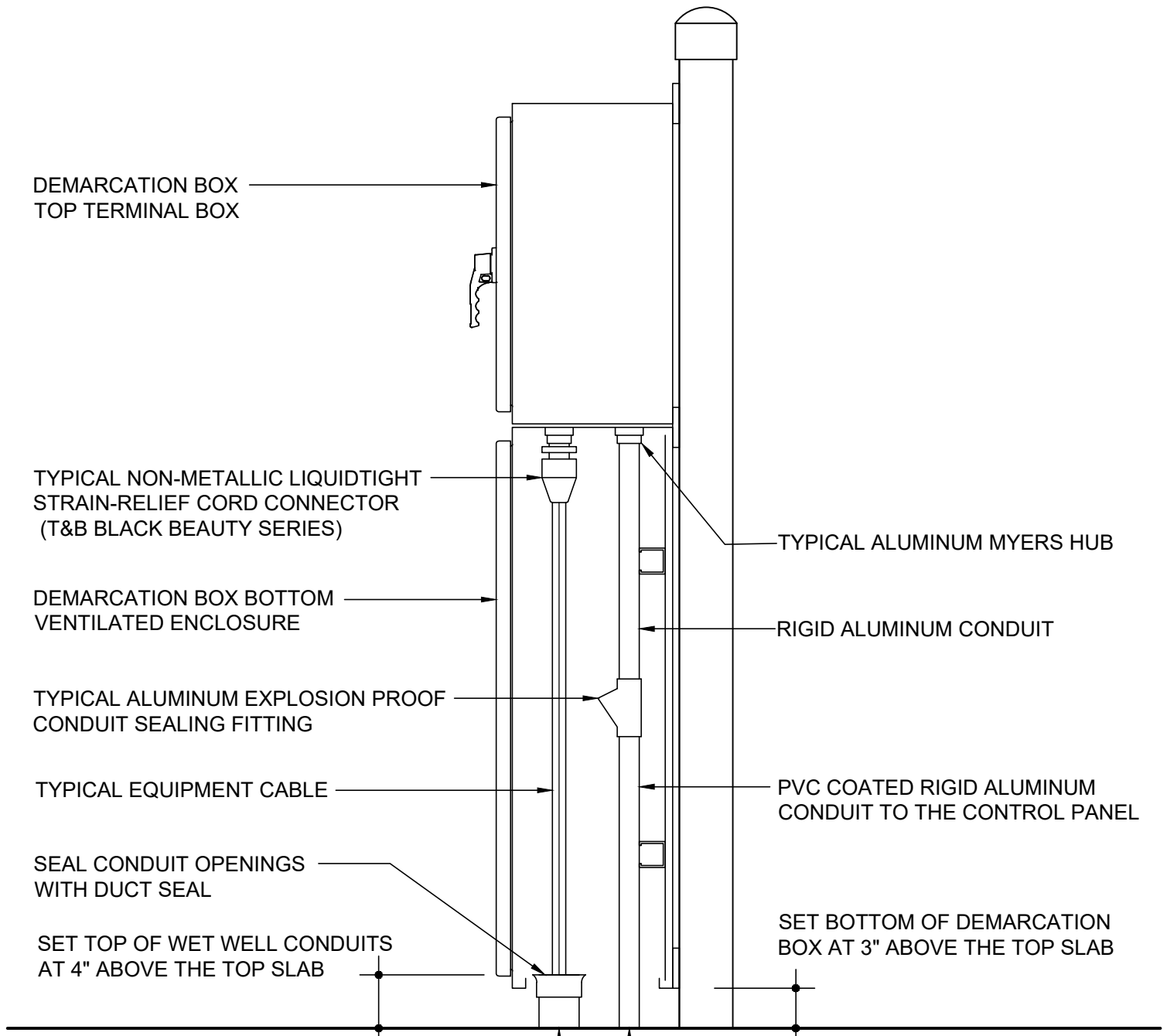
MIDDLEBURG, FLORIDA 32068-3907

TELEPHONE: (904) 272-5999

PUMP STATION
DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



- SCH 80 PVC CONDUIT WITH ENDBELL
- MINIMUM 3" MOTOR POWER
- MINIMUM 2" FLOAT CABLES

WET WELL DEMARCATION BOX CONDUIT DETAIL G

NOT TO SCALE

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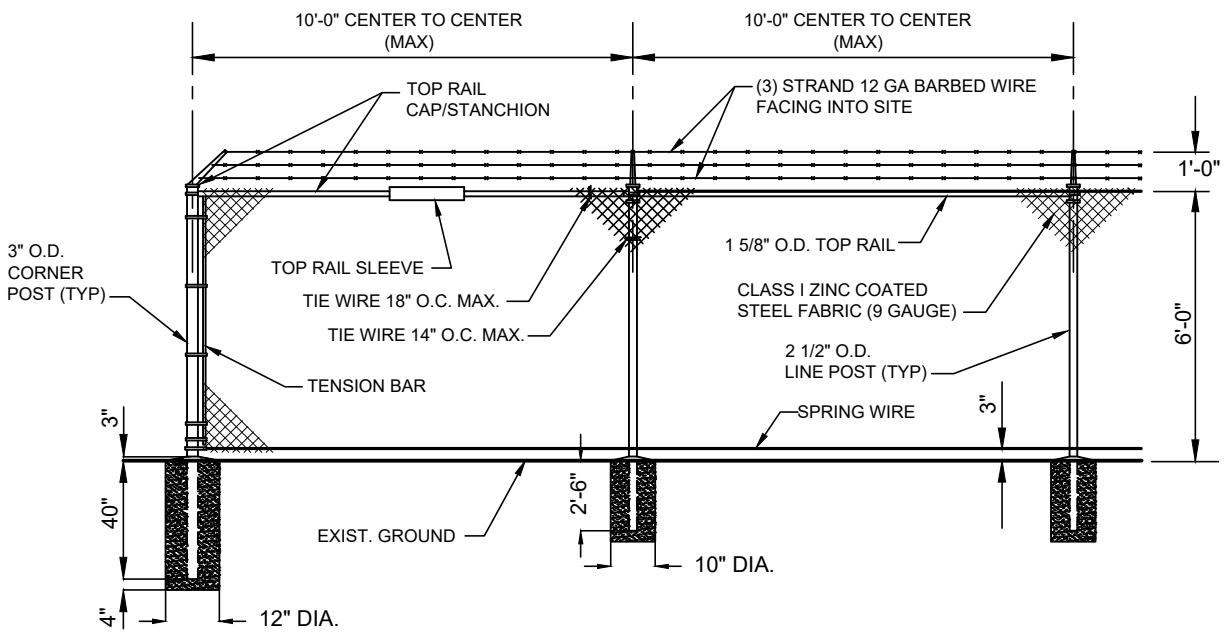
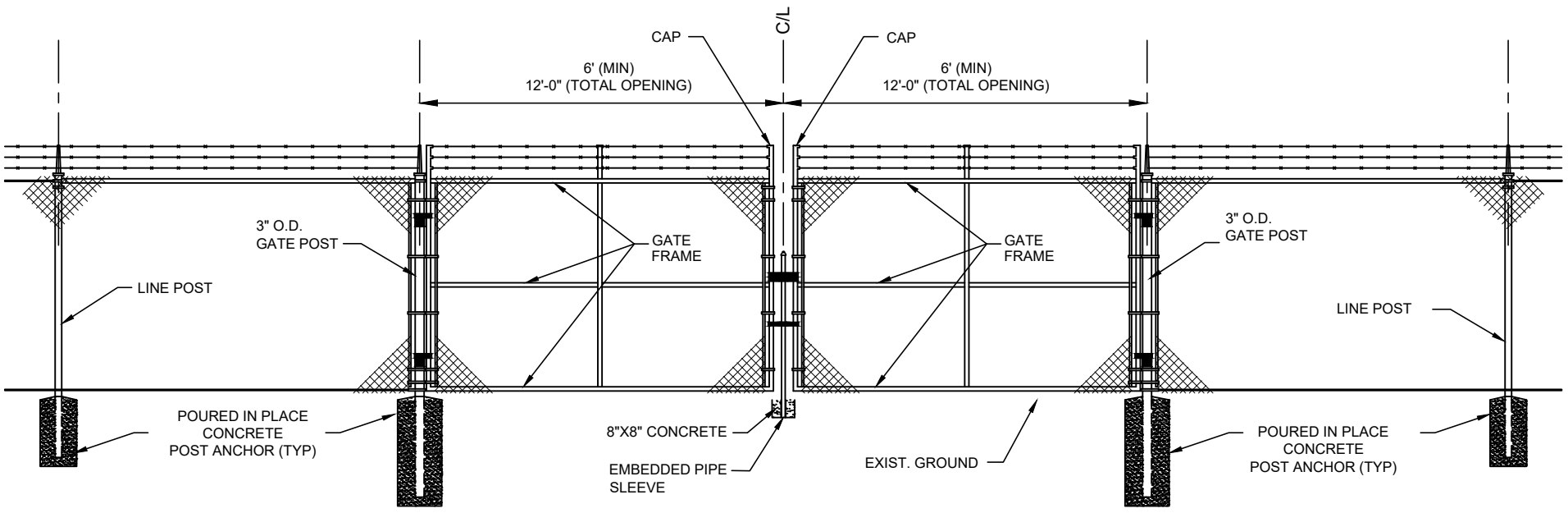
PUMP STATION
DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	09/24



CHAIN LINK FENCE & CORNER POST — A

NOT TO SCALE



GATE — B

NOT TO SCALE

NOTE:
1. PROVIDE GREEN VINYL PRIVACY SLATS

2. TO MAKE A COMPLETE INSTALLATION, FENCING SHALL BE FURNISHED AND INSTALLED. FENCING SHALL COMPLY WITH ASTM A392-68T LATEST SPECIFICATIONS FOR ZINC COATED STEEL CHAIN LINK FENCE FABRIC AND AS DETAILED ON THE DRAWING. FITTINGS SHALL BE MALLEABLE IRON OR PRESSED STEEL FORGINGS. ALL FERROUS MATERIALS SHALL BE THOROUGHLY GALVANIZED BY THE HOT-DIP METHOD.

A. PRIVACY SLATS: SLATS SHALL BE FLAT/TUBULAR IN SHAPE, ± 0.003") THERMOPLASTIC WITH A WALL THICKNESS OF 0.030". LENGTH AND WIDTH OF SLATS SHALL BE PROVIDED TO ACCOMMODATE CHAIN-LINK FENCE FABRIC AS SPECIFIED HEREIN. SLATS SHALL HAVE A HORIZONTAL LOCKING STRIP TO PROVIDE SECURE ATTACHMENT TO CHAIN-LINK , THE FABRIC, AND PROVIDE A PRIVACY FACTOR OF 85%. MINIMUM WIDTH SLAT SHALL BE 1-1/8".

