

**SECTION 22 30 00**  
**PLUMBING EQUIPMENT**

**PART 1      GENERAL**

**1.01      REFERENCES**

A.    The following is a list of standards which may be referenced in this section:

1.    American Gas Association (AGA).
2.    American Society of Heating, Refrigerating & Air-Conditioning Engineers, Inc. (ASHRAE): 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings.
3.    American Society of Mechanical Engineer's (ASME).
4.    American Society of Sanitary Engineering (ASSE):
  - a.    1013, Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Backflow Preventers.
  - b.    1015, Performance Requirements for Double Check Backflow Prevention Assemblies and Double Check Backflow Fire Protection Assemblies.
5.    American Water Works Association (AWWA):
  - a.    C510, Double Check Valve Backflow Prevention Assembly.
  - b.    C511, Reduced-Pressure Principle Backflow Prevention Assembly.
  - c.    C550, Protective Interior Coatings for Valves and Hydrants.
6.    ASTM International (ASTM):
  - a.    A48/A48M, Standard Specification for Gray Iron Castings.
  - b.    D4101, Standard Specification for Polypropylene Injection and Extrusion Materials.
7.    Canadian Standards Association (CSA):
  - a.    B64.4, Backflow Preventers, Reduced Pressure Principle Type (RP).
  - b.    B64.5, Backflow Preventers, Double Check Valve Type (DCVA).
8.    FM Global (FM).
9.    Food and Drug Administration (FDA).
10.   Foundation for Cross-Connection Control and Hydraulic Research at University of Southern California (FCCHR): Manual of Cross-Connection Control.
11.   International Code Council (ICC): International Plumbing Code (IPC).
12.   National Electrical Code (NEC).
13.   National Electrical Manufacturers Association, (NEMA): MG 1, Motors and Generators.

14. NSF International (NSF):
  - a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
  - b. NSF/ANSI 372, Drinking Water System Components - Lead Content.
15. UL.

## 1.02 SUBMITTALS

- A. Action Submittals:
  1. Manufacturer's product data.
  2. Anchorage and bracing drawings and cut sheets, as required by Section 01 88 15, Anchorage and Bracing.
- B. Informational Submittals:
  1. Anchorage and bracing calculations as required by Section 01 88 15, Anchorage and Bracing.
  2. Component and attachment testing seismic certificate of compliance as required by Section 01 45 33, Special Inspection, Observation, and Testing.

## 1.03 SPECIAL GUARANTEE

- A. Where note below, provide manufacturer's extended guarantee in writing with Contracting Officer named as beneficiary. Special guarantee shall provide for correction, or at the option of the Contracting Officer, removal and replacement of products found defective during the stated period after date of Substantial Completion.

## PART 2 PRODUCTS

### 2.01 GENERAL

- A. Physical Characteristics: None.
- B. Functional Characteristics: None.
- C. Performance Characteristics:
  1. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

2. Use or reuse of components and materials without a traceable certification is prohibited.
3. All equipment applicable to Energy Star and FEMP designation shall meet associated requirements.

## 2.02 WATER HEATERS

### A. Electric Water Heater (Commercial):

1. Manufacturers:
  - a. AO Smith.
  - b. Or equal.
2. Physical Characteristics:
  - a. Description:
    - 1) Automatic, vertical, electric storage type.
    - 2) Tank: Steel, glass-lined.
    - 3) Insulation: Foam or fiberglass.
    - 4) Dip Tube: Required on inlet connection down to bottom section of tank.
    - 5) Anode: Heavy-duty, tank-mounted, screw-in type.
    - 6) Connections: Inlet and outlet with factory-installed dielectric unions and brass drain valve with hose thread.
    - 7) Heating Element: Incoloy sheath; immersion type.
    - 8) Controls: Fully automatic, house in hinged control panel, and including the following:
      - a) Terminal block.
      - b) Close differential immersion-type thermostat.
      - c) Control transformer for 120-volt circuit and fusing.
      - d) Magnetic contactors for each stage.
      - e) Manual reset high-limit switch.
    - 9) Guarantee: 3 years.
3. Functional Characteristics: See Electric Water Heater Data Sheet in Article Supplements in this section.
4. Performance Characteristics:
  - a. Regulatory Compliance: UL listed, ASME, ASHRAE 90.1, and NSF.
  - b. Tank: 150 psig working pressure and ASME rated.
  - c. Insulation: Minimum R value per ASHRAE 90.1.
  - d. Pressure/Temperature Relief Valve: ASME rated.
  - e. Heating Element: Watt-density (maximum of 75 watts per square inch) incoloy sheath.
  - f. Controls:
    - 1) Power circuit fusing as required by NEC and UL.
    - 2) Adjustable temperature range, 95 degrees F to 180 degrees F.

