

Wastewater System Design and Construction Summary of Revisions

March 3, 2014 Updates

Based on the Product Evaluation Committee findings, the following products/manufacturers are added to the Water Utilities Department Wastewater System Design and Construction.

I. Gravity Sewer Pipe Material: Use of PVC C900 Pipe in place of Ductile Iron Pipe.

The following Sections of the Water Utilities Department “**Wastewater System Design and Construction Standards and Details**” are revised as follows:

- **Sections 1.B (d) and (e) (Page 3 to 4) are to be replaced with the following:**

(d) Alignment: Wastewater collection lines of all sizes shall be designed with uniform slope and alignment between manholes. A 15' distance shall be maintained from top of bank of canals, lakes and structures, unless unavoidable, in which case 10' shall be maintained with C900 PVC pipe. A minimum 10 feet horizontal separation is required to the edge of drainage fabric in exfiltration trenches.

(e) Pipe Material: Polyvinyl Chloride (PVC) ASTM 3034 SDR 26 with PVC SDR 35 fittings, PVC C900, and epoxy lined Ductile Iron Pipe (DIP) shall be acceptable pipe material for gravity Wastewater lines. Unless specific approval is granted, no gravity Wastewater line shall be encased in concrete. PVC gravity lines within Wellfield Zones 1 and 2 shall be C900, DR-18. The lining for DIP shall be factory applied in accordance with the manufacturer's recommendations and shall be warranted by the pipe manufacturer. Ductile iron pipe shall be polywrapped if buried closer than 10' to other underground iron/steel pipes and if no other protection is provided. DIP pipe shall be used only if unavoidable.

DIP gravity sewer main shall be specified in the following circumstances:

- (1) Anytime a wastewater main passes under a potable water main with less than 12" clearance(min. 6" separation is required) No joint within 10' of crossing Potable Water/reclaimed water/storm water lines.
- (2) When a Wastewater main passes over a potable water main regardless of separation (min. 12" clearance is required). No joint within 10 feet of crossing potable/reclaimed water/storm water lines.

PVC C900 DR18 Pipe shall be specified:

- (1) When there is less than 4 feet from finish surface to the invert of the pipe. Four and one half (4 1/2) feet to invert shall be the standard minimum design depth. Less depth will not be accepted unless it is unavoidable and has prior Department approval.

- (2) Any time the Wastewater line is separated horizontally (wall to wall) from a Potable Water Main by less than 10 feet (min. 6 feet is required) or other pipes by less than 5 feet (minimum 3 feet clearance is required).
- (3) When the Wastewater line is placed out of a right-of-way, between buildings, under large diameter pipes, culverts, etc., along property lines or in areas subject to heavy landscaping.
- (4) The last run of gravity from manhole into a wet well.
- (5) Minimum 5" length of C900 PVC from each cored invert (i.e., not precast by manhole manufacturer).
- (6) Any time a wastewater gravity main passes under or over pipes other than potable water mains with less than 12" clearance.

- **Replace under Section D Gravity Wastewater Line Construction (a) (Pages 9-10) with the following:**

(a) Installation: Gravity Wastewater lines shall be laid accurately to both line and grade. The Department will generally not accept any line laid with a slope varying by more than 15% of its design slope especially for lines laid at minimum gradients. For specific instance the minimum acceptable slope of an 8" line shall be .34% if the design called for .40%. The Department reserves the right to independently verify questionable survey results at the Developers/Property Owners expense. Visible leakage, deflections, horizontal misalignment, significant bowing, non-constant slopes between manholes and sagging joints shall each be grounds for rejection of lines. Certified verification by televising of mains and laterals at the Developers/Property Owners expense may be required at the discretion of the Department. A Wastewater lateral connection inspection is required prior to Service Activation. The minimum design depth of a PVC gravity Wastewater line shall be 4.5' to invert. PVC C900 shall be placed for all lengths with less than 4.0' to invert in cases where this cannot be met and prior approval is obtained. Trenches and excavations shall be kept dry and stable while work is in progress.

The contractor shall be responsible to ensure that all safety requirements are met. Unsuitable excavated material such as boulders and logs shall be removed from the site. The pipe barrel shall be uniformly supported along its entire length on undisturbed soil or bedding material. Proper bedding shall be supplied if the existing material includes rock, organic material or other sharp or unsuitable material.