B. PRIVACY SCREENING: ENVIRONMENTAL PRIVACY SCREENING KNIT RASCHEL, 100%. SHALL BE 86 TO 90 % POLYETHYLENE UV STABILIZED FIBER, COLOR GREEN. SCREENING SHALL BE ATTACHED TO THE FENCE FABRIC WITH SUFFICIENT TIES TO SECURE THE SCREEN. ACCEPTABLE SCREEN: PRIVACY PLUS OR EQUAL.

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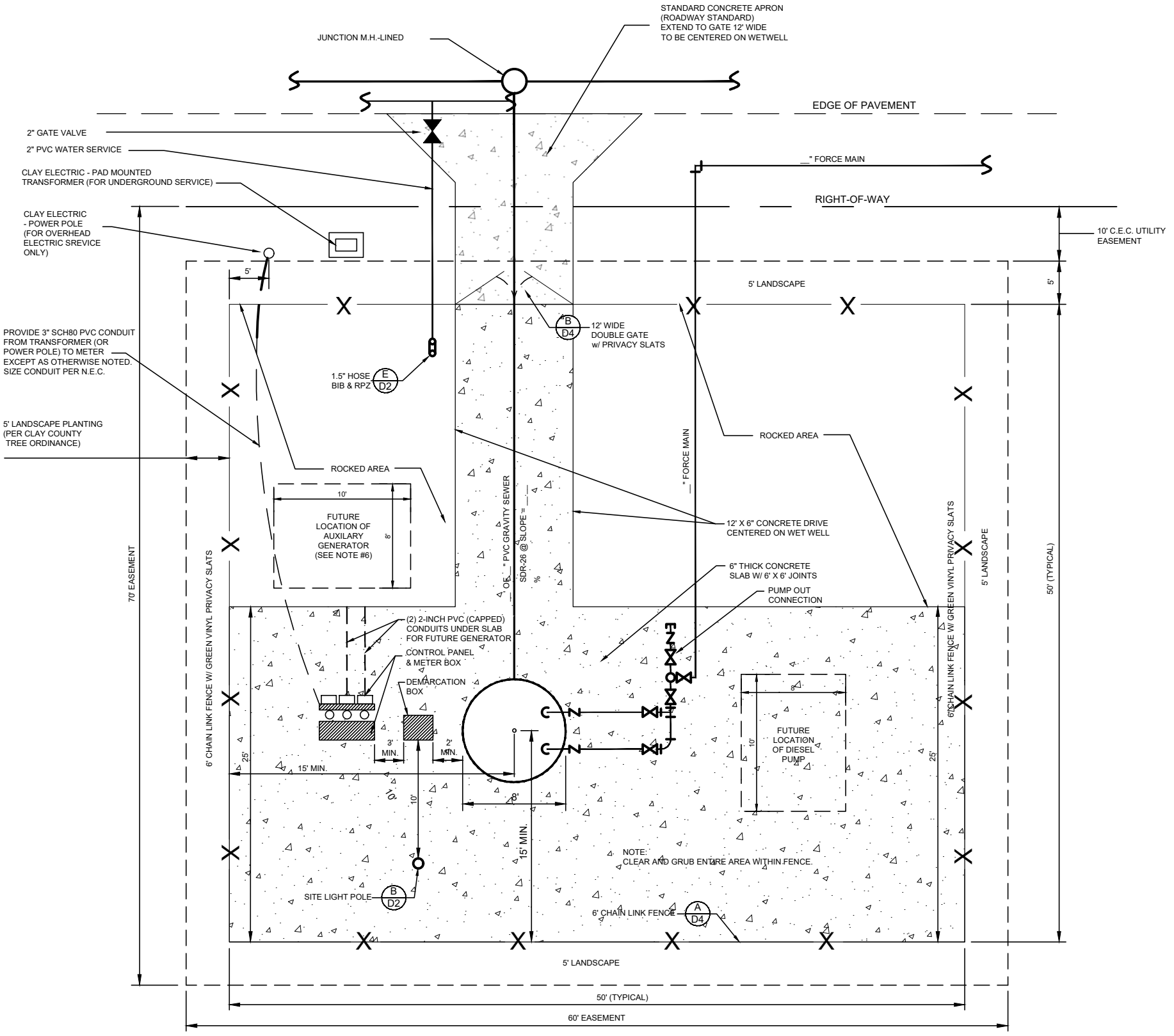
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



TYPICAL PERMANENT PUMP STATION SITE PLAN (A)

NOT TO SCALE

NOTE:
1. ALL LANDSCAPE OR IRRIGATION INSTALLED AT OR AROUND THE LIFT STATION AS PART OF THE PROJECT TO BE MAINTAINED BY DEVELOPER OF THE CDD AND/OR HOMEOWNER'S ASSOCIATION AFTER THE DEVELOPER IS NO LONGER IN CHARGE OF THE PROJECT.
2. LANDSCAPING PLANS APPROVED BY CCUA TO MINIMIZE IMPACT TO UTILITIES.
3. CLEAR AND GRUB ENTIRE AREA WITHIN FENCE, INSTALL FILTER CLOTH AND 6" OF #57 STONE IN AREAS NOT COVERED BY CONCRETE.
4. TOP OF ROCK AREA TO MATCH TOP OF CONCRETE SLAB.
5. PROVIDE (2) 2" DIA. SCH80 PVC CONDUIT UNDER SLAB FOR FUTURE GENERATOR. CAP CONDUIT AT 6" OUTSIDE OF SLAB AND AT DISCONNECT AND AT THE CONTROL PANEL.

LEGEND

- DENOTES MANHOLE
- DENOTES CONCRETE
- DENOTES CAP
- DENOTES CHECK VALVE
- DENOTES GATE or WHEEL VALVE
- DENOTES 90-DEGREE BEND
- DENOTES TEE FITTING
- DENOTES CHAIN LINK FENCE

CLAY COUNTY
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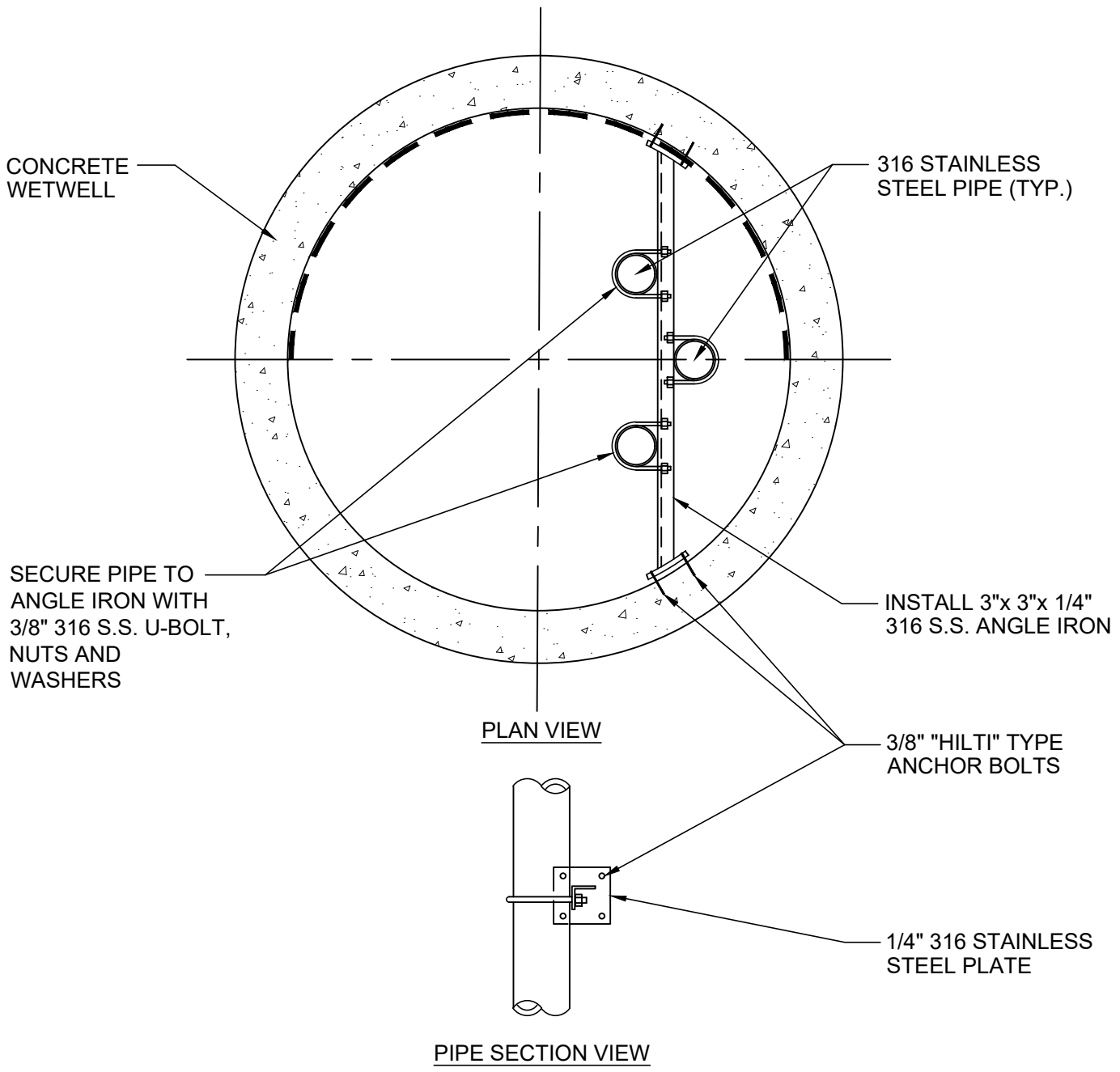
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



PIPE ATTACHMENT TO WALL — A

NOT TO SCALE

CLAY COUNTY
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3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907