## 2.03 DOMESTIC WATER EXPANSION TANK

### A. Manufacturers and Products:

1. AMTROL, Inc.; Model AST.
2. Or equal.

### B. Physical Characteristics:

1. Type: Pre-pressurized diaphragm type, horizontal or vertical per expansion tank data sheet at end of section.
2. Shell: Welded steel.
3. Diaphragm: Heavy-duty butyl with polypropylene liner.
4. Connection Size: Per expansion tank data sheet at end of section.
5. Finish: Manufacturer's standard air-dry enamel.

### C. Functional Characteristics: None.

### D. Performance Characteristics:

1. Diaphragm: FDA-approved.
2. Maximum Operating Pressure: 150 psi.
3. Maximum Operating Temperature: 200 degrees F.
4. Capacity: See Domestic Water Expansion Tank Data Sheet in Article Supplements in this section.

## 2.04 DOMESTIC HOT WATER CIRCULATING PUMP

### A. Manufacturers:

1. Bell & Gossett.
2. Or equal.

### B. Physical Characteristics:

1. Description:
  - a. Type: in-line, direct-drive, close-coupled centrifugal pump.
  - b. Construction: bronze body, stainless steel face plate, glass-filled polyphenylene oxide (PPO) and styrene impeller, carbon steel shaft, mechanical carbon on ceramic seals, and bronze oil lubricated motor bearings.
  - c. Motor: permanent split-capacitor with thermal overload protection.
  - d. Accessories: Aquastat and automatic timer kit.

### C. Functional Characteristics: None.

D. Performance Characteristics:

1. Capacity: See Domestic Water Circulating Pump Data Sheet in Article Supplements in this section.

2.05 ACID NEUTRALIZATION TANK

A. Manufacturers and Products:

1. Zurn; Z9A-PHIX.
2. Or equal.

B. Physical Characteristics:

1. Removable neutralization chamber, sediment collection chamber, 1-1/2-inch tailpiece drain inlet, and 2-inch no-hub drain outlet.
2. Acid Neutralization Media: Non-hazardous solid alkali non-resin material
3. Tank: Polypropylene.

C. Functional Characteristics: Neutralizing acidic wastewater.

D. Performance Characteristics:

1. Capacity: See Acid Neutralization Data Sheet in Article Supplements in this section.

2.06 BACKFLOW PREVENTERS

A. Double Check Backflow Preventer (3/4 Inch Through 2 Inches):

1. Manufacturers and Products:

- a. Febco; Model 850.
- b. Or equal.

2. Physical Characteristics:

a. Description:

- 1) Valve Body: Bronze.
- 2) End Connections: Threaded, NPT.
- 3) Shutoff Valve: Full port, resilient seated, bronze ball valve with bronze ball valve test cock.
- 4) Inlet Strainer: Bronze wye strainer, 40-mesh perforated, Type 304 stainless steel.

- b. Sizes: See Backflow Preventer Data Sheet in Article Supplements in this section.

3. Functional Characteristics: None.

4. Performance Characteristics:
  - a. Maximum Working Pressure: 175 psi (350 psi test).
  - b. Temperature Range: 32 degrees to 140 degrees F.
  - c. Regulatory Compliance: AWWA C510, CSA B64.5, FCCHR of USC Section 10, ASSE 1015, ICC (IPC).
  - d. See Backflow Preventer Data Sheet in Article Supplements in this section.