- **Replace Detail Sheets 47S, 49S, 80S**

II. Standard Detail Sheets

The Miscellaneous Revisions to the Standard Detail Sheets are:

- **Replace Detail Sheets 56S, 57S, 71S**
(Delete Spare Conduit from Control Panel to Wet Well Vent)

September 2015 Updates

Based on the Product Evaluation Committee findings, the following products/manufacturers are added to the Water Utilities Department Wastewater System Design and Construction.

1. Section 1.B.(e).(4): Correct minimum pipe length to 5 feet.
2. Section 1.H.(c).(1): Add: "For engineering design purposes, the average daily wastewater flow for one Equivalent Residential Connection (ERC) shall be 200 gallons per day. For non-residential projects, the wastewater flow rate of 0.1 gallons per square foot per day may be used. A minimum peaking factor of 2.5 shall apply. In any case, the designing Engineer is responsible for determination of average flow rates and peaking factors."
3. Section 1.H.(c).(1): Add: " When a Utility owned lift station is proposed as part of a development project and multiple manufacturers' pumps have been approved by the Utility for utilization in the installation of the lift station, the Engineer of Record shall identify at least one of the approved pumps on the design details for the project."
4. Section 1.H.(d): Delete "ultrasonic."
5. Section 1. H (h) Replace with:
"Portable, trailer mounted diesel powered by-pass pumps and portable, trailer mounted and skid mounted generator sets (56 – 400 kW).

(1) General

For projects with more than one proposed PBCWUD owned wastewater pump station, the developer/property owner shall provide at no cost to County, one portable, trailer mounted diesel powered by-pass pump, subject to features and specifications as stated herein. The unit shall be transferred to County by a Bill of Sale prior to a lift station start-up, or sewer system certification for the project, whichever comes first.

The by-pass pumps and generator sets shall be selected from the WUD Approved Material List. The By-Pass Pumps and Generator units shall comply with the latest addition of the National Electric Code, all applicable local, state and federal codes, and be listed by Underwriters Laboratories (UL). The complete sets shall be warranted to be free from defect in materials and workmanship under normal use and service for a period of minimum one year from the date of equipment acceptance by the County. In addition to the equipment and features listed herein, the products shall be equipped with and warranted for all standard equipment and accessories as supplied by the manufacturer for the selected models. The products shall be completely assembled, tested at the factory and ready for operation (with engine oil and coolant) prior to delivery to the County. One set of spare filters (fuel and oil), a shop manual (service, parts), electrical wiring schematics and operating manual are required (hard copy and electronic copy).

(2) Portable Trailer Mounted By-Pass Pumps

The pumping unit shall be diesel powered, handle 3" solids and consist of a direct drive 6"

centrifugal type pump, self priming (vacuum assisted). The pump's mechanical seals shall be designed for indefinite "dry" run time. The turbocharged, liquid cooled six cylinder diesel engine, 1800 rpm, shall comply with all EPA emission standards and most current TIER rating ("Final TIER 4"). A coolant bottle, low coolant shut down, 12V starter, heavy duty wet cell battery, and a battery charging alternator are required. The battery shall be stored on a tray in a protective box. The engine shall be fitted with drain lines (with Camlocks) for engine oil and coolant, plumbed to the exterior. A battery on/off switch is required to eliminate current drain. A sub-base double wall double wall aluminum shall have a leak detection system (primary wall to double wall containment). The fuel capacity shall correspond to minimum 24 hour run time at full load. The tank shall be internally baffled for strength, completely welded and leak proof. The tank's filler neck cap shall be equipped with lock wings for a pad lock. A manual fuel gauge and fuel level sender to the control center (warning and shut down) is required. The engine, pump, control panel, exhaust silencer, battery and an automatic 12V on-board float battery charger (5 Amp) shall be mounted within a weather proof, marine grade aluminum enclosure with powder coat finish on interior and exterior walls. The enclosure shall be insulated with sound attenuation foam. The insulation shall be resistant to high temperatures, fuel and oil. The noise level is not to exceed 71 db(A) at 23 feet. Rubber vibration dampers shall isolate the engine from the "critically silenced" enclosure. The enclosure shall have hinged access doors with lock wings for pad locks. Interior document holder is required. All hardware (including hinges) shall be stainless steel. The exhaust pipe shall not extend vertically or horizontally through the enclosure, and shall terminate with an aluminum rain cap. Minimum one grab handle is required at the rear on each side of the enclosure. Internally mounted, dual florescent timed lights are required. The 6" suction and 6" discharge connections shall terminate with camlocks. A 30 feet suction hose and a 30 feet 4" discharge hose are required. Two 6" by 4" hose adapters and a 4" discharge female Camlock/ male hose adapter are required. There shall be no openings in the enclosure or frame to prevent animal access. A weather protected digital controller shall be back lit with LED indicators for alarm, ready (manual and auto), running, voltage, engine speed, warnings. Push buttons shall be provided for menu navigation for manual/auto start, engine start/stop, alarm cancel/reset, diagnostic information and warnings. The electrical controls shall include wiring for floats, remote start capabilities to an external Automatic Transfer Switch (not included) or SCADA.