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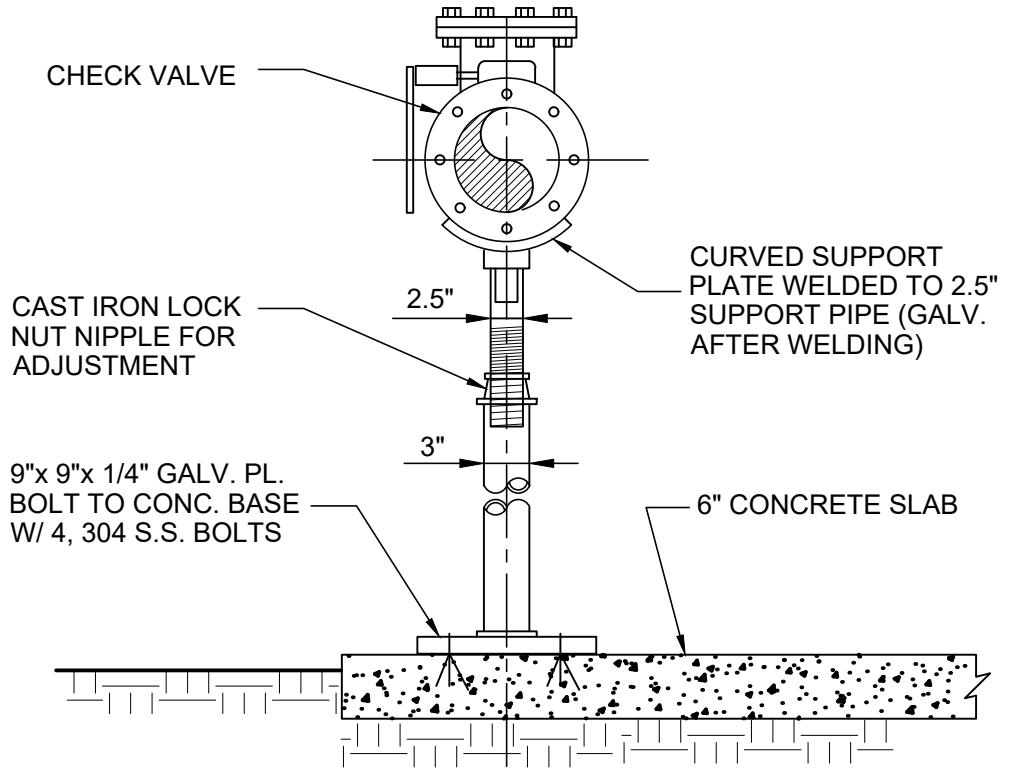
PUMP STATION
DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



PIPE SUPPORT (STANDARD) C

NOT TO SCALE

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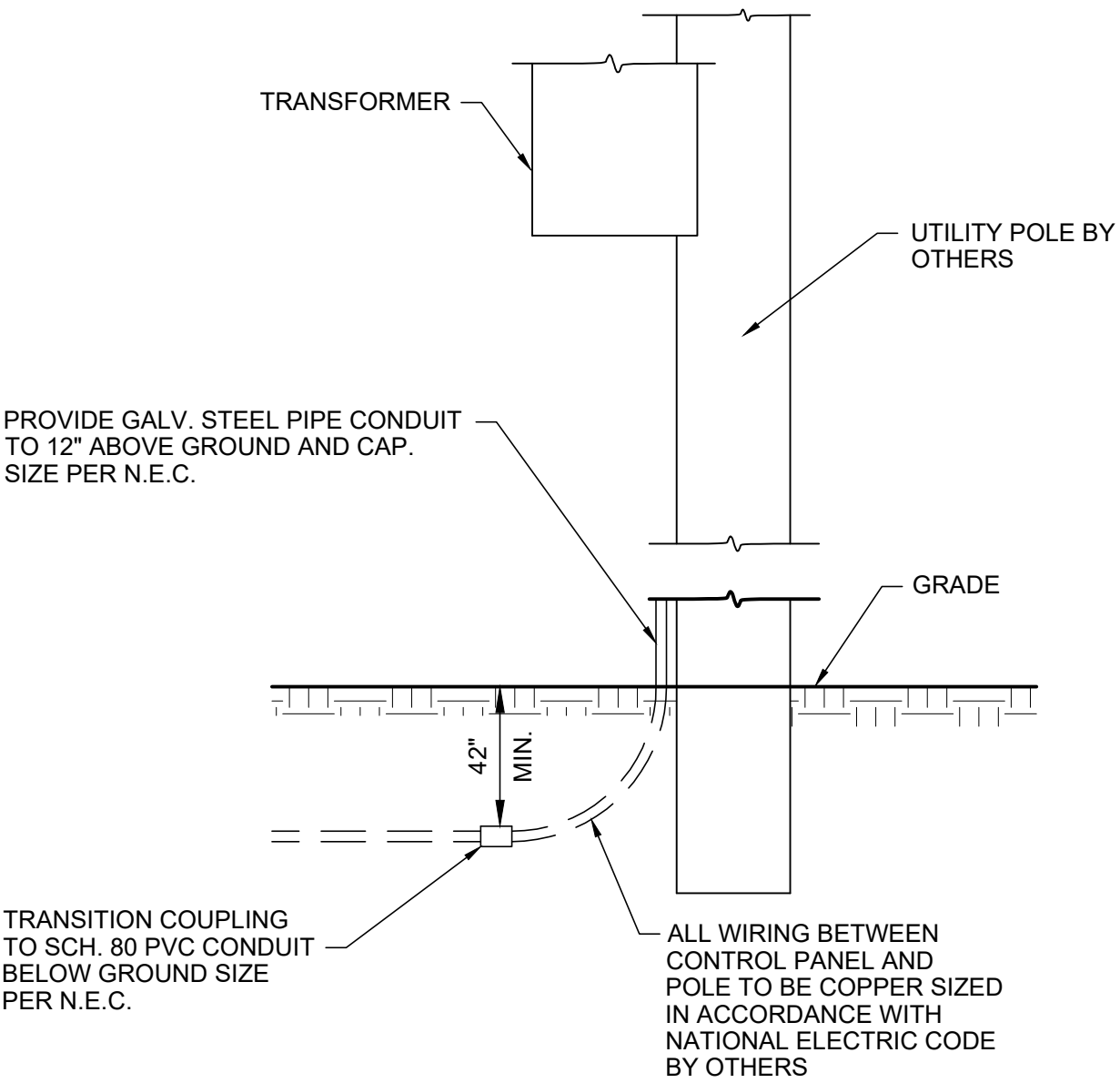
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



NOTE:
TO BE USED ONLY WHEN UNDERGROUND SERVICE IS NOT AVAILABLE.

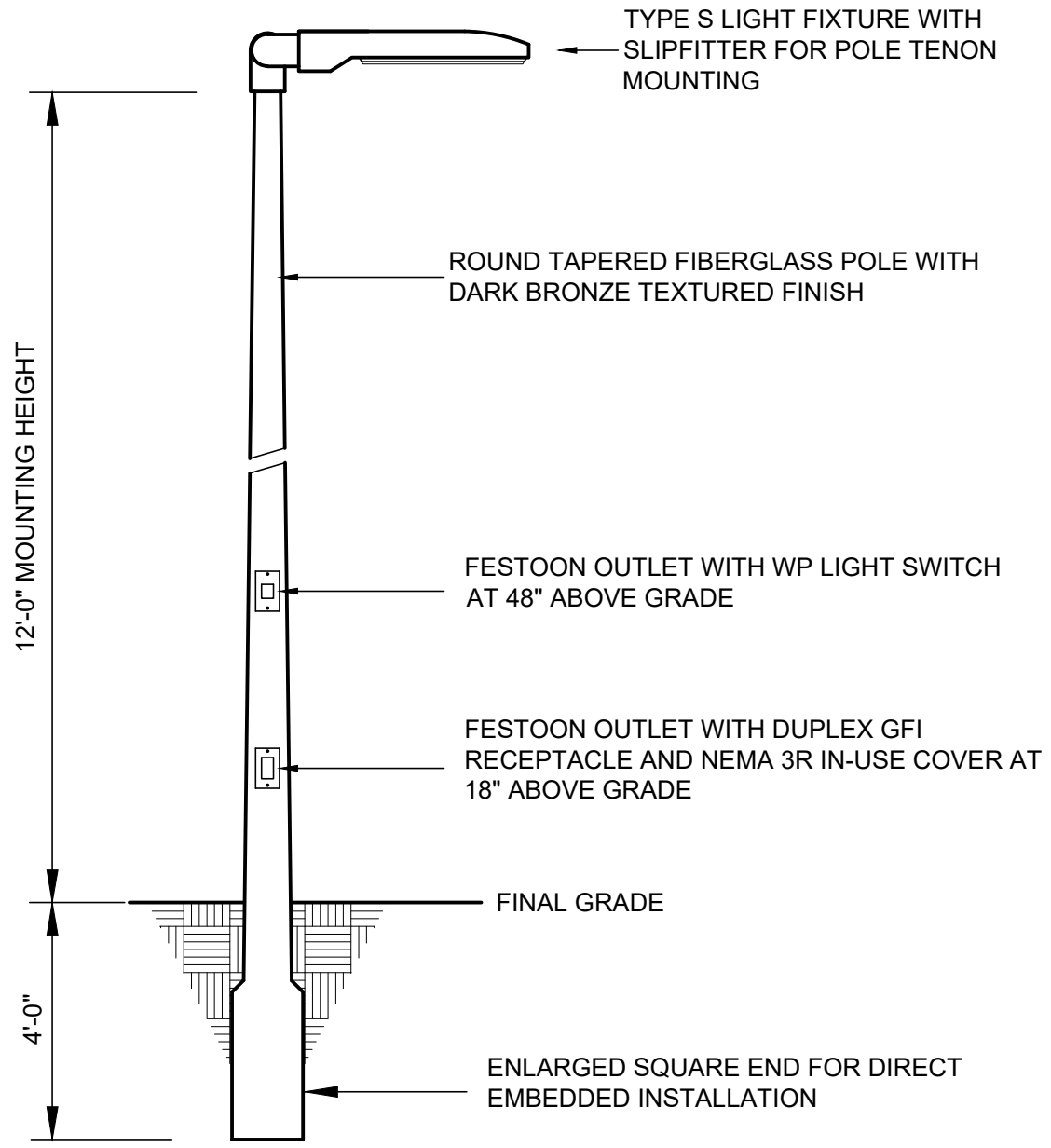
POWER RISER (STANDARD) — F

NOT TO SCALE

CLAY COUNTY UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



THE INSIDE DIAMETER OF THE EXCAVATION SHALL EXCEED THE OUTSIDE DIAMETER OF THE POLE BY A MINIMUM OF 6" AND SHALL BE BACK FILLED WITH CONCRETE.

SITE LIGHT (STANDARD) — B

NOT TO SCALE

NOTES:
1. ALTERNATE LIGHTING FIXTURE SUBMITTALS SHALL INCLUDE PHOTOMETRIC CALCULATIONS FOR EACH AREA FOR WITCH THE ALTERNATE FIXTURE IS PROPOSED.
2. COMPLETE LIGHT POLE ASSEMBLY WITH FIXTURES AND BRACKET ARMS SHALL MEET THE APPLICABLE WIND LOAD RATING.