B. Double Check Backflow Preventer (2-1/2 Inches Through 10 Inches):

1. Manufacturers and Products:
  - a. Febco; Model 850.
  - b. Or equal.
2. Physical Characteristics:
  - a. Description:
    - 1) Valve Body: Ductile or cast iron, Class 125, epoxy-coated (FDA approved).
    - 2) End Connections: Flanged.
    - 3) Shutoff Valve: Nonrising stem, resilient seated gate valve with bronze ball valve test cock.
    - 4) Inlet Strainer: Cast-iron wye strainer, Class 125 flanged, fusion epoxy AWWA C550 coated, perforated stainless steel screen (1/16-inch perforations on 2-1/2 inches to 4 inches; 1/8-inch perforation on 6 inches to 10 inches), threaded cap plug blowout opening.
    - 5) Sizes: See Backflow Preventer Data Sheet in Article Supplements in this section.
3. Functional Characteristics: None.
4. Performance Characteristics:
  - a. Maximum Working Pressure: 175 psi (350 psi test).
  - b. Temperature Range: 32 degrees to 140 degrees F.
  - c. Regulatory Compliance: AWWA C510, CSA B64.5, FCCHR of USC Section 10, ASSE 1015, ICC (IPC).
  - d. See Backflow Preventer Data Sheet in Article Supplements in this section.

C. Reduced Pressure Backflow Preventers (1/4 Inch Through 1/2 Inch):

1. Manufacturers and Products:
  - a. Conbraco Industries; Series 20-400.
  - b. Or equal.
2. Physical Characteristics:
  - a. Description:
    - 1) Valve Body: Bronze.
    - 2) End Connections: Threaded, NPT.

- 3) Shutoff Valve: Full port, resilient seated, bronze ball valve with bronze ball valve test cock.
  - 4) Accessories: Drainline air gap fitting.
  - 5) Sizes: See Backflow Preventer Data Sheet in Article Supplements in this section.
3. Functional Characteristics: None.
  4. Performance Characteristics:
    - a. Maximum Working Pressure: 175 psi (350 psi test).
    - b. Temperature Range: 32 degrees to 140 degrees F.
    - c. Regulatory Compliance: AWWA C511, CSA B64.4, ASSE 1013, ICC (IPC), FM, USC-UL.
    - d. See Backflow Preventer Data Sheet in Article Supplements in this section.

D. Reduced-Pressure Backflow Preventers (3/4 Inch Through 2 Inches):

1. Manufacturers and Products:
  - a. Febco; Model 825.
  - b. Or equal.
2. Physical Characteristics:
  - a. Description:
    - 1) Valve Body: Bronze.
    - 2) End Connections: Threaded, NPT.
    - 3) Shutoff Valve: Full port, resilient seated, bronze ball valve with bronze ball valve test cock.
    - 4) Inlet Strainer: Bronze wye strainer, 40-mesh perforated, Type 304 stainless steel.
    - 5) Accessories: Drainline air gap fitting.
    - 6) Sizes: See Backflow Preventer Data Sheet in Article Supplements in this section.
3. Functional Characteristics: None.
4. Performance Characteristics:
  - a. Maximum Working Pressure: 175 psi (350 psi test).
  - b. Temperature Range: 32 degrees F to 140 degrees F.
  - c. Regulatory Compliance: AWWA C511, CSA B64.4, FCCHR of USC Section 10, ASSE 1013, ICC (IPC).
  - d. See Backflow Preventer Data Sheet in Article Supplements in this section.

E. Reduced Pressure Backflow Preventers (2-1/2 Inches Through 10 Inches):

1. Manufacturers and Products:
  - a. Febco; Model 825YD.
  - b. Or equal.

2. Physical Characteristics:
  - a. Description:
    - 1) Valve Body: Ductile or cast iron, Class 125, epoxy-coated (FDA approved).
    - 2) End Connections: Flanged.
    - 3) Shutoff Valve: Nonrising stem, resilient seated gate valve with bronze ball valve test cock.
    - 4) Inlet Strainer: Cast-iron wye strainer, Class 125 flanged, fusion epoxy AWWA C550 coated, perforated stainless steel screen (1/16-inch perforations on 2-1/2 inches to 4 inches; 1/8-inch perforation on 6 inches to 10 inches), threaded cap plug blowout opening.
    - 5) Accessories: Drainline air gap fitting.
    - 6) Sizes: See Backflow Preventer Data Sheet in Article Supplements in this section.
3. Functional Characteristics: None.
4. Performance Characteristics:
  - a. Maximum Working Pressure: 175 psi (350 psi test).
  - b. Temperature Range: 32 degrees F to 140 degrees F.
  - c. Regulatory Compliance: AWWA C511, CSA B64.4, FCCHR of USC Section 10, ASSE 1013, IAPMO (UPC), SBCCI.
  - d. See Backflow Preventer Data Sheet in Article Supplements in this section.