The by-pass pump set shall be mounted on a DOT approved, low profile double axle trailer (single axle trailer will be considered on a case by case basis) with hydraulic brakes equipped with a reverse dump valve. A 3" pintle ring towing connection is mandatory. All necessary safety chains, heavy duty fenders (to support a 250 lbs person), DOT lighting package (LED) with a County compatible 6-pin hitch receiver or adapter, a heavy duty tongue fitted one hand cranked gear operated jack stand (with stand shoe), sized to match the unit's weight, are required. Two rear hand cranked gear operated jack stands are required. Wheels shall have tubeless tires, stainless steel valve stems, and marine grade galvanized tire rims. The steel frame shall be coated with RHINO TUFF-GRIP lining (or approved equal) for corrosion protection and shall have no holes. The overall unit length

shall not exceed 15 feet, unless specifically preapproved.

(3) Portable, Skid Mounted or Trailer Mounted Generator Set (56 - 400 kW)

The generator shall be powered by a turbocharged, liquid cooled diesel engine (1800 rpm, four cylinders up to 120 kW, six cylinders for 140-400 kW generators). The engine shall comply with all EPA emission standards and most current TIER ratings. A coolant bottle, low coolant shut down, 12V starter, heavy duty wet cell battery, and a battery charging alternator are required. The battery shall be stored on a tray in a protective box. The engine shall be fitted with drain lines (with Camlocks) for engine oil and coolant, plumbed to the exterior. A battery on/off switch is required to eliminate current drain. An automatic 12V on-board float charger (5 Amp) is required. A sub-base double wall aluminum fuel tank is required, and shall have a leak detection system (primary wall to double wall containment). The fuel capacity shall correspond to minimum 24 hour run time at full load. The tank shall be internally baffled for strength, completely welded and leak proof. The tank's filler neck shall be extended to the outside of the enclosure, and the cap shall be equipped with lock wings for a pad lock. A manual fuel gauge and fuel level sender to the control center (warning and shut down) is required. Complete generator set, including the engine, generator, control panel, exhaust silencer, battery and battery charger shall be mounted within a weather proof, marine grade aluminum enclosure with powder coat finish on interior and exterior walls. The enclosure shall be insulated with sound attenuation foam. The insulation shall be resistant to high temperatures, fuel and oil. The noise level is not to exceed 71 db(A) at 23 feet. Rubber vibration dampers shall isolate the engine from the frame. The enclosure shall have hinged access doors with lock wings for pad locks. Interior document holder is required. All hardware (including hinges) shall be stainless steel. The exhaust pipe shall not extend vertically or horizontally through the enclosure, and shall terminate with an aluminum rain cap. Minimum one grab handle is required at the rear on each side of the enclosure. Internally mounted, dual florescent timed lights are required. There shall be no openings in the enclosure or frame to prevent animal access (anti-rodent protection brushes shall be installed in all openings if unavoidable). A digital controller (protected by a top hinged, pad lock lockable weather proof cover with "stay" supports) shall be back lit with LED indicators for alarm, ready (manual and auto), running, warning, load. Push buttons shall be provided for menu navigation for manual/auto start, engine start/stop, alarm cancel/reset, diagnostic information and warnings. An exterior "Low fuel alarm circuit" is required for connection to SCADA or lift station alarm light. The electrical controls shall include wiring for remote start capabilities and for an external Automatic Transfer Switch. Depending on application location and generator size (150 kW and larger), an Automatic Transfer Switch assembly may be required.