LIGHT FIXTURE SCHEDULE				
TYPE	MANUFACTURER & CATALOG NUMBER	LAMPS	VOLTS	WATTS
S	RAB A17 5T 100 SF N 120 WITH A17-SF-KIT	LED	120	100

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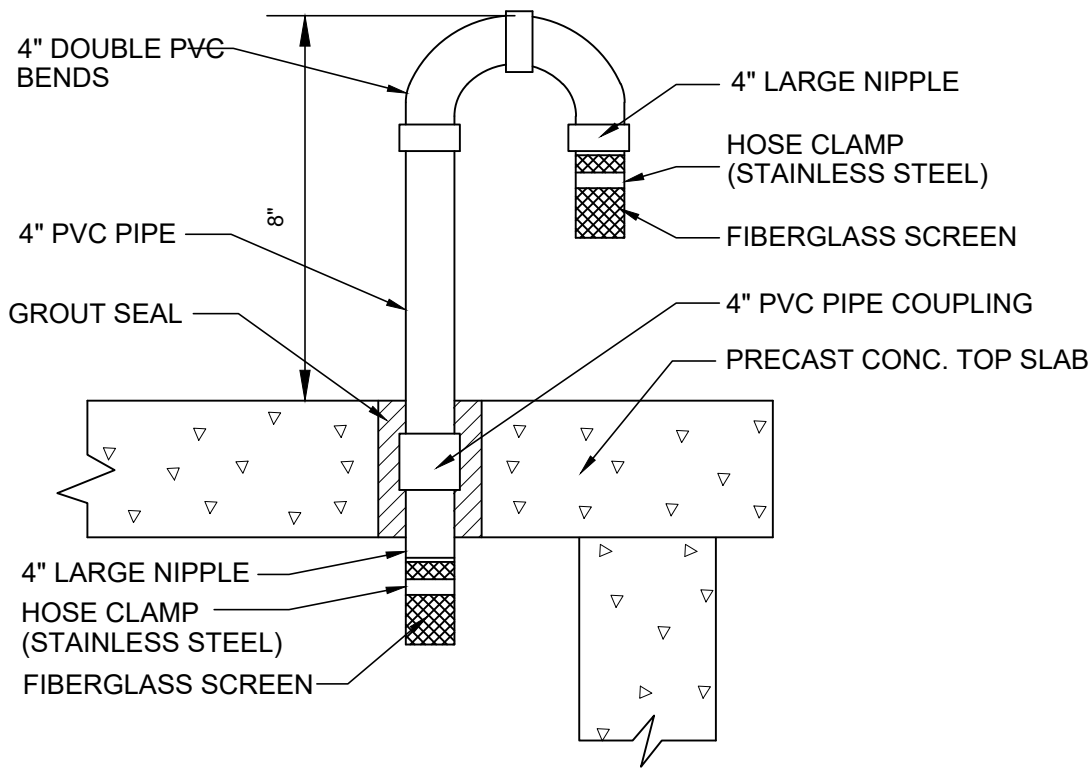
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



VENT PIPE (STANDARD)

D

NOT TO SCALE

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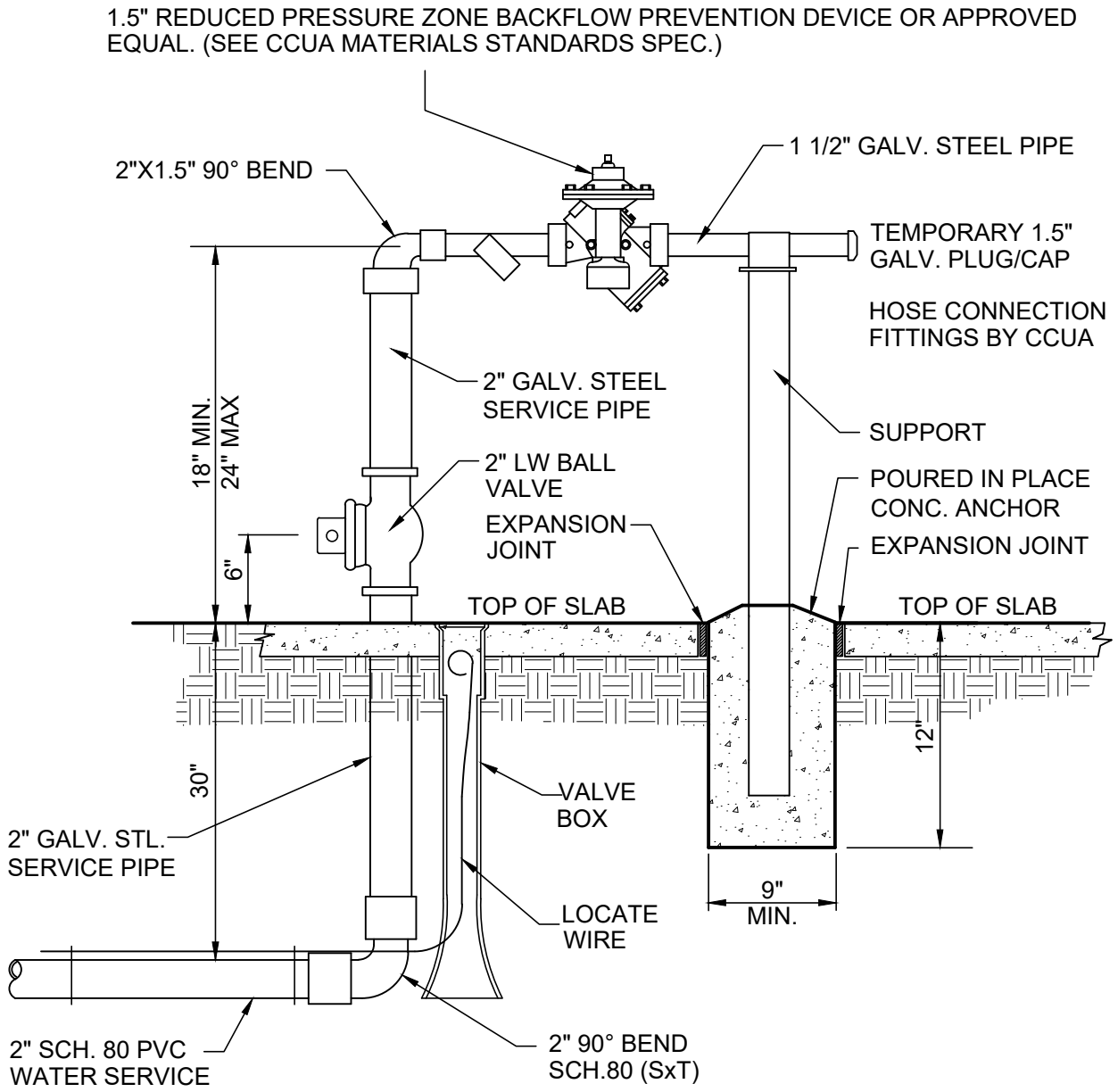
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



WATER SERVICE (STANDARD) E

NOT TO SCALE

CLAY COUNTY UTILITY AUTHORITY
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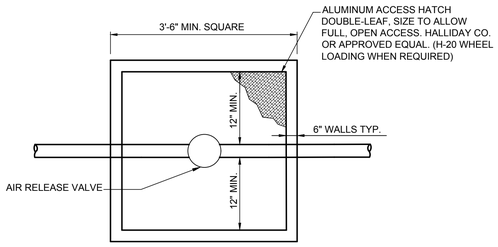
PUMP STATION DETAILS

DESG	RHD
DRWN	RHD
CHKD	XXX
APRV	XXX
DATE	06/22



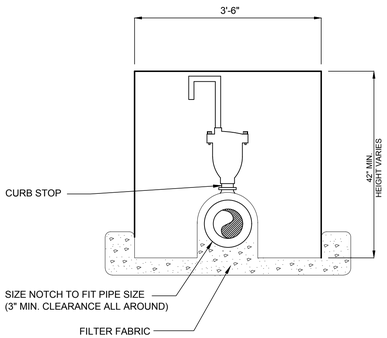
NOTES:

1. CONC. BOX SHALL BE 42" MIN. DEPTH BUT SHALL BE DEEP ENOUGH TO ACCOMMODATE THE SIZE PIPE AND TYPE OF AIR RELEASE VALVE REQUIRED, WITH OPEN BOTTOM, PRECAST WITH NOTCH TO ACCOMMODATE PIPE INSTALLED WITH 36" COVER FROM TOP OF PIPE TO FINISH GRADE, ON 12" OF #57 STONE. WITH FILTER FABRIC ABOVE AND BELOW THE STONE.

2. CONTRACTOR SHALL PROVIDE SHOP DRAWING OF BOX WITH DIMENSIONS FOR APPROVAL BY C.C.U.A.

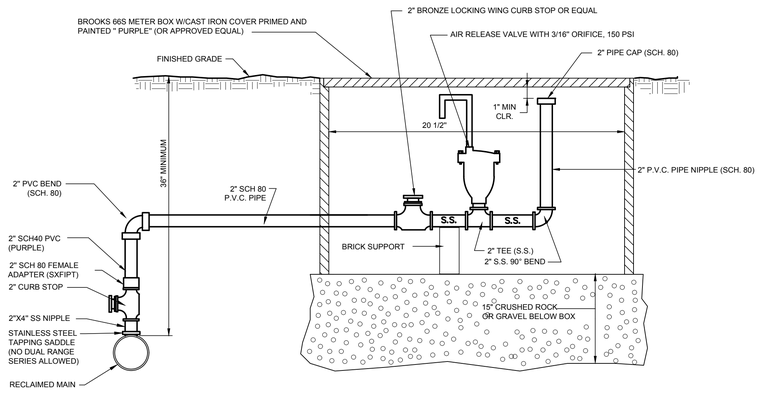
3. DIMENSIONS SHOWN ARE MINIMUM AND SHALL BE INCREASED BASED UPON ACTUAL SIZE OF PIPE INSTALLED

NOTE: WIDTH VAIRES TO ACCEPT PIPE SIZES OVER 8"



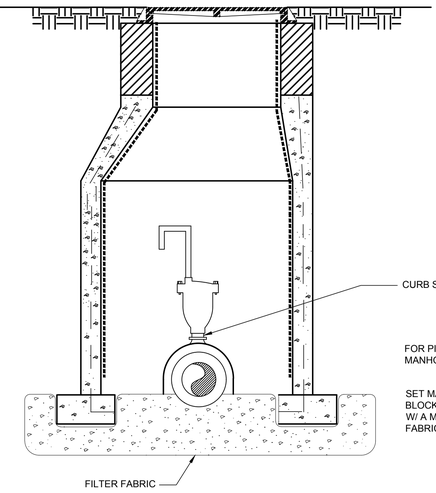
REUSE MAIN AIR RELEASE VALVE VAULT

TO BE USED ON ALL PIPES 12" OR LARGER



AIR RELEASE VALVE DETAIL

NTS



FOR PIPE 10" OR SMALLER A 4' DIAMETER, NOTCHED MANHOLE CAN BE USED FOR AIR RELEASE VALVE.

SET MANHOLE ON MIN. OF 4 SOLID CONCRETE BLOCKS SPACED EVENLY AROUND THE MANHOLE W/ A MIN. OF 12"#57 STONE WITH FILTER FABRIC ABOVE AND BELOW THE STONE.