## 2.07 REVERSE OSMOSIS SYSTEM

### A. Manufacturers and Products:

1. Millipore Sigma.
2. Or equal.

### B. Physical Characteristics:

1. Description:
  - a. Tank: Millipore Polyethylene reservoir model TANKPE0100.
  - b. Pump: March Series 4 AC-4C-MD polypropylene centrifugal pump with magnetic drive.
  - c. RO Membrane: High performance with pretreatment purification. Millipore ESPIRE RIOs 8 RO water system.
  - d. Other Components Shall Include:
    - 1) Pressure Regulator.
    - 2) Sanitization Port.
    - 3) Check Valve.
    - 4) Reject Water Recovery Loop.
    - 5) Flush Solenoid Valve.
    - 6) Permeate Conductivity Cell.

- 7) Permeate Divert Valve.
  - 8) Reservoir: Conical bottom polyethylene.
  - 9) UV Automatic sanitation module
- 2. Capacity: See RO Water System Data Sheet in Article Supplements in this section.
- 3. Hydrophilic 0.2 Micron PVDF filters, Durapore model CVDi01TPE
- C. Functional Characteristics: None.
- D. Performance Characteristics: See RO Water System Data Sheet in Article Supplements in this section.

## 2.08 SANITARY LIFT STATION

- A. Manufacturers:
  - a. PARK USA.
  - b. Or equal.
- B. Physical Characteristics:
  - 1. Description:
    - a. Basin: Concrete basin.
    - b. Floor Elbow: Type 316 stainless steel.
    - c. Sliding Bracket: Type 316 stainless steel.
    - d. Piping: Schedule 80 PVC.
    - e. Epoxy liner to coat the interior concrete lift station. Two component bisphenol A 100 percent solids epoxy liner.
      - 1) 2560 psi tensile strength.
      - 2) 0.31 percent tensile elongation.
      - 3) 6170 psi compressive strength.
      - 4) 4580 psi flexural strength.
      - 5) 80 Shore D hardness.
      - 6) Greater than 2500 psi adhesion.
    - f. Pump: Duplex, grinder.
      - 1) Submersible Base: Epoxy or Stainless Steel.
      - 2) Case: Cast Iron.
      - 3) Impeller: Stainless Steel.
      - 4) Rotating Cutter: Type 440C Stainless Steel.
      - 5) Shredder Ring: Type 440C Stainless Steel.
      - 6) Motor:
        - a) Shell: Cast Iron.
        - b) Insulation: Class F.
        - c) Ball Bearings: Double sealed.
        - d) Shaft: Stainless Steel.

- 7) Electrical: Power and control cables, with length, voltage, and power requirements as indicated on data sheet at end of section.
- 8) Controls:
  - a) Pump Control Indicators:
    - (1) Pump No. 1 and No. 2 hand-off-auto switch.
    - (2) Pump run light.
    - (3) Pump fault light with reset button.
    - (4) Power On.
  - b) Alarm visible indicators.
  - c) Remote Monitoring (dry contacts):
    - (1) High liquid.
    - (2) Pump Run(s).
    - (3) Pump Fault(s).
  - d) Motor Protection Switches:
    - (1) Branch Circuit.
    - (2) Adjustable overload.
    - (3) Disconnect.
- g. Submersible Level Transmitters:
  - 1) Transmitters consist of piezoresistive sensing element in a stainless steel housing.
  - 2) Lightning and surge protection using dual arrestor technology.
  - 3) Intrinsically safe for use in hazardous locations.
  - 4) PLUS or MINUS 0.25 percent full scale accuracy.
  - 5) 50 ms response time.
- h. Valve Assembly:
  - 1) (Two) 90° Ball check valves.
  - 2) (One) Four-way isolation valve.
  - 3) (One) Lockable handle.
- i. Hatchways: Stainless Steel Halliday Grate.
- j. Capacity: See Sanitary Sewer Lift Station Data Sheet in Article Supplements in this section.

C. Functional Characteristics: None.

D. Performance Characteristics:

1. Pump Controls Enclosure: Indoor/Outdoor NEMA 4X.
2. Valve Assembly: ANSI B61 iron 125 psi.
3. Epoxy liner: Meet ASTM D 638 Standard Test Methods for Tensile Properties of Plastics, ASTM D 695 Standard Test Method for Compressive Properties of Rigid Plastics, and ASTM D 790 Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials, and ASTM D 2440 Standard Test Method for Oxidation Stability of Mineral Insulation Oil,

- and ASTM D 4541 Standard Test Method for Pull off Strength, and  
ASTM D 7234 Standard Test Method for Pull off Adhesion.
4. See Sanitary Sewer Lift Station Data Sheet in Article Supplements in this section.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install, arrange, and connect equipment as shown and in accordance with manufacturer's recommendations.

