

SUMMARY OF MAJOR CHANGES FOR 2018

I. POTABLE WATER PIPING – SECTION 350

I.1.1. General: (addition in yellow)

Where a new water main is installed or where an existing water main is relocated or replaced, as shown on the drawings or where necessary due to a direct conflict with proposed construction and when approved by the engineer, the contractor shall install new service piping from the water main to each existing or new water meter. **The lateral and meter shall be the same size.** A renewal and transfer of water service shall include saddle, corp stop, service tubing, curb stop, no-lead brass adapter and meter coupling...

II. WATER VALVES AND APPURTENANCES – SECTION 351 (REVISION IN YELLOW)

The typical valve spacing shall be ~~800~~ 1000 (maximum) feet intervals within residential areas and 500 (maximum) feet intervals within industrial and commercial areas.
required.

III. WASTEWATER FORCE MAINS – SECTION 429

III.1. CORROSION PROTECTION FOR DUCTILE IRON PIPE AND FITTINGS:

III.1.1. Interior Lining:

The interior of all ductile iron pipe and fittings shall be furnished with an approved amine cured novalac epoxy coating. Acceptable coatings Permox-CTF and Protecto 401 ceramic epoxy.

III.1.1.1. Lining Material:

The material shall be an amine cured novalac epoxy containing at least 20% by volume of ceramic pigment. The lining material shall comply with the following properties:

III.1.1.1.1. ASTM D-1653 Permeability, Method A 40-mils free cast

film 30-day duration. 0.00 perms.

III.1.1.1.2. The following test must be run on coupons from factory lined Ductile Iron Pipe.

III.1.1.1.2.1. ASTM B 117-85 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.

III.1.1.1.2.2. ASTM D-4541 Adhesion 700 psi minimum.

III.1.1.1.2.3. ASTM G-95 Cathodic Disbondment shall be not greater than 0.5mm

loose oxides, etc, are removed from the surface. Only slight stains and tightly adhering annealing oxide may be left on the surface. Any area where rust reappears before lining must be re-blasted. Abrasive blasting of previously lined pipe or fitting (including cement lined materials), is not acceptable. Only virgin metal materials will be utilized in the lining process.

III.1.1.2.3. Lining:

Within eight (8) hours of surface preparation, the interior of the pipe and fittings shall receive nominal 40 mils (minimum), couplings/sleeves shall receive nominal 14 mils, and bell and spigot shall receive 6-10 mils maximum of joint compound, normal dry film thickness of the approved lining. No lining shall be applied when the substrate or ambient temperature is below 40 degrees Fahrenheit. The surface also must be dry and dust free. If flanged pipe or fittings are included in the project, the lining shall not be used on the face of the flange. Upon completion of the blast cleaning operation, the lining material should be applied to the interior of the pipe within 12 hours in order to avoid any possible post blast surface contamination. Any area found to have rust bloom prior to application must be re-blasted.

III.1.1.2.4. Number of Coats:

The number of coats of lining material applied shall be as recommended by the lining manufacturer. However, in no case shall this material be applied above the dry thickness per coat recommended by the lining manufacturer in printed literature. The maximum or minimum time between coats shall be that time recommended by the lining manufacturer.

III.1.1.2.5. Touch-Up & Repair:

JEA will not accept damaged or touched-up epoxy lined materials nor will JEA allow field repairs. Field touch-up exceptions may be allowed for field cutting only. Touch-up shall be performed by a certified epoxy-trained applicator with a valid certification card. Touch-up shall be performed in accordance with the lining manufacturer's recommendations..

III.1.1.3. Inspection and Certification:

III.1.1.3.1. JEA may require the contractor to provide the following inspection if a quality concern exists in the field.

III.1.1.3.2. Epoxy lined ductile pipe and fittings shall be inspected for foundry defects. If any defects are found, the pipe or fitting shall be replaced with a new pipe or fitting.