REUSE MAIN AIR RELEASE VALVE VAULT

TO BE USED ON ALL PIPES 12" OR SMALLER

NO	DATE	BY	REVISION DESCRIPTION
7	MAY 06	MRS	PRECAST CONCRETE ADJUSTING RINGS
6	SEPT 04	DLK	REUSE MAIN AIR RELEASE VALVE VAULT
5	JUNE 01	DLK	GENERAL UPDATES AND REVISIONS
4	AUG. 01	GAR	GENERAL UPDATES AND REVISIONS
3	SEPT 00	GAR	GENERAL UPDATES AND REVISIONS
2	NOV 99	GAR	GENERAL UPDATES AND REVISIONS
1	JULY 98	GAR	GENERAL UPDATES AND REVISIONS

DESG
DRWN
CHKD
APRV
DATE

PROJECT:

RECLAIMED WATER DISTRIBUTION SYSTEM DETAILS AND SPECIFICATIONS 2

CLAY COUNTY
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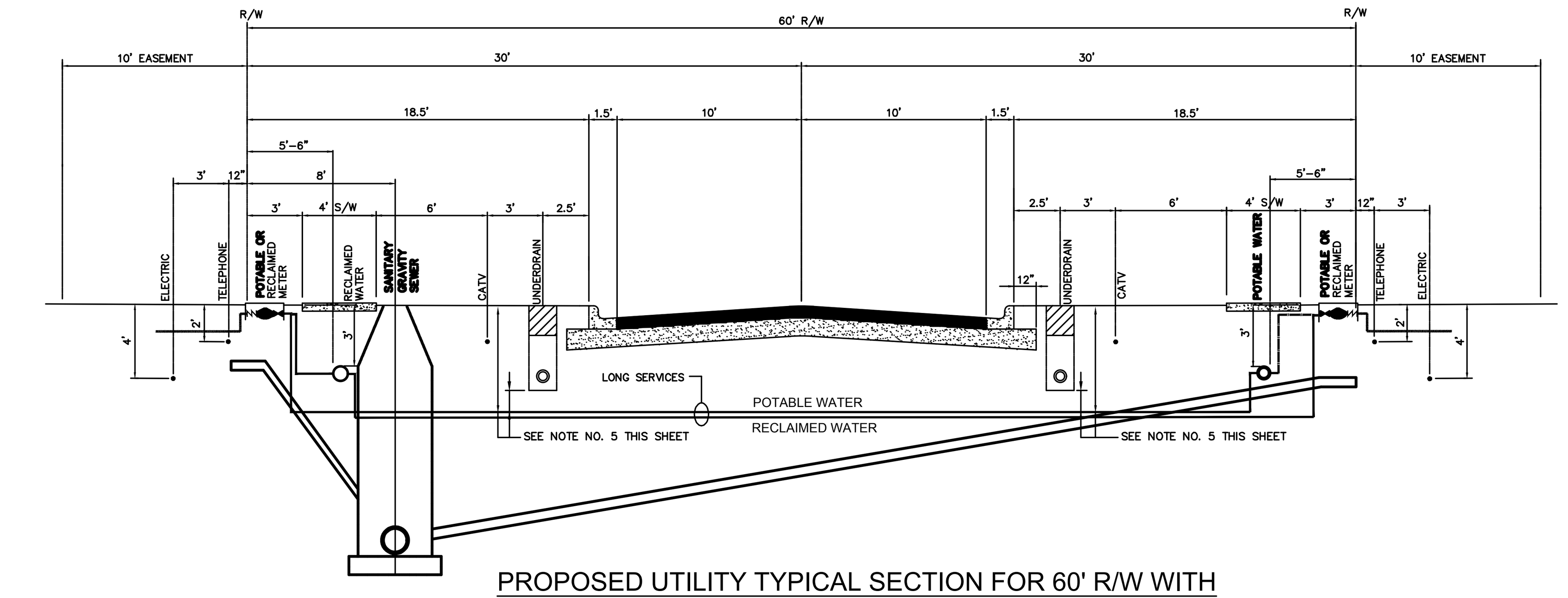
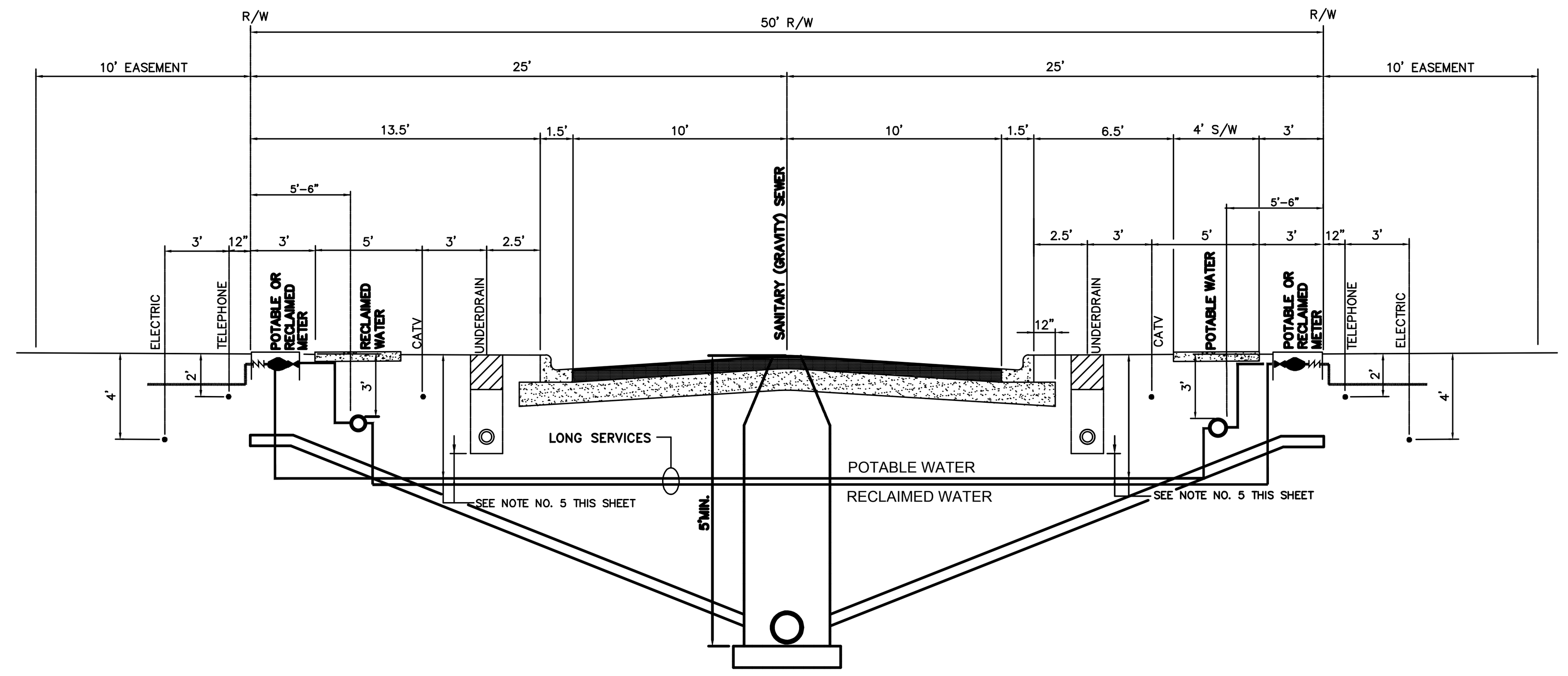
ACAD FILE NAME

SHEET NO.

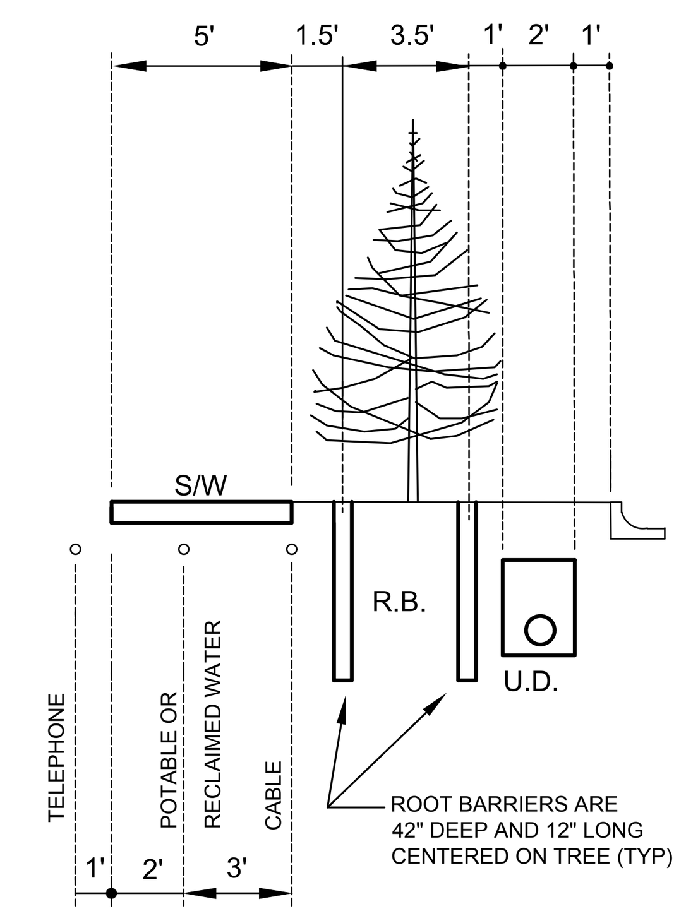
S-RE2



PROPOSED UTILITY TYPICAL SECTION FOR 60' R/W WITH
GRAVITY SEWER BACK OF CURB W/ RECLAIMED WATER
SCALE: N.T.S.

