

## CASE STUDY

# Quick4 Chambers & IM-1060 Septic Tanks Used in System for Airport

## Red Deer County, AB

### SYSTEM SPECIFICATIONS

800 Imperial GPD Wastewater Treatment System

### INSTALLATION DATE

May 2019

### PRODUCTS

Quick4® Low Profile Chambers

IM-1060 Septic Tanks

Aquaworx Remediator and Control Panel

### ENGINEER

MAP Services, Red Deer County, AB

### DESCRIPTION

This system consists of a private septic system for a three-bedroom single-family dwelling and airport terminal that includes two bathrooms. Total peak wastewater design flow per day is 800 imperial gallons. The average operating flow is expected to vary from 100 to 500 imperial gallons per day. Based on the test pits and soil analysis, it was determined that a treatment mound would be the best option to handle the wastewater from the terminal and the caretaker's residence. The wastewater treatment system, designed by MAP Services, includes a septic tank and treatment mound system. This system is suitable for the site and soil conditions of the property and the design meets the requirements of the Alberta Private Sewage Systems Standard of Practice (Standard).

The key challenge of this project is the seasonal variation in wastewater flow and strength. In the summer, the terminal will see up to 50 people per day, while in the winter months there may be only 10 visitors per week. Keeping the mound functional and preventing freezing during the slow months, while having enough capacity for the high season was a challenge. Retaining the overall aesthetic of the site including the caretaker's residence was also a challenge.



The final design utilizes two Infiltrator IM-1060 septic tanks installed in series with an Aquaworx Remediator in the second chamber of the first tank. This effectively creates a four-zone treatment System: 1) sludge settling, 2) aeration, 3) clarifying, 4) dose/pump area. An Aquaworx IPC panel was used to control timed dosing to help minimize the peaks and valleys in the day-to-day flow rates. The infiltration mound includes Infiltrator Quick4 Low Profile Chambers over the laterals and sand layer. The chambers are covered with fill sand. The mound is split into two equal east and west zones. Each zone is dosed by a rotating zone valve that is plumbed with a bypass. This enables one side of the mound to be shut down when flows drop in the low season. Monitoring ports installed into the mound at the sand layer height, as well as down at the native soil level, allow for independent samples.



The system is effectively treating of the wastewater from the residence and airport. To provide input for future, similar system designs, ongoing monitoring and testing of the system is tracking the achieved wastewater strength.