- III.1.1.3.3. Ductile Iron Pipe and Fitting linings shall be checked for thickness using a magnetic film thickness gauge. The thickness testing shall be performed using the method outlined in SSPCPA-2 Film Thickness Rating.
- III.1.1.3.4. The interior lining of all pipe and fittings shall be tested for pinholes with a nondestructive 2,500 volt test. If any defects are found, the pipe or fitting shall be replaced with a new pipe or fitting
- III.1.1.3.5. Each pipe, pipe joint and fitting shall be marked with the date of application of the lining system along with its numerical sequence of application on that date, the manufacturer date of the pipe or fitting and the applicator's certification number. All records of the work shall be maintained by the applicator.

Example:

Date of lining (L) Applicator's Number (A)
 Date of Manufacturing (M) Manufacturer's Name
 Sequence Number (S)

L-08-19-17	A-4
M-06-19-17	USP
S-1-4	

- III.1.1.3.6. No pipe, pipe joint, or fitting shall be accepted if the date of application of the lining system and the date of manufacture of the pipe, pipe joint, or fittings differs by more than two (2) years.

III.1.1.4. Handling (at the factory and in the field):

The lined pipe and fittings must be handled only from the outside of the pipe and fittings. No forks, chains, straps, hooks, etc. shall be placed inside the pipe and fittings for lifting, positioning, or laying. If damaged, the pipe or fittings shall be replaced.

III.1.1.5. Warranty:

A minimum three (3)-year above ground storage replacement warranty and a two (2)-year in-ground warranty, on the serviceability of the lining, shall be furnished by the lining manufacturer on the serviceability of the liner. The lining manufacturer shall provide annual inspections, within the JEA service area, to assure above ground serviceability of the lining and provide documentation of such to the JEA Water Wastewater Standards. This warranty shall include but not be limited to, statements that at any time up to the end of the year from the date of project acceptance:

- III.1.1.5.1. The lining shall not have disbanded.
- III.1.1.5.2. The lining shall not have suffered any appreciable underfilm migration.

III.1.1.5.3. The interior pipe metal, at points of pinholes or holidays, shall not have suffered detrimental deterioration.

III.1.1.5.4. The lining shall have maintained its smooth surface characteristics. The Contractor and/or lining manufacturer shall not make any exemption or exception to the above stated conditions or warranty within the limits as stated in this section of these specifications.

- All Air Release valves shall be stainless Steel

IV. SUBMERSIBLE WASTERWATER PUMPING STATIONS – SECTION 433

IV.1.1. Added, I. All Pump Stations in JEA's service area shall conform to section 433.

IV.1.2. Revised, III.5 Materials:

IV.1.3. Station piping shall conform to JEA Water and Wastewater Standards Chapter IV. 3. - Section 429, entitled Wastewater Force Mains and Chapter IV. 4. Section 430 entitled Wastewater Valves and Appurtenances. Specifically, station piping for Class I, Class II, Class III and Class IV stations shall be plumbed and aligned according the latest ASTM, AWWA standards, any piping ill-regularities shall be removed and replaced.:

IV.1.3.1. Piping within the wet well shall be flanged 316 stainless steel, (schedule 10, one-piece construction with no butt-welds with exception of pump-out pipe). Fittings within the wet well shall be flanged 316 stainless steel. All nuts, bolts and accessories within the wet well shall be 316 stainless steel.

IV.1.3.2. Pipe and fittings outside of the wet well and above ground shall be 316 stainless steel (flanged, schedule 10 with no butt-welds). All bolts, washers and nuts shall be 316 stainless steel, threaded bolts and nuts shall be coated with "Never Seize" type coating.

IV.1.3.3. Force main piping below ground, outside of the wet well shall be in accordance with Chapter IV. 3. - Section 429 and Chapter IV. 4. – Section 430 of this standards manual. No connections permitted into JEA force mains which are greater than 12" size unless the connection is from a class two pump station or larger. All connections shall be 4" size or larger (no 2" size connections).

IV.1.3.4. All Cam-locks shall be 316 stainless steel.