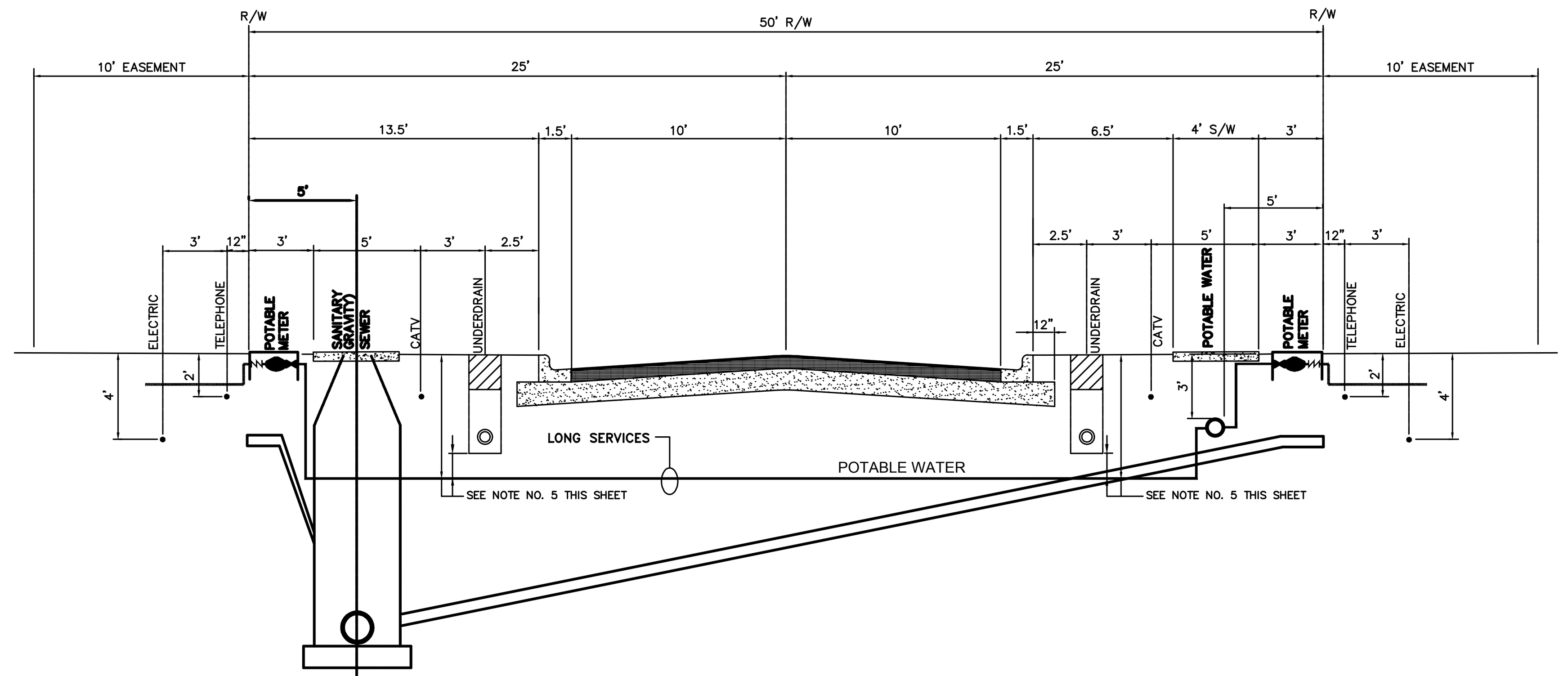


PROPOSED UTILITY TYPICAL SECTION FOR 50' R/W WITH
GRAVITY SEWER IN CENTER OF ROAD W/ RECLAIMED WATER
SCALE: N.T.S.

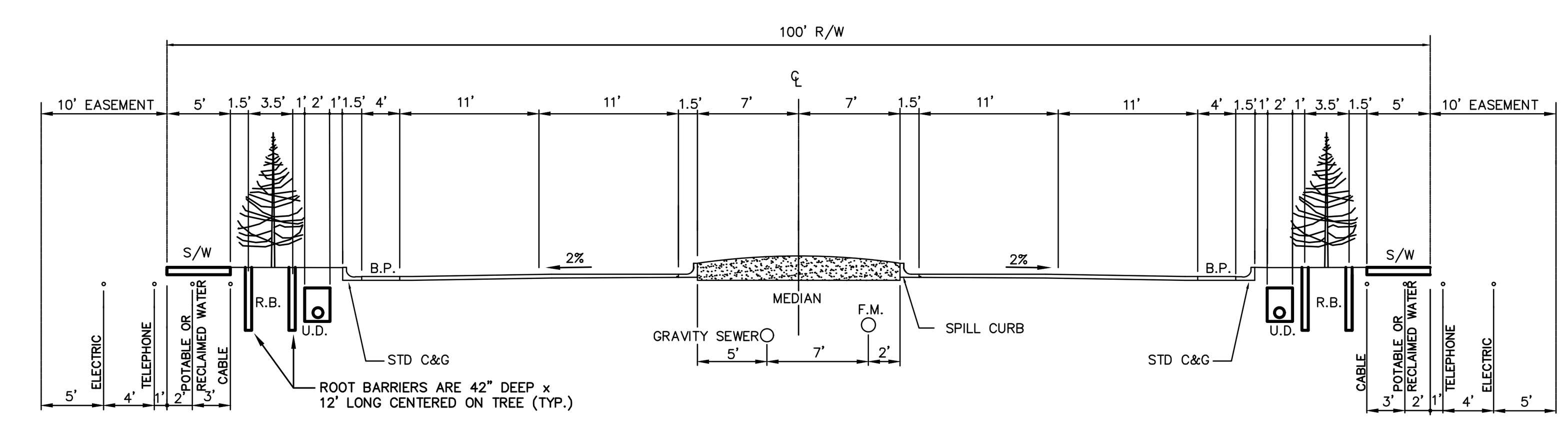


EXTRUDED SHEETS OR PANELS WITH INTEGRAL MALE/FEMALE SLIDING LOCK CONNECTION ENDS. MATERIAL SHALL BE HDPE WITH A MINIMUM THICKNESS OF 60 MIL, AND SHALL BE RIBBED. ROOT BARRIER SHALL EXTEND TO A MINIMUM DEPTH OF 42" BELOW FINISH GRADE. THE ROOT BARRIER SHALL BE A MINIMUM OF 12' LONG, CENTERED ON THE TREE AND PARALLEL WITH THE UTILITY MAIN OR SERVICE LINE BEING PROTECTED, UNLESS SHOWN OTHERWISE ON THE PLANS. ROOT BARRIER SHALL BE INSTALLED AT ANY TREE PLANTED IN A CCUA UTILITY EASEMENT, OR ANY TREE PLANTED WITHIN 10' OF ALL CCUA UTILITY MAINS OR SERVICES. NO TREES SHALL BE PLANTED IN A CCUA UTILITY EASEMENT EASEMENT WITHOUT THE APPROVAL OF CCUA. NO TREES SHALL BE CLOSER THAN 5' TO ANY CCUA UTILITY LINE OR SERVICES.

ROOT BARRIER DETAIL
SCALE: N.T.S.



PROPOSED UTILITY TYPICAL SECTION FOR 50' R/W WITH
GRAVITY SEWER BACK OF CURB W/O RECLAIMED WATER
SCALE: N.T.S.



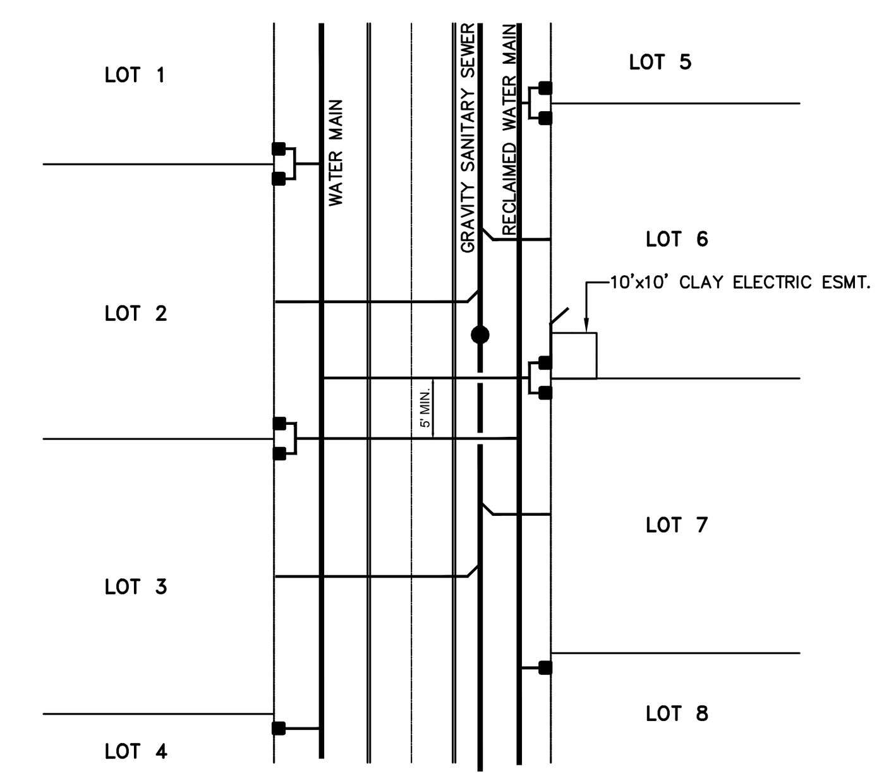
ROOT BARRIER SPECIFICATIONS:
ROOT BARRIER SHALL BE LONG TERM ROOT CONTROL SYSTEM WHICH UTILIZES TIME RELEASE OF AN HERBICIDE TO PREVENT ROOT INTRUSION. EFFECTIVE LIFE OF THE MATERIAL SHALL BE AT LEAST 15 YEARS. SIMILAR AND / OR EQUAL TO "BIOBARRIER" AS MAUNFACTURED BY BBA NONWOVEN / REEWAY, INC., 70 OLD HICKORY BLVD., OLD HICKORY, TN. 37138-3651, (800)284-2780.

SEE CCUA APPROVED MATERIALS MANUAL FOR ROOT BARRIER SPECIFICATIONS.

100' CROSS SECTION SHOWN IS FOR INFORMATION PURPOSES ONLY. THIS CROSS SECTION MAY NEED TO BE MODIFIED TO FIT THE PROPOSED ROADWAY DESIGN; REQUIRES CCUA APPROVAL.

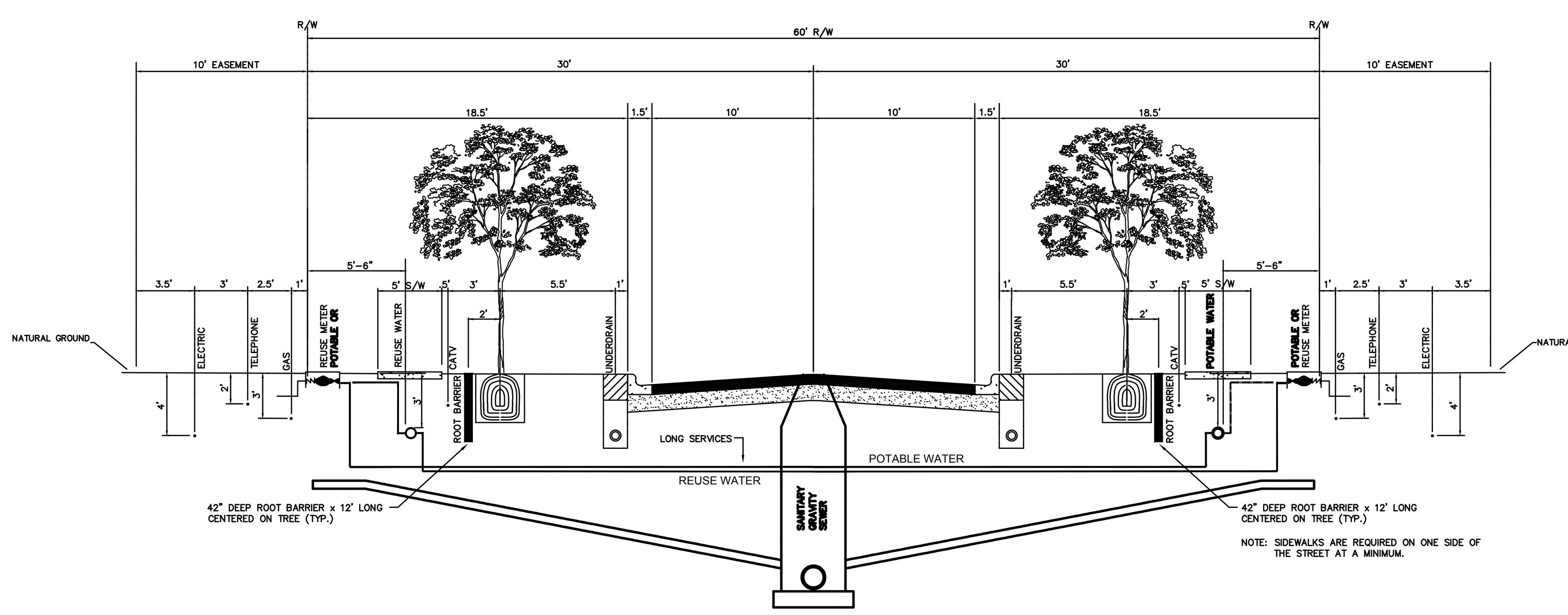
PROPOSED UTILITY TYPICAL SECTION FOR 100' R/W WITH

RAISED MEDIAN AND GRAVITY SEWER IN CENTER OF ROAD
SCALE: N.T.S.