The generator shall have class "H" insulation and be of the latest commercial type. Design shall include PMG (Permanent Magnet Generator) excitation with a digital voltage regulator, soft-start-ramp on initial start-up, Auto/Manual mode, overvoltage shutdown, and VAR/PF controller. A three position AC output selection switch and an automatic off-switch to facilitate output voltage change are required. Two power output cables (100A and 200A rated, respectively), four conductors, minimum 30 feet long, shall be hardwired to the breaker lugs (with a cable strain relief) behind hinged, pad lock lockable, safety switch protected, weather proof access doors. The cable plugs shall be Thomas and Betts Russellstoll JPS 1034 (100A) and JPS 2034 HR (200A). The cables shall be stored in

aluminum pad-locking storage trays located under the generator unit and over the fuel tank.

The following output voltages are required for generators up to 120 kW:

- 120/240V high leg delta – 360 Amp
- 120/208V – 460 Amp
- 277/480V – 180 Amp

For generators 140 – 240 kW, the output voltages shall be:

- 120/240V high leg delta – 721 Amp
- 120/208V – 832 Amp
- 277/480V – 360 Amp

For generators 250 – 400 kW, the output voltages shall be:

- 120/240V high leg delta - 1203 Amp
- 120/208V – 1388 Amp
- 277/480V – 602 Amp

Convenience receptacles 20 A (GFCI protected) and 20 A (breaker protected) are required.

All wiring shall be color coded and protected through plastic loom or a solid conduit, and rubber grommets when passing through metal intersections. Connections must be soldered and use heat shrink material. A separate breaker shall be provided for each circuit to prevent all circuits from being “live” at the same time.

The portable generator set shall be mounted on a DOT approved, low profile double axel trailer (single axle trailer will be considered on a case by case basis) with hydraulic brakes equipped with a reverse dump valve. A 3” pintle ring towing connection is mandatory. All necessary safety chains, heavy duty fenders (to support a 250 lbs person), DOT lighting package with a County compatible 6-pin hitch receiver or adapter, a heavy duty tongue fitted one hand cranked gear operated jack stand (with stand shoe), sized to match the unit’s weight, are required. For single axle trailers, two rear hand cranked gear operated jack stands are required. Wheels shall have tubeless tiers, stainless steel valve stems, and marine grade galvanized tire rims. The steel frame shall be coated with RHINO TUFF GRIP (or approved equal) for corrosion protection and shall have no holes. The overall length of the set shall not exceed 15 feet, unless specifically preapproved.

(4) Skid Mounted Generator Set

All applicable engine/generator set specifications and requirements as listed above shall apply. The steel skid shall be coated with RHINO TUFF GRIP (or approved equal). The fork lift openings shall be oversized for easy handling. Rubber foot pads for bottom of skid generators are required.

6. Section 1.H.(I) (15): Replace with: “Complete Operation, Maintenance, Repair and Service Manuals for Lift Station equipment, by-pass pumps and generators (if applicable). One hard copy and one electronic copy (CD) are required.”

7. Section 1.1.: **Exhibit Listing:**

- Detail 56S: Revise Title “Lift Station Electrical Rack for Gen. Receptacle Located on the Left Side”
- Detail 57S: Revise Title “Lift Station Electrical Rack for Gen. Receptacle Located on the Right Side”
- Detail 59S: Revise Title “Lift Station Control Panel Internal Layout for Motors Smaller than 20 Hp”
- Detail 60S: Revise Title “Lift Station Control Panel Internal Layout for 20 Hp Motors and Larger”
- Detail 61S: Revise Title “Lift Station Control Panel Inner Doors for Motors Smaller than 20 Hp”
- Detail 62S: Revise Title “Lift Station Control Panel Inner Doors for 20 Hp Motors and Larger”
- Detail 71S: Revise Title “Lift Station Electrical Schematics with Soft Starters (Sheet 1 of 3)”
- Detail 72S: Revise Title “Lift Station Electrical Schematics with Soft Starters (Sheet 2 of 3)”
- Detail 73S: Revise Title “Lift Station Electrical Schematics with Soft Starters (Sheet 3 of 3)”
- Detail 74S: Revise Title “Lift Station Control Panel Electrical Riser”
- Detail 75S: Revise Title “ Remote Telemetry Unit Specifications (Sheet 1 of 5)”
- Detail 76S: Revise Title “ Remote Telemetry Unit Specifications (Sheet 2 of 5)”
- Detail 77S: Revise Title “ Remote Telemetry Unit Specifications (Sheet 3 of 5)”
- Detail 78S: Revise Title “ Remote Telemetry Unit Specifications (Sheet 4 of 5)”
- Detail 79S: Revise Title “ Remote Telemetry Unit Specifications (Sheet 5 of 5)”
- Detail 80S: Revise Title “RTU Wiring Diagram/PLC Analog Input Wiring Diagram”
- Detail 81S: Revise Title “Typical Lift Station (Section)”
- Add: “82S Typical Wastewater Service Installation for Vacuum Sewer”
- Add: “83S Rip-Rap Installation Detail”