IV.1.4. Minimum wet well size shall be 8-foot diameter. A 12 foot diameter wet well (minimum) shall be utilized in cases where the pump discharge piping (in the wet well) is 10-inch diameter or larger.

IV.1.5. Refer to Chapter IV. 7. - Section 472, "Emergency Generator", for technical specifications on automatic standby emergency generator with diesel engine drive and above ground fuel storage tank. All generators shall be sized to run all pumps at station.

IV.1.6. Refer to Chapter IV.6 – section 407, “Emergency Pump Engines”, for technical specifications on standby emergency pump engine with fuel storage tank. All emergency pump engines shall be sized to run all pumps at station.

IV.2. REVISE: SELECTION OF PUMP STATION STANDARDS:

JEA Pump Station Standards are available in Auto CAD format, on the jea.com website. The selection of a pump station type shall comply with the following:

Pump Station Type	Pump Station Maximum Peak Flow (GPM)	Pump Station Maximum ADF, & EDU	Emergency Operating System Required	Odor Control Required	Additional Design Requirements	Solids Removal
Class One	0 – 440 GPM	174,999 GPD 499 EDU	Generator or Pump Engine	Not required	Flow meter and Smart meter.	
Class Two	441 – 1000 GPM	175,000 – 436,450 GPD 500 - 1247 EDU	Generator or Pump Engine	Electrical sizing, piping and pad provided for future odor control.	Flow meter and Smart meter	
Class Three	1001 – 2000 GPM	436,451 - 971,250 GPD 1,248 – 2,775 EDU	Generator and 2 Pump Engines	Required	Flow meter and Smart meter Electric power, controls, building with ventilation. See section 11.6.10.	Required
Class Four	2001 GPM and Above	971,250 GPD and above 2,775 EDU and above	Generator and 2 Pump Engines	Required	Flow meter and Smart meter Electric power, controls, building with ventilation. See section 11.6.10.	Required

i. Definition of Flow:

1. Maximum Peak flow in GPM (gallons per minute) is the ultimate peak design flow of the pump station using the 10 State Standards peaking factor applied to 3.5 people per Equivalent Dwelling Units (EDU) and 100 GPD per person.

2. The pump station Maximum Average Daily Flow (gallons per day) is the station's un-peaked maximum/ultimate average daily flow rate the station will be pumping.
 3. The pump station's number of EDU's is the number of Equivalent Dwelling Units it will be pumping, which equates to 350 GPD per EDU.
 4. The pump station maximum GPM excludes the flow from the permanently installed stand-by pump and any emergency standby by pump (pony).
- ii. Back Up Power Requirements:
1. An emergency operating system shall be required for all pump stations. The emergency operating system shall be an Emergency Generator (see section 472, Emergency Generator) or Emergency Pump Engine (see section 470, Emergency Pump Engine).
- iii. All pumping stations shall have a Smart meter to monitor electrical conductivity. The electrical provider shall supply the meter.
- iv. All pumping stations emergency back-up system, separate or combined, are to be sized to the same rate as all permanent pumps, pumping simultaneous.
- v. All Class One and Two pumping stations, both rehabilitation and new construction, shall include an ultrasonic flow meter (indicating, totalizing, data transmission via scada and recording capabilities). Approved manufacturers Flexim – Fluxus-7407 or JEA equal.
- vi. All Class Three and Four pumping stations, both rehabilitation and new construction, shall include a magnetic flow meter (indicating, totalizing, data transmission via scada and recording capabilities) with bypass configuration located within the fenced area. Approved manufacturers: Khone - Enviromag 2000, Endress+Hauser (EH) – Proline Promag W-400 or JEA Equal.
- vii. All Class Three and Four pumping stations, both rehabilitation and new construction, shall include an influent solids removal system with debris storage, offsite deposal method and odor control.
- viii. Odor Control Requirements:
1. All stations with a maximum peak flow greater than 440 GPM shall include electrical service sizing, control panel sizing, piping and concrete pad for future odor control.
 2. All stations with a maximum peak flow greater than 1000 GPM shall include an odor control system.
- ix. Electrical Control Building required if any of the below conditions exists:
1. Pumps larger than 75HP
 2. Station FLA > 400 amps
 3. Station HAS > 3 pumps

IV.3. REMOVED SECTION IV.12 GRINDER PUMP CONSTRUCTION (FOR CLASS ONE PUMP STATIONS ONLY):

V. IN-LINE BOOSTER WASTEWATER PUMPING STATIONS - SECTION 435

Revised: III.4. MATERIALS

All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purpose specified.

