



## **Pump Station and Force Main Design** **Report Requirements**

August 26, 2019

### **1) Introduction and Background**

- a) Refer to Exhibit for a project location map
- b) Address if Permanent or Interim

### **2) Previous Studies**

- a) Include Master Plan info, Specific Plan, Community Plans, Sewer Studies, etc.
- b) Address Environmental Documentation
- c) Address Geotechnical Report
- d) Refer to Exhibit(s)

### **3) Existing Sanitary Sewer Facilities**

- a) Discuss the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District briefly, state project is located within District's service areas, discuss existing sewer available in area.
- b) Refer to exhibit(s)

### **4) Planned Improvements**

- a) Discuss interim/permanent facilities proposed.
- b) Discuss Outfalls
- c) Discuss any options
- d) Refer to exhibit(s)

### **5) Projected Wastewater Flows**

- a) Discuss Master Plan/Specific Plan/Sewer Study Flows.
- b) Discuss Peak Wet Weather Flows (PWWF) from area station is to serve. Include table that shows estimated ESD'S, Average Dry Weather Flow and Peak Wet Weather Flow.

**6) Phasing**

- a) Discuss any upgrades that are necessary. Include triggers, areas to be served for each upgrade and what each upgrade encompasses. Discuss costs associated with each upgrade.
- b) If interim discuss when/how station because unnecessary.

**7) Pump Station Site**

- a) Discuss pump station site.
- b) Deed/Easement requirements.
- c) Refer to Exhibit.

**8) Wet Well and Pumping Alternative**

- a) Discuss alternatives for pump design
  - i. Type of Pump
  - ii. Number of Pumps
  - iii. Manufacture of Pump
  - iv. Constant or VFD's
  - v. Horsepower
  - vi. Impeller Size
  - vii. Standby/Operating
  - viii. Design Capacity
  - ix. Bypass Pumping
  - x. Maintenance
  
- b) Discuss alternatives for wet well
  - i. Shape
  - ii. Size
  - iii. Depth

**9) Recommended Force Main Design**

- a) Material Type
- b) Size
- c) Length
- d) Tracer Wire
- e) Pull Boxes
- f) Cathodic Protection
- g) Easements is necessary
- h) Cleaning/Maintenance

**10) Pump Station Design- Provide Attachments as necessary, Reference Exhibits**

- a) Building
- b) Generator-permanent or connection
- c) Fencing
- d) Gate
- e) Hoist
- f) Fuel Tank
- g) Air/Vacuum Valves

- h) Check Valves
- i) Gate Valves
- j) Water Service

#### **11) Electrical and Controls- Reference Exhibits**

- a) Where Provided- above or underground
- b) Size of Transformer and who provides it
- c) Equipment for PLC
- d) Equipment for SCADA
- e) Alarms
- f) Emergency Power- Generator
- g) Lighting
- h) Bubbler
- i) Pressure Transducer

#### **12) Evaluation of Odor Control Alternatives**

- a) Discuss if necessary and why or why not, for how long, or when.
- b) Discuss alternatives

#### **13) Emergency Storage**

- a) Available Storage
  - i. Sewer wet well, above high water alarm
  - ii. Manholes (maximum surface 3 – feet below lowest manhole rim in system)
  - iii. Pipes (assume 75% of pipe volume is available for storage)
  - iv. PWWF flow to be used for storage calculations

#### **14) Cost Estimate**

#### **15) Project Schedule**

##### **List of Tables**

Table 1. Summary of Projected PWWF at Build out

Table 2. PWWF at Various Stages of Build out

##### **List of Exhibits**

Exhibit A. Location Map

Exhibit B. Overall Sewer Study Area

Exhibit C. Existing/Proposed Sanitary Sewer Facilities

Exhibit D. Overall Sewer Layout

Exhibit E. Pump Station Site Plan

Exhibit F. Section through Pump Station

Exhibit G. Single Line Diagram and Load Calculations

Attachments

System Curve Calculations, Graph and Pump Curve

Wet Well Sizing Calculations

Cost Estimate

Manufacturer Pump Details

Manufactured Building Cost Sheet

Generator Set Cut Sheet

Odor Control Technology – Manufacture’s Information

Emergency Storage Calculations

Combined Air/Vacuum Release Valve Design Sizing – Project Literature

Geotechnical Report for Station