

Stormwater  
Leachate  
Tank

**Project Location**

Renfrewshire, Scotland

**Project Details:**

Stormwater and Leachate Relief System  
Lochwinnoch Cemetary

Completion  
Date

2003

**Client**

Renfrewshire Council

**Catchment Area:**

16,000 m<sup>2</sup> (4 acres)

**Product / Application Types:**

Atlantis Matrix Tank and Flo-Pipe.

**Total volume:**

150 m<sup>3</sup>



**Challenge:**

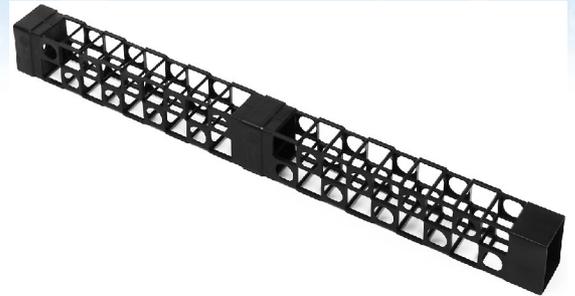
The new cemetery at Lochwinnoch is located on a steep hill adjacent to the river Calder has 300 plots that can accommodate 900 burial sites. Each plot is placed at a spacing of 1.5 m. The stormwater and leachate from the bodies are to be collected and treated before discharge into the river.



### Engineers Requirements:

The engineering requirements for the project were assessed as follows.

- Stormwater and leachate collection, treatment and discharge system with potential support to the slope stability
- High storage requirement in a highly restricted limited space



**Atlantis Flo-Pipe**

### Atlantis Solution:

Atlantis provided a solution using the Atlantis Flo-Pipe horizontal cross drain (shown above), and Atlantis Matrix tank modules<sup>®</sup> having a void ratio of 95%.

### Installation:

The Flo-Pipe wrapped with geotextile covered with special media and the whole wrapped with geotextile. Atlantis Matrix Tanks runs across the graveyard at a spacing of 1.5 m. There are two layers of Flo-Pipe collection system, one at the surface and the other directly 0.75m below it (Sub-surface drain). The horizontal cross drain is connected to the Atlantis Matrix Tank module (shown above right) at the end of the plot. Atlantis Matrix Tank double modules are wrapped with geotextile which are placed in a staircase (stepped) arrangement allowing flow through the modules leading to the outlet and as well as providing effective storage. The width of the tank also increases as it reaches the outlet to cater the flow. The flow of stormwater in the staircase arrangement increases the aeration inside the tank keeping the stormwater free from stagnation and contamination. The outlet has a collection system for water quality monitoring prior to discharge into the river Calder (Installation drawing given below). There is also an additional tank at the outlet to provide treated water storage for pumped tap water supply.

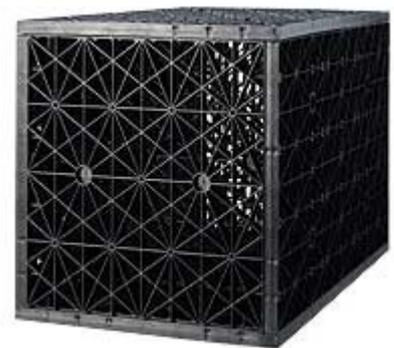




Figure 1. Plan of Lochwinnoch Cemetery including Flo-Pipe and Atlantis Matrix Tank modules

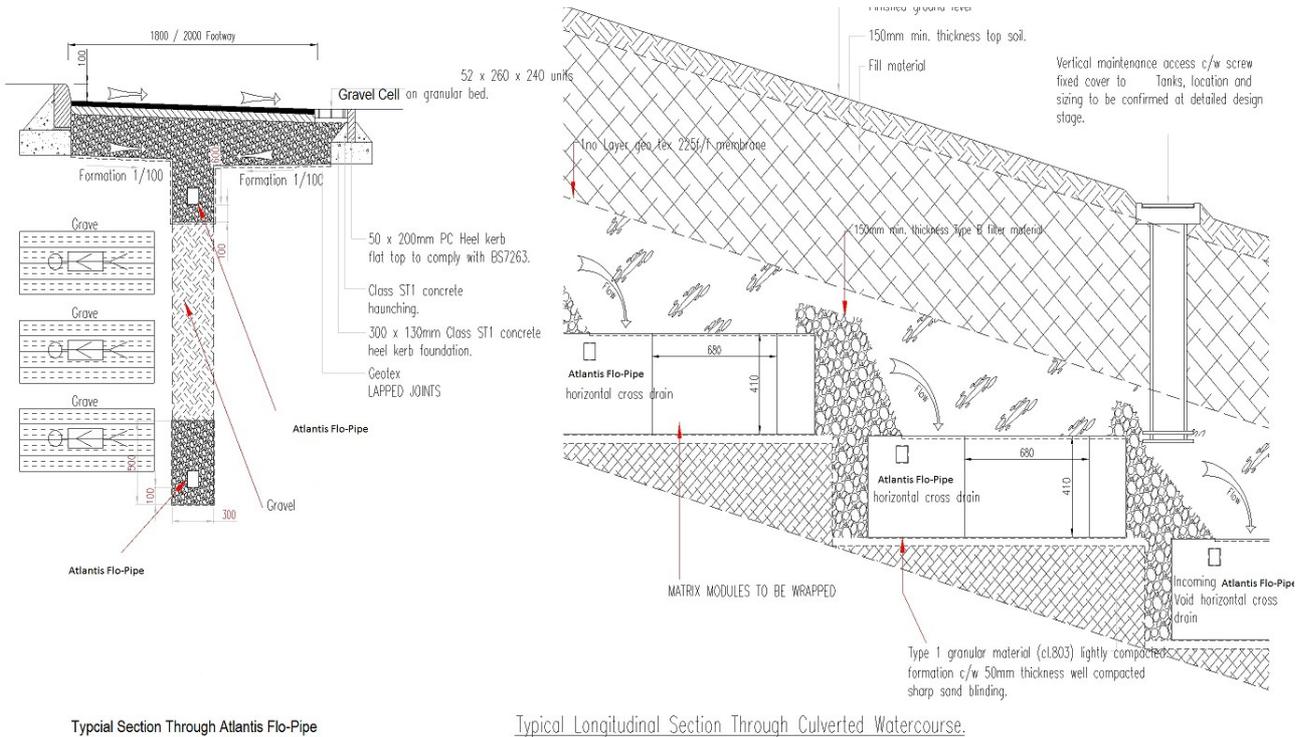


Figure 2. Cross-section showing Flo-Pipe and Atlantis Matrix Tank modules

**Benefits:**

- Innovative, Flexible and Economical stormwater System
- Increases aeration helping aerobic treatment
- Better infiltration
- Highly cost effective flexible solution
- Effective source control