- V.1.1. Unless indicated otherwise on the drawings, all metal components, with the exception of pumps and motors shall be anodized aluminum or 316 stainless steel as specified here in or on the plans.
- V.1.2. The pumps and motors shall be supplied by the pump supplier to ensure unit compatibility.
- V.1.3. Station piping shall conform to JEA Water and Wastewater Standards Chapter IV. 3. - Section 429, entitled Wastewater Force Mains and Chapter IV. 4. Section 430, entitled Wastewater Valves and Appurtenances. Specifically, station piping for Class I, Class II, Class III and Class IV stations shall be plumbed and aligned according the latest ASTM, AWWA standards, any piping ill-regularities shall be removed and replaced.:
 - V.1.3.1. Piping within the in-line booster station site shall be flanged 316 stainless steel, (schedule 10, one-piece construction with no butt-welds with exception of pump-out pipe). Fittings shall be flanged 316 stainless steel. All nuts, bolts and accessories within shall be 316 stainless steel.
 - V.1.3.2. Pipe and fittings above ground shall be 316 stainless steel (flanged, schedule 10 with no butt-welds). All bolts, washers and nuts shall be 316 stainless steel, threaded and shall be coated with "Never Seize" type coating.
 - V.1.3.3. Force main piping below ground, shall be in accordance with Chapter IV. 3. - Section 429 and Chapter IV. 4. – Section 430 of this standards manual. No connections permitted into JEA force mains which are greater than 12" size unless the connection is from a master pump station (441 GPM/MIN) All connections shall be 4" size or larger (no 2" size connections).
- V.1.4. Refer to Chapter IV. 7. - Section 472, "Emergency Generator", for technical specifications on automatic standby emergency generator with diesel engine drive and above ground fuel storage tank. All generators shall be sized to run all pumps. All in-line booster stations must be provided with an automatic standby generator. (See section 472, Emergency Generator)
- V.1.5. Refer to Chapter IV.6 – section 407, "Emergency Pump Engines", for technical specifications on standby emergency pump engine with fuel storage tank. All emergency pump engines shall be sized to run all pumps at station
- V.1.6. All Class Two pumping stations, both rehabilitation and new construction, shall include an ultrasonic flow meter (indicating, totalizing, data transmission via scada and recording capabilities). Approved manufacturers Flexim – Fluxus-7407 or JEA equal.
- V.1.7. All Class Three and Four pumping stations, both rehabilitation and new construction, shall include a magnetic flow meter (indicating, totalizing, data transmission via scada and recording capabilities) with bypass configuration located within the fenced area. Approved manufacturers: Khone - Enviromag 2000, Endress+Hauser (EH) – Proline Promag W-400 or JEA Equal.

V.1.8. All pumping stations shall have a Smart meter to monitor electrical conductivity. The electrical provider shall supply meter.

V.2. REVISED III.5. CRITERIA FOR AN IN-LINE BOOSTER WASTEWATER PUMPING STATION:

Pump Station Type	Pump Station Maximum Peak Flow	Emergency Operating System Required	Additional Design Requirements
Class Two	441 – 1000 GPM	Generator or Pump Engine	Flow meter and Smart meter
Class Three	1001 – 2000 GPM	Generator and 2 Pump Engines	Flow meter and Smart meter Electric power, controls, building with ventilation.
Class Four	2001 GPM and Above	Generator and 2 Pump Engines	Flow meter and Smart meter Electric power, controls, building with ventilation.

