

## **RIDGEGATE TRACT GG PUMP STATION DESIGN REQUIREMENTS**

### **Water Main Size**

Inlet: 8"  
Outlet: 8"

### **Suction Pressure Available**

Minimum: 58 psi  
Maximum: 66 psi

### **Number of Pumps**

As needed to meet duty points

### **Duty Points**

Average Day: 20GPM @ 73'  
Peak Day: 75GPM @ 74'  
Peak Hour: 125GPM @ 75'

### **Preferred Speed**

Best selection for design conditions

### **Metering**

Electromagnetic flow meter needed on discharge piping

### **Bypass**

Booster station will require an 8" gravity bypass for fire flow. Fire flow is able to be met without pumping.

### **Power**

480 Volt, 3 Phase. Booster pump will be designed to have two (2) independent power sources to eliminate the need for a standby generator.

### **Control**

Pumps will maintain constant pressure and have a hydropneumatic tank to prevent constant cycling of the pumps. Pumps should respond to a local drop in pressure (pressure switch or pressure transmitter control) and respond to flow rate to allow gravity bypass of fire flows. Pumps can be parallel to meet the duty points if necessary.

### **Telemetry**

A DSL connection will be coordinated with Century Link for VPN network capabilities which will be coordinated with Synoptek.

### **Surge Control**

Surge Buster/surge anticipation valve with surge relief through hydropneumatic tank and suction piping.

### **Design Standards to be Met/Approved By**

Southgate Water District (Provided)  
Denver Water

### **Additional Notes / Design Requirements**

- Pumps shall be horizontal split case centrifugal pumps
- Pump station piping shall be Ductile Iron Pipe (DIP)
- A HACH CL17 Total Chlorine Analyzer will be required with drain to sanitary sewer
- Provide two (2) hose bibs, one interior and one exterior.
- Surge protection will be required, surge anticipator valve located inside pump station if possible
- Air Vacuum release valves required on discharge and on pumps
- Facility is required to be split-faced CMU wall construction.
- Facility will require an ADA accessible restroom with sink and toilet, drain to sanitary
- Facility requires a separate room for electrical components, equipment, and pump controls.
- Provide a dedicated exterior entrance to pump room and electrical room.
- HVAC required for facility. Only electrical room will need cooling. Provide ventilation in pump room to maintain a low temp. Entire facility will require heating.
- Refer to Southgate District Booster Pump Requirements Sheet (provided) for minimum control and notification requirements

- Facility will require security system, Calibre to coordinate with Southgate District on required system.
- Facility will require a roll up coiling overhead door at 12'X12', color anodized
- Provide a gantry crane and hoist for removal of pumps and associated equipment
- Provide pressure monitoring on each suction side of each pump.
- Provide 4' of space around all major equipment for maintenance purposes
- Makes and models of equipment should meet requirements of Denver Water Standards
- Provide exterior lighting at four corners and entrances of facility, downward facing
- Interior lighting should be 4000K Spectrum (color), LED bulb, 4,000 lumens per fixture
- Exterior door to electrical room shall be a double door with height so all electrical equipment and controls can be removed standing.
- Provide a standing seam awning at main entry to pump room.
- Roof shall be a minimum 24-gauge prefinished standing seam metal roof with 1'-0" minimum eave all around. Structural steel framing for roof with epoxy finish coat.
- Pump control shall be Allen Bradley Control Logix PLC
- Refer to provided Southgate District Booster Station Criteria for additional requirements.
- Fire flow will be provided via gravity flow, gravity bypass installed inside if possible (flow sensors with control valve to allow bypass flow?)

### **ADDITIONAL DESIGN PARTICULARS**

**Minimum Static HGL:** 6,250'

**Residual Suction HGL:** 6242.8'

**Elevation of Booster Station:** 6,108'

**Source of Water:** Ground Storage Reservoir

**Discharge HGL:** 6,318.03'

**Static HGL:** 6,317.8'

**Highest Grade Elevation in Service Area:** 6,187'