#### **3.02 FIELD QUALITY CONTROL**

- A. Pumps: Do not hydrostatic test pumps with mechanical seals.
- B. Startup:
  1. In accordance with Section 01 91 14, Equipment Testing and Facility Startup, and Section 23 05 93, Testing, Adjusting, and Balancing for HVAC.
  2. Piping Systems: Verify that flushing, cleaning, and testing has been completed prior to startup.

#### **3.03 SUPPLEMENTS**

- A. The supplements listed below, following "End of Section," are a part of this specification:
  1. Electric Water Heater (Commercial) Data Sheet.
  2. Domestic Water Expansion Tank Data Sheet.
  3. Domestic Hot Water Circulating Pump Data Sheet.
  4. Acid Neutralization Tank Data Sheet.
  5. Backflow Preventers Data Sheet.
  6. Reverse Osmosis System Data Sheet.
  7. Sanitary Sewer Lift Station, Sump Data Sheet.
  8. Sanitary Sewer Lift Station, Duplex Submersible Grinder Pump Data Sheet.

### **END OF SECTION**



| Electric Water Heater<br>(Commercial)             |                                  |                        |                    |                                      |         |                      |                    |                                   |
|---------------------------------------------------|----------------------------------|------------------------|--------------------|--------------------------------------|---------|----------------------|--------------------|-----------------------------------|
| Tag<br>Number                                     | Storage<br>Capacity<br>(gallons) | Total<br>Input<br>(kW) | No. of<br>Elements | Simultaneous<br>Element<br>Operation | Voltage | Diameter<br>(inches) | Height<br>(inches) | Manufacturer, Model No.           |
| 10-WH-1                                           | 120                              | 12.3                   | 1                  | Yes                                  | 480*    | 30                   | 70                 | AO Smith, Model DSE-120 or equal. |
| 10-WH-2                                           | 120                              | 18                     | 1                  | Yes                                  | 480*    | 30                   | 70                 | AO Smith, Model DSE-120 or equal. |
| 12-WH-1                                           | 120                              | 12.3                   | 1                  | Yes                                  | 480*    | 30                   | 70                 | AO Smith, Model DSE-120 or equal. |
| 32-WH-1                                           | 120                              | 12.3                   | 1                  | Yes                                  | 480*    | 30                   | 70                 | AO Smith, Model DSE-120 or equal. |
| Notes:<br>1. Voltages available: 480V/3PHASE ONLY |                                  |                        |                    |                                      |         |                      |                    |                                   |



| Domestic Water Expansion Tank |                               |                              |                                   |                         |                      |                    |                                 |
|-------------------------------|-------------------------------|------------------------------|-----------------------------------|-------------------------|----------------------|--------------------|---------------------------------|
| Tag Number                    | Configuration<br>(horiz/vert) | Total<br>Volume<br>(gallons) | Acceptance<br>Volume<br>(gallons) | Air Pre-charge<br>(psi) | Diameter<br>(inches) | Height<br>(inches) | Manufacturer, Model No.         |
| ET-1                          | Vertical                      | 14                           | 11.3                              | 40                      | 15                   | 24                 | Amtrol, Model AST-30V or equal. |
| ET-2                          | Vertical                      | 10.3                         | 10.3                              | 40                      | 15                   | 20                 | Amtrol, Model AST-25V or equal. |



| <b>Domestic Hot Water Circulating Pump</b> |                            |                                 |                       |                                |                                          |
|--------------------------------------------|----------------------------|---------------------------------|-----------------------|--------------------------------|------------------------------------------|
| <b>Tag Number</b>                          | <b>Flow Rate<br/>(gpm)</b> | <b>Pressure<br/>(feet head)</b> | <b>Motor<br/>(hp)</b> | <b>Power<br/>(volts/phase)</b> | <b>Manufacturer, Model No.</b>           |
| 10-CP-01                                   | 3                          | 10                              | 1/12                  | 120V/1ph                       | Bell & Gossett, Model LR-15BWR or equal. |
| 10-CP-02                                   | 3                          | 10                              | 1/12                  | 120V/1ph                       | Bell & Gossett, Model LR-15BWR or equal. |
| 32-CP-01                                   | 3                          | 10                              | 1/12                  | 120V/1ph                       | Bell & Gossett, Model LR-15BWR or equal. |



