



The Town of Stephenville Engineered Wetland

Location: Town of Stephenville, Newfoundland and Labrador

Type: Municipal Sewage Treatment

Population Served: 7,800 P.E. (Population Equivalent)

Average Flow: 4,555 m³/d

Wetland Treatment Area: 20,000 m²

- 8 horizontal-flow subsurface wetland beds
- 2 vertical-flow subsurface wetland beds

Commissioned in: Fall 2009 – Spring 2010

Description: This is the largest subsurface wetland system providing secondary treatment in Atlantic Canada. It is located in the Town of Stephenville, on the west coast of the island of Newfoundland. The system is located on the Stephenville airport property. Subsurface flow ensures that the wetland does not attract water fowl or other wildlife that could impact the airport operations

Effluent from the town passes through a spiral screen to remove plastics and non-biodegradable items. Then the flow enters a primary clarifier to settle out suspended solids. From the clarifier the flow is split eight ways and proceeds through the horizontal-flow wetland beds where biological reduction takes place. The flow is then recombined and passes through two vertical beds with final discharge to the ocean.

Sludge treatment cells are located on the other side of the airport. Reed plants mineralize the sludge from the clarifier, producing a compost-like material. Onsite sludge treatment cells provide significant cost savings by eliminating expensive sludge transportation and disposal costs.

System Advantages:

- Long System life (60+ years)
- No electricity, no chemicals in engineered wetlands
- Very low operating costs, very little maintenance
- Treatment of liquid effluent and all removed solids
- Easily expandable for size or treatment with additional beds
- Exceeding treatment requirements



Aerial view of system



Planting during construction



One of eight horizontal beds



Application of sludge to sludge cell

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