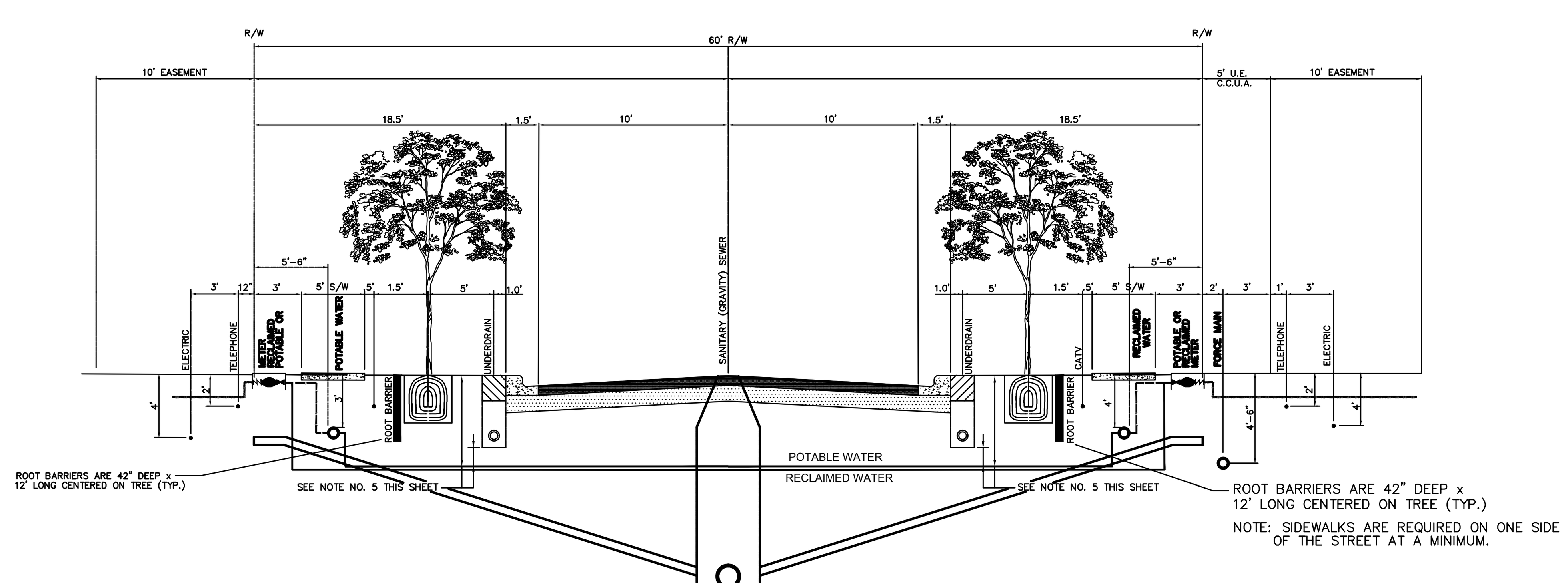


TYPICAL WATER AND SEWER SERVICE LOCATION PLAN

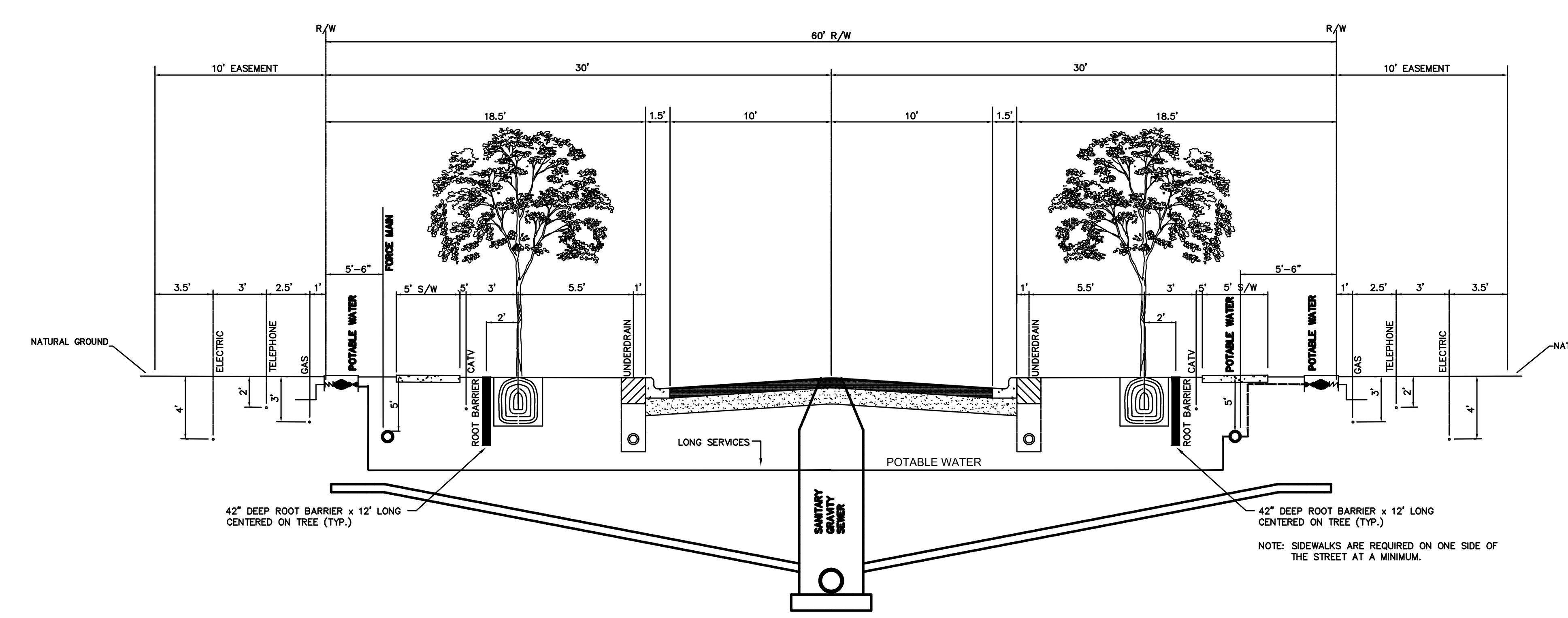
1.) ALL WATER AND RECLAIMED DOUBLE SERVICES ON PROPERTY LINE.
2.) ANY SINGLE WATER OR RECLAIMED SERVICE LINES ON LOT LINE.
3.) ALL SEWER SERVICES ARE TO CENTER OF LOTS.
4.) IF FITTINGS ARE REQUIRED TO ACHIEVE 5'-0" SEPARATION BETWEEN THE RECLAIMED AND POTABLE WATER SERVICE LATERALS THEN ASBUILT TIE LOCATIONS WILL BE REQUIRED FOR THE SERVICE FITTINGS. THE OFFSET REQUIRED TO ACHIEVE THE SEPARATION SHALL OCCUR OUTSIDE OF THE PAVED ROADWAY.
5.) POTABLE AND RECLAIMED WATER SERVICE LINES SHALL ONLY BE DEEP ENOUGH TO CLEAR THE BOTTOM OF THE UNDERDRAIN TRENCH. MINIMUM COVER SHALL BE MAINTAINED IN ALL CASES.



TYPICAL SECTION FOR 60' R/W
WITH GRAVITY SEWER AND REUSE
SCALE: N.T.S.



PROPOSED UTILITY TYPICAL SECTION FOR 60' R/W WITH GRAVITY SEWER
IN CENTER OF ROAD W/ FORCE MAIN PARALLEL TO RECLAIMED WATER
SCALE: N.T.S.



TYPICAL SECTION FOR 60' R/W
WITH GRAVITY SEWER AND FORCE MAIN
WITHOUT REUSE
SCALE: N.T.S.

NO	DATE	BY	REVISION DESCRIPTION
12	FEB 18	RHD	REVISED ROOT BARRIER DETAIL
11	AUG 17	RHD	REVISED TO ADD ROOT BARRIER DETAIL
10	JUN 17	RHD	REVISED NOTES AND DETAILS
9	NOV 15	RHD	REVISED MAIN PLACEMENT DISTANCES FROM R/W
8	JULY 13	RHD	DETAIL ADDITION, UPDATES AND REVISIONS
7	APRIL 06	MRS	GENERAL UPDATES AND REVISIONS
6	AUG. 05	MRS	ADDED 60' SECTION DETAIL
5	JUN 05	MRS	REVISED 60' & 100' R-O-W SECTION DETAILS
4	JUN 05	GAR	GENERAL UPDATES AND REVISIONS (ADDED TREE ORDINANCE DWG.)
3	AUG 01	GAR	GENERAL UPDATES AND REVISIONS
2	NOV 99	GAR	GENERAL UPDATES AND REVISIONS
1	JULY 98	GAR	GENERAL UPDATES AND REVISIONS

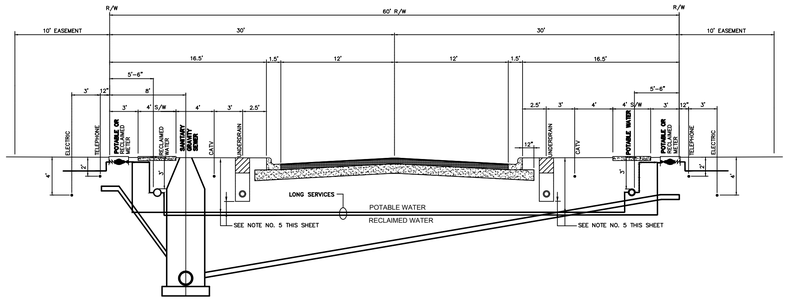
DESG ____
DRWN ____
CHKD ____
APRV ____
DATE ____