| Acid Neutralization Tank |                     |                                   |                |                 |                   |                 |                                |
|--------------------------|---------------------|-----------------------------------|----------------|-----------------|-------------------|-----------------|--------------------------------|
| Tag Number               | Tank Capacity (gpm) | Approx. Usable Capacity (gallons) | Inlet (inches) | Outlet (inches) | Diameter (inches) | Height (inches) | Manufacturer, Model No.        |
| ANT-01                   | 8                   | 1                                 | 1-1/2          | 2               | 6                 | 14              | Zurn, Model Z9A-PHIX or equal. |



| Backflow Preventers                                                                                                                                                                                                                                                                |                         |               |             |                              |                             |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------|-------------|------------------------------|-----------------------------|------------------------------|
| Tag Number                                                                                                                                                                                                                                                                         | Valve Type <sup>1</sup> | Size (inches) | Flow Stream | Maximum Operating Flow (gpm) | Maximum Pressure Drop (psi) | Manufacturer, Model No.      |
| 10-BFP-01                                                                                                                                                                                                                                                                          | RP                      | 2             | W1          | 57                           | 13                          | FEBCO, Series 825Y or equal. |
| 12-BFP-01                                                                                                                                                                                                                                                                          | RP                      | 1 1/2         | W1          | 24                           | 13                          | FEBCO, Series 825Y or equal. |
| 32-BFP-01                                                                                                                                                                                                                                                                          | RP                      | 1 1/2         | W1          | 24                           | 13                          | FEBCO, Series 825Y or equal. |
| Notes:<br>1. Valve Type: RP - Reduced Pressure, DC - Double Check.<br>2. Flow Streams: DIW - Deionized Water, FP - Fire Protection, IRR - Irrigation Water, LCW - Laboratory Cold Water, TWS - Tempered Water Supply, W1 - Potable Water, W2 - Nonpotable Water, W3 - Plant Water. |                         |               |             |                              |                             |                              |



| Reverse Osmosis System |                            |                                    |                 |                      |            |                     |                                                |
|------------------------|----------------------------|------------------------------------|-----------------|----------------------|------------|---------------------|------------------------------------------------|
| Tank Capacity (L)      | System Power (Volts/Phase) | Manufacturer, Model No.            | Pump            |                      |            |                     |                                                |
|                        |                            |                                    | Flow Rate (gpm) | Pressure (feet head) | Motor (hp) | Power (Volts/Phase) | Manufacturer, Model No.                        |
| 100                    | 120V/1ph                   | Millipore, Model RiOs Essential 8. | 7               | 16.5                 | 0.083      | 115V/1ph            | March Pumps, Model Series 4 AC-4C-MD or equal. |



| Sanitary Sewer Lift Station, Sump |                          |                  |                      |                               |                   |                    |                             |
|-----------------------------------|--------------------------|------------------|----------------------|-------------------------------|-------------------|--------------------|-----------------------------|
| Sump Config<br>(sq/rd)            | Sump Size<br>(L x W/dia) | Elevation (feet) | Inlet Pipe<br>(feet) | High Water<br>Alarm<br>(feet) | Pump On<br>(feet) | Pump Off<br>(feet) | Bottom of<br>Sump<br>(feet) |
| Round                             | 5'-0"                    | 6,777.0          | 6,772.40             | 6,771.90                      | 6,770.90          | 6,767.00           | 6,765.00                    |



| Sanitary Sewer Lift Station, Duplex Submersible Grinder Pump |                    |                         |               |       |                        |                   |                    |                         |
|--------------------------------------------------------------|--------------------|-------------------------|---------------|-------|------------------------|-------------------|--------------------|-------------------------|
| Tag Number                                                   | Flow Rate<br>(gpm) | Pressure<br>(feet head) | Motor<br>(hp) | RPM   | Power<br>(Volts/Phase) | Inlet<br>(inches) | Outlet<br>(inches) | Manufacturer, Model No. |
| SP-01                                                        | 68                 | 40                      | 5             | 3,450 | 460V/3ph               | 2                 | 3                  | Pentair VS50 or equal   |
| SP-02                                                        | 68                 | 40                      | 5             | 3,450 | 460V/3ph               | 2                 | 3                  | Pentair VS50 or equal   |

