

## 12.0 SEWAGE PUMPING AND WATER BOOSTER STATIONS

### 12.1 General

Sewage pumping and water booster stations are generally to be avoided, however, may be considered where appropriate and approved by the Town. These facilities are to be designed to meet current Ministry of Environment and Ministry of Labour requirements, to the satisfaction of the Town.

### 12.2 Approvals Process

#### 12.2.1 Pre-Consultation

The design engineer is strongly encouraged to arrange for a pre-consultation meeting with Town staff to understand the Town's requirements and objectives prior to commencing detailed work on the project.

#### 12.2.2 Design Brief Submission

The design brief for sewage pumping and water booster stations shall be prepared by the Engineering Consultant and is to be reviewed and approved by the Town prior to the submission of detailed engineering drawings. Five (5) complete sets of the design brief shall be submitted and at a minimum must cover the following:

- Background and overview describing the purpose of the study, the drainage area, future areas that are to be handled by the facility, phasing requirements, etc.
- Design flow calculations
- Design approach:
  - Peak flows to be processed by the facility, including phasing.
  - Brief description of all major components such as:
    - Justification for facility type (e.g., wet or wet/dry).
    - Wet well size, safety platforms.
    - Number of pumps and pump types.
    - Type of level controls and float back-up.
    - Electrical panel type.
    - Diesel generator (if required) and electrical building.
    - Type of by-pass chamber.
    - Ventilation type.
    - Alarm system.
    - SCADA connection.
- Wet well sizing:
  - Volume.
  - Wet well levels.
- Hydraulic design calculations:
  - Forcemain design including headloss calculations.
  - System head curves; pump performance curves.
  - Pump(s) selection and details including model type, power requirements, duties if more than one pump is selected, and dimensional drawings.
- Description of Facilities:
  - Site works including a key plan showing location of facility and property boundary.
  - Preliminary site plan complete with dimensions to show location of all major components (i.e. gravity sewer, maintenance holes, wet well, electrical building, forcemain, overflow control pipe, water service, transformer, driveway, turnaround, parking, landscaping, grading and drainage).
  - Power supply requirements including backup power supply.
  - Wet well / station facilities (e.g. splitting chamber size (if required), size and depth of wet well, wet well equipment, detailed description of pump(s), size and type of discharging pipe, size of by-pass maintenance hole, forcemain size, access ladder and maintenance platform location).
- Facility Staging (if more than one phase).

### 12.2.3 Detailed Engineering Submission

The detailed engineering submission shall occur after approval has been granted for the Design Brief by the Town.

Five (5) complete sets of engineering drawings shall be submitted including:

- Detailed Site Plan and Grading Plan drawings.
- Structural drawings with pump station plans and sections. If a generator is proposed on site, then Generator plan drawings and details shall be included.
- Mechanical drawings showing pump station plans, details and sections.
- Electrical drawings showing electrical site plan, single line diagram, control wiring, generator building, power and lighting layout.
- Ventilation drawings showing wet well ventilation layout, generator building ventilation, exhaust and fuel system layout.
- Soil investigation report and boreholes data.
- Copy of material specifications and operating manuals.
- Maintenance and Operation Manual(s).

## 12.3 Site Requirements / Considerations

### 12.3.1 General

- Sewage pumping site shall accommodate diesel generator building, wet well, influent sewer, access road and all required utilities.
- Water booster site shall accommodate diesel generator building, wet well (if required), access road, ventilation and all required utilities.
- Site building to be architecturally pleasing.
- Shall be strategically placed to service present and future needs of development area.
- Station to be equipped with overhead winch to remove and service pumps.

### 12.3.2 Landscaping

- To be landscaped for a pleasing park-like appearance.
- Graded for a min 2% and max 33% (3:1).

### 12.3.3 Access Driveway and Property

- Provide min 4.6m wide asphalt driveway; turnaround for trucks is required.
- Design for H-20 loading.
- All property, structures and appurtenances to be deeded to the Town.
- Parking area to be provided.
- 1.8m chain link fence. (black vinyl) including gates.

### 12.3.4 Utilities

- Provide underground installation satisfying the Hydro Authority.
- Provide min 50mm water service w/ backflow preventer and meter.
- If more than one sewer enters the site, a junction manhole is preferred so that only one inlet to the well is present.

## 12.4 Pumping Station Operations and Maintenance Manuals

operating manuals to be provided in the Public Works Department standard format containing at a minimum, the following: **Doug to determine**

- All "as-constructed" drawings.
- Pump literature and operating/maintenance instructions.
- Names and contacts for equipment suppliers.
- Design parameters and criteria.
- Certification Letter & Warranty documentation.
- Including digital copies in a format acceptable to the Town.

## 12.5 Testing and Commissioning of Facility

- Provide the Town with a schedule of all testing procedures and processes required for the facility
- Provide confirmation that the facility passed all necessary testing
- Training of Staff on use of system.
- Provide certification that the facility is operational and functioning as designed.