PROJECT:
WATER, SEWER AND RECLAIMED
WATER UTILITY PLACEMENT IN R/W
23' PAVEMENT WIDTH

CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

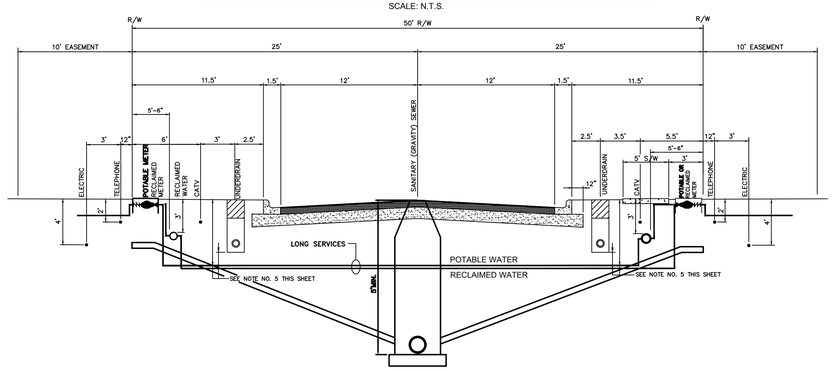
SHEET NO.
S-UTC1

Thu 02/22/18 3:42:35 PM, DWG To PDF.pc3, PLOTTED BY RHD



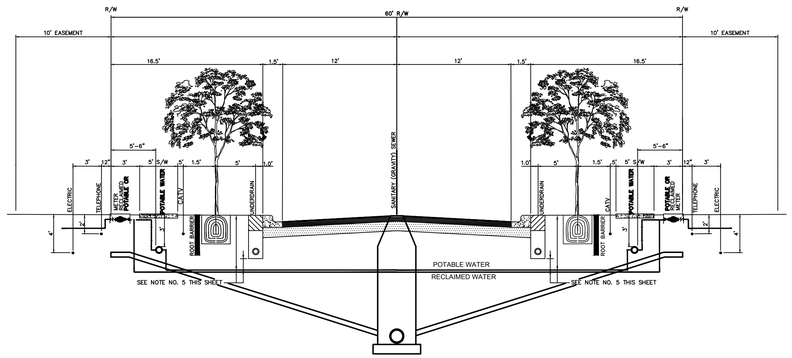
PROPOSED UTILITY TYPICAL SECTION FOR 60' R/W WITH
GRAVITY SEWER BACK OF CURB W/ RECLAIMED WATER

SCALE: N.T.S.



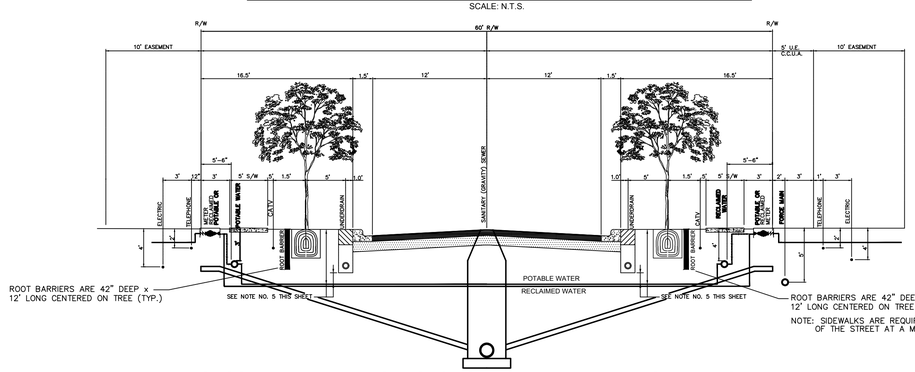
PROPOSED UTILITY TYPICAL SECTION FOR 50' R/W WITH
GRAVITY SEWER IN CENTER OF ROAD W/ RECLAIMED WATER

SCALE: N.T.S.



PROPOSED UTILITY TYPICAL SECTION FOR 60' R/W WITH
GRAVITY SEWER IN CENTER OF ROAD W/ RECLAIMED WATER

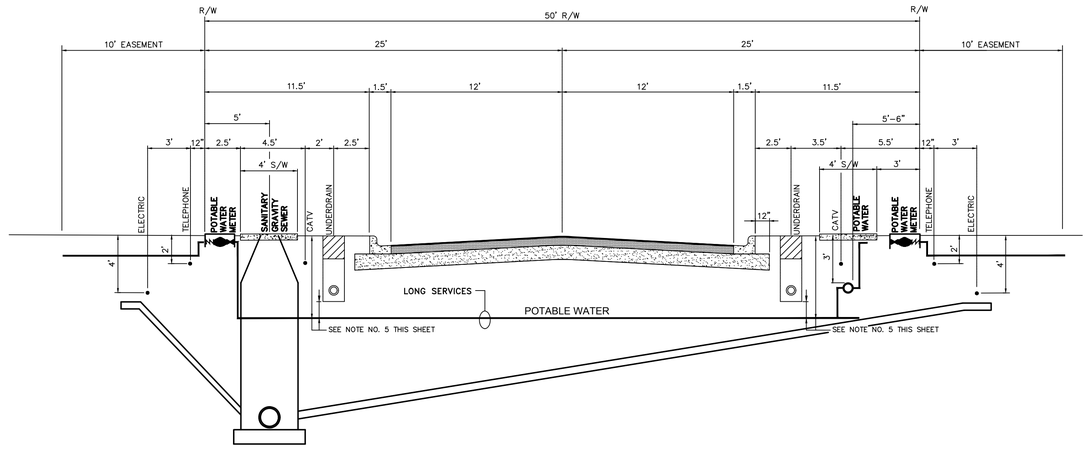
SCALE: N.T.S.



NOTE: SIDEWALKS ARE REQUIRED ON ONE SIDE OF THE STREET AT A MINIMUM.

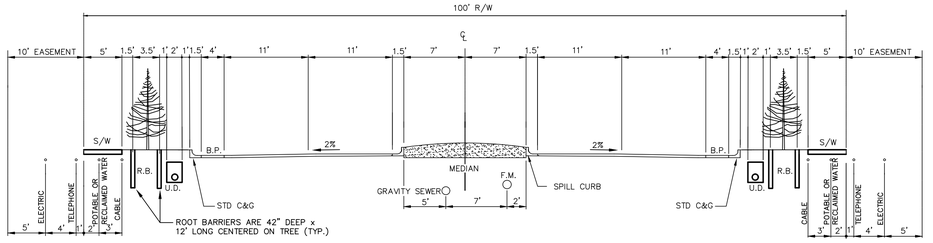
PROPOSED UTILITY TYPICAL SECTION FOR 60' R/W WITH GRAVITY SEWER
IN CENTER OF ROAD W/ FORCE MAIN PARALLEL TO RECLAIMED WATER

SCALE: N.T.S.



PROPOSED UTILITY TYPICAL SECTION FOR 50' R/W WITH
GRAVITY SEWER BACK OF CURB W/O RECLAIMED WATER

SCALE: 1"=5'



ROOT BARRIER SPECIFICATIONS:
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SEE CCUA APPROVED MATERIALS MANUAL TO ROOT BARRIER SPECIFICATIONS.

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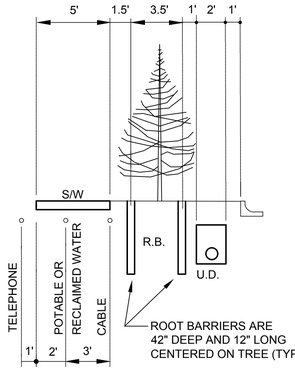
PROPOSED UTILITY TYPICAL SECTION FOR 100' R/W WITH
RAISED MEDIAN AND GRAVITY SEWER IN CENTER OF ROAD

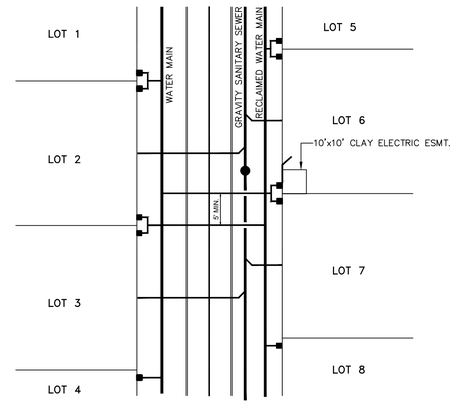
NOT TO SCALE



EXTRUDED SHEETS OR PANELS WITH INTEGRAL MALE/FEMALE SLIDING LOCK CONNECTION ENDS. MATERIAL SHALL BE HDPE WITH A MINIMUM THICKNESS OF 60 MIL, AND SHALL BE RIBBED. ROOT BARRIER SHALL EXTEND TO A MINIMUM DEPTH OF 42" BELOW FINISH GRADE. THE ROOT BARRIER SHALL BE A MINIMUM OF 12' LONG, CENTERED ON THE TREE AND PARALLEL WITH THE UTILITY MAIN OR SERVICE LINE BEING PROTECTED, UNLESS SHOWN OTHERWISE ON THE PLANS. ROOT BARRIER SHALL BE INSTALLED AT ANY TREE PLANTED IN A CCUA UTILITY EASEMENT, OR ANY TREE PLANTED WITHIN 10' OF ALL CCUA UTILITY MAINS OR SERVICES. NO TREES SHALL BE PLANTED IN A CCUA UTILITY EASEMENT EASEMENT WITHOUT THE APPROVAL OF CCUA. NO TREES SHALL BE CLOSER THAN 5' TO ANY CCUA UTILITY LINE OR SERVICES.

ROOT BARRIER DETAIL

SCALE: N.T.S.



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NO	DATE	BY	REVISION DESCRIPTION
7	AUG 17	RHD	REVISED TO ADD ROOT BARRIER DETAIL
6	JUN 17	RHD	REVISED NOTES AND DETAILS
5	NOV 15	RHD	REVISED MAIN PLACEMENT DISTANCES FROM R/W
4	APRIL 06	DCS	ADDED SECTION DETAIL FOR FORCE MAIN PARALLEL TO RECLAIMED MAIN.
3	JUNE 05	MRS	REVISED 60' & 100' R-O-W SECTION DETAILS
2	JUNE 05	GAR	NEW STANDARD DETAIL SHEET
1	APRIL 02	GAR	

DESG GAR
DRWN GAR
CHKD
APRV
DATE

PROJECT:
WATER, SEWER AND RECLAIMED
WATER UTILITY PLACEMENT IN R/W
27' PAVEMENT WIDTH

CLAY COUNTY
UTILITY AUTHORITY
3176 OLD JENNINGS ROAD
MIDDLEBURG, FLORIDA 32068-3907
TELEPHONE: (904) 272-5999

ACAD FILE NAME

SHEET NO.
S-UTC2