

Prince George Wastewater Treatment Centre

The City of Prince George's Landsdowne Road Wastewater Treatment Centre is one of the most cost effective wastewater treatment facilities in British Columbia and includes both primary and secondary treatment. The treated wastewater meets or exceeds all the Ministry of Environment's current requirements. The Stage III B Upgrade includes an automated biofilter (trickling filter), solids-contact process for secondary treatment. The process is energy-efficient, operator friendly and stable, and it produces a high quality effluent.

Process:

1. FLOW

Rags, sticks, plastics and other objects are removed, compressed and discharged to a waste hopper in conjunction with grit from a grit separator system and skimmings from a skimmings dewatering screen.

2. PRIMARY SEDIMENTATION

Wastewater is held in a quiescent state for 2 to 7 hours. Lighter particles float and are skimmed off to a skimmings well. Heavy particles sink and are raked to biosolids sumps where they are pumped to the anaerobic digesters.

3. BIOFILTERS

The settled wastewater is distributed over plastic media plates where dissolved organics are absorbed on growing biomass, and particles are filtered out or trapped. A cloudy trickling filter effluent is then pumped to the solids contact basin.



Distribution Pipes Above Biofilters

4. SOLIDS CONTACT TANK & SECONDARY CLARIFIERS

The cloudy trickling filter effluent is combined with settled solids from the clarifiers and mixed in the solids contact tank before settling is again provided in the clarifiers. The now clear water flows to a final disinfection step. Some of the settled solids are returned to be remixed with the biofilter effluent, and the remainder is pumped to the inlet of the grit tanks.



Secondary Clarifier

5. CHLORINE CONTACT

The plant has facilities for effluent disinfection using gaseous chlorine and sulphur dioxide. However, these facilities are not currently being used since the plant is achieving suitable effluent coliform counts, without the use of disinfection products.

6. BIOSOLIDS STABILIZATION

The biosolids from the primary sedimentation tanks and the waste biological solids from the secondary clarifiers are pumped to the anaerobic digesters. Treatment is conducted in two stages, producing a slurry which is stabilized and greatly reduced in organic content. Methane gas is also produced as a by-product. This gas is combusted in the Treatment Centre's boilers for biosolids and space heating.

7. SOLIDS DEWATERING

Once digested, the stabilized biosolids are dewatered to a dry cake by belt filter presses.

8. BIOSOLIDS STORAGE

The dewatered biosolids are stored on site and routinely delivered to farms in the Prince George area for use as a nitrogen rich soil conditioner.

The City of Prince George Lansdowne Road Wastewater Treatment Centre is classified as a Level IV plant.