Delta

2026

SANITARY PUMP STATION SPECIFICATIONS

Sanitary Pump Station Specifications

If at all possible, the use of sanitary pump stations is to be discouraged. Any proposed use of pump stations must receive prior approval from the General Manager, Engineering. Any sanitary pump station must be located on a parcel of land dedicated for municipal utilities to the City of Delta.

The size, capacity and type of these stations will be dependent upon the development and catchment area involved.

The following sections are not to be considered a complete design or installation specification. Each pumping station is site-specific; design and installation shall incorporate technology and operational characteristics acceptable to the General Manager, Engineering.

Generally, the following criteria shall be considered:

(a) All sanitary pump stations shall be designed with at least two pumps, each capable of handling the maximum flow conditions independent of the other.

(b) Pumps shall be Flygt submersible sewage pumps, or approved equivalent, and meet the following criteria:

- Non-clog pumps capable of passing solids up to 75mm in size
- Easily removed for maintenance
- Operate on a 600 volt 3 phase electrical source.
- Able to operate alternately and independently of each other

(c) Pump Chamber Details

- Material and construction: Fibreglass reinforced polyester (FRP) or high density polyethylene (HDPE) with smooth interior, bottom shaped to avoid solids buildup, walls and bottom of sufficient thickness or with exterior corrugations to withstand soil pressure, and base to include flange for concrete collar to prevent flotation.

- Inlet, discharge, ventilation and electrical connections shall be factory-installed and watertight;

- Chamber diameter to provide for convenient operating and maintenance access and required storage volumes. Minimum diameter: 1800 mm.

- Depth to accommodate inlet and discharge pipe elevations and to provide sufficient operating and storage volumes.

- Chamber volume between pump on and off levels to be based on pump cycle times of 15 minutes.

- Chamber volume for emergency storage (above normal pump start level) shall be based on minimum 6 hours storage at average dry weather flow (adwf). Subject to approval by the Engineer, emergency storage may be provided in a separate chamber, or standby power may be provided in lieu of emergency storage.

(d) All valves and meters shall be in either a below ground chamber (with hatch access and safety grate) or an above ground kiosk.

(e) The plug valve shall be 100% full port and oriented with the nut facing up, and installed per the manufacturer's instruction for suspended solids.

(f) Motor cables, power cables, etc. shall be continuous from within the pump station to within the kiosk. In no instance shall a cable be spliced.

(g) Level controls shall be a Siemens Ultra Sonic Level Sensor with a high level Flygt float level switch.

(h) All auxiliary equipment and control panels shall be mounted in a suitable kiosk adjacent to the station. The kiosk shall be located a minimum of 3.0m from the station lid.

(i) The control kiosk shall be designed to contain all control equipment on the front panel (facing the wet well) and all power equipment on the rear panel.

(j) Check valves shall be outside weight and lever type in a horizontal position.

(k) All stations shall require a continuously operating exhaust fan which can be activated by opening the entrance cover and/or by manual switch, and be of

sufficient capacity to exchange the total volume of air inside the station with fresh air within 3 minutes of activation.

(l) The entrances to all stations must be waterproof and be provided with a suitable lock. The entrance should be a ground level where feasible but, in no case, more than 300mm above the ground.

(m) Access into the stations shall be by an aluminum ladder. The location of the ladder shall not· interfere with the removal and installation of the pumps, etc. The ladder shall be designed to extend and lock at least 1000mm above the station entrance. A platform is to be provided above the high water level float to permit wet well access wherever the total depth from ground level to wet well floor exceeds 2.40 metres.

(n) Wiring shall be Class I, Division 2, and electrical design and installation is subject to the acceptance of the Provincial Safety Inspector. All metal shall be protected by packaged magnesium anodes, designed by corrosion specialist (P.Eng.).

(o) All stations shall provide a manual transfer switch and Crouse Hinds Number APQ1048, or equivalent, stand by power plug. Provision for a communications system must be included for connection into the City’s Communications System.

(p) All equipment must be CSA approved and have at least a one year guarantee for parts and labour. The supplier is to provide to the City three sets of Operating and Maintenance Manuals. All pumps must be factory tested prior to installation.

(q) A resilient seat plug valve is required on the discharge line and on each pump discharge. The inlet valves shall be outside the station and be complete with a non rising stem and square operating nut and valve box.

(r) A water connection, minimum 50mm diameter for cleaning purposes, must be provided.

(s) All stations must be serviced via underground electrical wiring.

(t) The area around the station and all associated equipment or building shall be asphalted. The size of the area to be determined by the requirements for maintenance.

(u) A receptacle compatible with the City's removable lifting arm shall be incorporated into the design of the pump station to facilitate emergency man hoist. 75mm diameter galvanized steel lifting Davit socket with a minimum load rating of 450 pounds. The davit socket shall be equipped with a cover.

(v) The interior surfaces of all steel and fibreglass stations shall receive at least two coats of two component white epoxy enamel.

(w) The wet well bottom shall be benched to direct all solids into the pump suction. The influent line shall be located tangent to the wet well to encourage scouring of the wet well.

(x) The pump control panel must incorporate the following indicator lamps:

- Pump on (green), each pump
- Pump fail (red), each pump,
- High water level (red)
- AC power OK (white)
- Alarm Bypass (amber)
- Pump not in auto (amber)
- Low level alarm (red)

(y) An hour meter must be built into the panel for each pump.

(z) Hatches shall be aluminum, trough style, rated for H20 loading, and comes with slamlock, oversized recessed padlock, and safety grate. The hatch doors and safety shall be oriented so there is one-way access.