III.5.1. The use of an in-line booster wastewater pumping station is intended to serve areas within the sewer collection systems that have a large basin area and long force mains. Criteria for the selection of an in-line booster station includes a location where all flow is pumped to the site, no influent gravity flow, no system storage available, and a minimum pumping capacity of 441 gpm. JEA will have the final approval on the use of and in-line booster station.

III.5.2. The pump station maximum GPM excludes the flow from the stand-by pump.

III.5.3. For motors larger than 75 HP and/or have a full load amperage of greater than or equal to 400 amps, an electric power and control building shall be provided in accordance with the Submersible Wastewater Pumping Station – Section 433, VII, Prefabricated Concrete Enclosure standards.

VI. EMERGENCY PUMP ENGINES - SECTION 470

Chapter edited and revised.

VII. EMERGENCY GENERATOR (LESS THAN 600KW) – SECTION 472

Chapter Revised: Shared Services Standards is taking over the Generator Specifications.

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VIII. HORIZONTAL DIRECTIONAL DRILL - SECTION 750

VIII.1. DUAL DIRECTIONAL DRILLS ARE REQUIRED FOR REDUNDANCY

IX. HORIZONTAL DIRECTIONAL DRILL - SECTION 755

IX.1. DUAL DIRECTIONAL DRILLS ARE REQUIRED FOR REDUNDANCY

X. WATER AND RECALIMED CONSTRUCTION DETAILS

- X.1.1. W-1 CHANGED DRAWING NOTES ADDING 'SERVICE SIZE SHALL BE SAME AS THE METER SIZE'
- X.1.2. W-2 CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- X.1.3. W-10 DEFINED GAS AND TREE SPERATION FROM UTILITIES
- X.1.4. W-15A NEW PLATE "CROSS CONNECTION CONTROL DEVICE"
- X.1.5. W-43A NEW PLATE "DUAL DIRECTIONAL DRILL "
- X.1.6. W-44 CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- X.1.7. W-44A CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- X.1.8. W-44B CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- X.1.9. W-45 NEW PLATE "SWABBING PORT" SECTION
- X.1.10. W-45A NEW PLATE "SWABBING PORT" PLAN
- X.1.11. W-45B NEW PLATE "SWABBING LUNCHING STATION"
- X.1.12. W-45C NEW PLATE "SWABBING LUNCHING STATION" PLAN
- X.1.13. W-45D NEW PLATE "SWABBING LUNCHING STATION" SECTION

XI. WASTERWATER CONSTRUCTION DETALS

- XI.1.1. S-21A NEW PLATE "DUAL DIRECTIONAL DRILL "
- XI.1.2. S-26 DEFINED GAS AND TREE SPERATION FROM UTILITIES
- XI.1.3. S-29 UPDATED ARV
- XI.1.4. S-29A UPDATED ARV
- XI.1.5. S-2B UPDATED ARV
- XI.1.6. S-49 CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- XI.1.7. S-49A CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- XI.1.8. S-49B CHANGED LOCATE WIRE PIG TAIL FROM 12" TO 24"
- XI.1.9. W-54 NEW PLATE "SWABBING PORT" SECTION

- XI.1.10. W-54A NEW PLATE "SWABBING PORT" PLAN
- XI.1.11. W-54B NEW PLATE "SWABBING LUNCHING STATION"
- XI.1.12. W-54C NEW PLATE "SWABBING LUNCHING STATION" PLAN
- XI.1.13. W-54D NEW PLATE "SWABBING LUNCHING STATION" SECTION

XII. WATER & RECLAIMED APPROVED MATERIALS (UPDATED CORRECTED MANUFACTURERS)

- XII.1.1. REVEIWED ALL PLATES

XIII. WASTEWATER APPROVED MATERIALS (UPDATED CORRECTED MANUFACTURERS)

- XIII.1.1. AS-603 Updated
- XIII.1.2. AS-604 Updated
- XIII.1.3. AS-605 "NEW EMERGENCY PUMP ENGINE"

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