Standard Details:

- Detail 13S Note 7.B: Revise “Connection to a manhole with a core drilled hole shall be made using a min. 5’ long section of C900 PVC SDR18 pipe and an approved PVC-manhole adapter. The adapter shall not extend more than 1” into the manhole.”; Note 9: Revise “8” diameter pipe – 15” hole for PVC pipe, 10” diameter pipe – 17” hole for PVC pipe”
- Detail 17S: Revise Note “Machined Cover Surface (to Accommodate Inflow Protector)”
- Detail 47S: Revise Influent Pipe Material to “PVC C900 SDR 18”; Delete “Ultrasonic”
- Detail 48S Note F: Revise “Area adjacent to lift station site maybe landscaped, subject to prior planting plan approval by the Department.”
- Detail 49S: Delete “ultrasonic”; Revise Pressure Gauge “0-100 psi”
- Detail 50S: Delete “ultrasonic”
- Detail 56S: Revise Title: “Lift Station Electrical Rack for Generator Receptacle Located on Left Side”; Add: “Note 7. Electrical Panel Support Structure and Antenna Mast have been designed in Accordance with the Florida Building Code 2010 for the Following Criteria: - Risk Category IV; - Exposure Category “C”; - Wind Velocity, Vult = 181 MPH ”; Add “Approx. solar panel size 25” by 25”; Add “ Solar panel shall be mounted approx. 8 – 10 feet above slab”; Add Note “Finish Ground Rod Sleeve with PVC Female Adapter and Recessed Threaded Brass Plug”

- Detail 57S: Revise Title: "Lift Station Electrical Rack for Generator Receptacle Located on Right Side"; Add: "Note 7. Electrical Panel Support Structure and Antenna Mast have been designed in Accordance with the Florida Building Code 2010 for the Following Criteria: - Risk Category IV; - Exposure Category "C"; - Wind Velocity, Vult = 181 MPH"; Add "Approx. solar panel size 25" by 25"; Add "Solar panel shall be mounted approx. 8 – 10 feet above slab"; Add Note "Finish Ground Rod Sleeve with PVC Female Adapter and Recessed Threaded Brass Plug"
- Detail 58S Note 9: Delete "Support cables entering the junction box with split PVC strain relief bushings."
- Detail 59S: Revise Title "Lift Station Control Panel Internal Layout for Motors Smaller than 20 Hp"; Delete Starter sizes; Delete "Pulsar Blackbox 130"; Add approx. scale"
- Detail 60S: Revise Title "Lift Station Control Panel Internal Layout for 20 Hp Motors and Larger"; Delete Starter sizes; Delete "Pulsar Blackbox 130"; Add approx. scale"
- Detail 61S: Revise Title "Lift Station Control Panel Inner Doors for Motors Smaller than 20 Hp"; Delete Starter sizes; Add approx. scale"
- Detail 62S: Revise Title "Lift Station Control Panel Inner Doors for 20 Hp Motors and Larger"; Delete Starter sizes; Add Soft Starter controls; Add approx. scale"
- Detail 63S Note B.1: Revise sentence "Any substitutions or changes must be approved in advance and in writing by the Utility Department"; Note C.1: Revise sentence "The panel with size 1 or 2 starters shall be minimum 36 inch wide x 60 inch high x 12 inch deep (36"W x 60"H x 12"D). The panel with soft starters shall be minimum 36 inch wide x 66 inch high x 16" deep (36"W x 66"H x 16"D)."
- Detail 65S: Add "J. Soft Starters (SSRVS –Item 41). 1. Soft Starters shall be provided in the control panel for the lift stations which have 20Hp motors and larger. Soft Starters shall be solid state reduced voltage starter type with integral bypass, fan and display. Control supply voltage, control logic inputs and fan supply voltage to soft starters shall be 120V. Soft starters shall be rated to operate at higher ambient temperatures. All soft starter settings shall be set and adjusted properly for functional operation of lift station. Set the ramp up time to "5 seconds", the ramp down time to "OFF", auto restart to "ENABLE", the line voltage, and motor full load amp per motor nameplate, etc.."
- Detail 66S Item 5: Delete "Ultrasonic", Item12: Revise TYPE to "STKLPF2K-8 w/ LPF2WG, Item 38: Revise TYPE "PBCRTU2015"
- Detail 67S Note C.: Add "Soft Starters shall be provided for motors 20 Hp and larger"; Add Square D Soft Starters model numbers for 240V and 480V panels as specified by WUD Electrical Consultant
- Detail 69S: Revise electrical schematic as specified by WUD Electrical Consultant
- Details 71S, 72S, 73S: Added details for "Lift Station Electrical Schematic with Soft Starters" Sheets 1,2,3 as specified by WUD Electrical Consultant
- Detail 74S: Revise Title "Lift Station Control Panel Electrical Riser"; Revised "Lift Station Control Panel Riser" as specified by WUD Electrical Consultant
- Detail 75S Revise Title "Remote Telemetry Unit Specifications (Sheet 1 of 5)"; Item I: Added Solar Panel and mounting kit manufacturer: Sunwize Mounting Kit 007954, SolarTech SPM055P-F solar panel with DPM mounting kit; Item J: Deleted "two spare batteries".
- Details 76S, 77S, 78S Revise Title "Remote Telemetry Unit Specifications (Sheets 2, 3, 4 of 5)"
- Detail 79S Revise Title "Remote Telemetry Unit Specifications (Sheet 5 of 5)"; Revise Item J.5. "All external hardware shall be stainless steel with piano hinge, three-point latch with roller fitting up and bottom and single handle with padlock fitting and stainless steel external parts."

- Detail 80S: : Revise Title “RTU Wiring Diagram/PLC Analog Input Wiring Diagram”; Added PLC Analog Input Wiring Diagram as specified by WUD Electrical Consultant
- Detail 81S: Revise Detail number from 80S to 81S; Revise Pressure Gauge “0-100 psi”
- Detail 82S: Revise Detail number from 81S to 82S
- Detail 83S: Added “Rip-Rap Installation Detail”

November 2015 Updates

Based on the Product Evaluation Committee findings, the following products/manufacturers are added to the Water Utilities Department Wastewater System Design and Construction.

1. Section 1.G.(d)(6)(d)(2): Correct typo to “Avanti AV-202”
2. Section 1.H.(a): Add “Buoyancy calculations and cycling time calculations are required. For buoyancy calculations, the assumed ground water level shall be the top slab elevation of the wet well. Top slab shall be set at a 100 year storm elevation, or higher. Top slab, secondary concrete pour, soil friction and mechanical equipment shall not be included in “down weight”. Minimum (1.1) buoyancy safety factor is required. Operating System Pressure calculations (TDH) for low and high pressure conditions, as applicable, shall be based on field confirmed pressure data provided by WUD, and shall consider friction losses, static pressure and minor losses. The low and high pressure system curves shall be plotted together with the selected pump curves, and indicate the projected pump operating and efficiency ranges.”
3. Standard Details:
 - Detail 47S: Add notes to require H-20 load design for the wetwell top slab, the valve vault top slab and the lift station site concrete slab; Revise the electric meter location and add the disconnect switch the back of the panel; Add minimum 42” clear space from the disconnect switch to the fence; Add 18”-24” clear space from the water service to the fence; Update Revision Block
 - Detail 49S: Add notes to require H-20 load design for the wetwell top slab and the lift station site concrete slab; Update Revision Block
 - Detail 50S: Add note to require H-20 load design for the wetwell top slab; Delete “ultrasonic” from Note 2; Update Revision Block
 - Detail 54S: Replace the 1 ½” brass tee upstream of the RPZ assembly with a 90 degree brass bend; Add note to require H-20 load design for the lift station site concrete slab; Update Revision Block

September 2016 Updates

Based on the Product Evaluation Committee findings, the following specifications are added and/or revised:

1. Standard Details

Detail 37S: Revise Meter Box size, update Revision Date

October 2016 Updates

Based on the Product Evaluation Committee findings, the following specifications are added and/or revised:

1. Standard Details

Detail 44S: Add: "Approved Neoprene End Seal with Stainless Steel Bands"; update Revision Date