



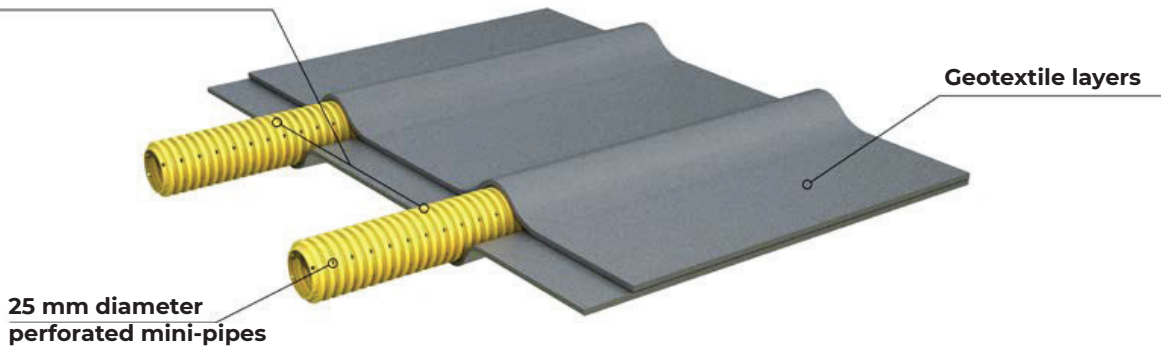
DRAINTUBE™

**LANDFILL GAS
MANAGEMENT APPLICATIONS**

DRAINTUBE™ to Collect and Control Gas at Each Stage of the Landfill's Life



Distance between mini-pipes 25 cm to 200 cm

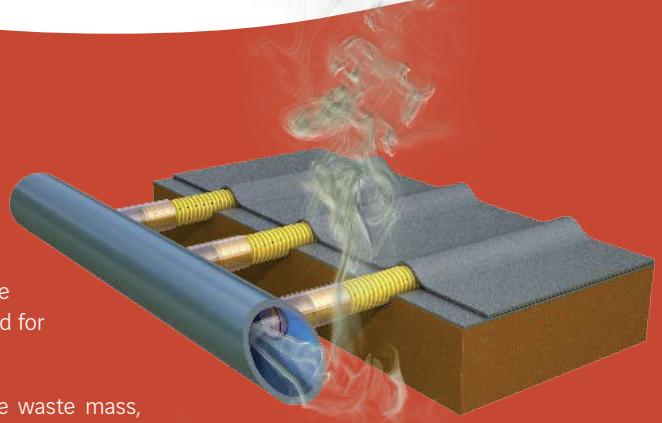


During Operation- Horizontal LFG collection within the waste mass

Landfill Gas (LFG) needs to be effectively extracted from active landfills to comply with the regulation of air pollution. The target is to achieve 75% lifetime gas capture rate recommended for Municipal Solid Waste (MSW) landfills.

DRAINTUBE™ 400 FT4 D25, when placed directly within the waste mass, replaces the traditional horizontal LFG trenches.

It is unrolled directly on the waste and connected to the LFG system conveyance pipe using Quick Connect System™.



During Operation- Temporary Cap with LFG Collection

Temporary caps are used in open landfill cells to limit the rainfall infiltration into the waste and prevent escape of gas from the sides of the landfills.

Installed directly under the geomembrane, **DRAINTUBE™** 300 FT1 D25 allows the gas to collect and controls the built-up pressure of LFG. It is connected to the LFG system conveyance pipe using Quick Connect System™ and a vacuum can be applied.

Flexible and easy to install, **DRAINTUBE™** 300 FT1 D25 provides a dense mini-pipe network, that helps solve any LFG surface emission concerns.



Closure LFG drainage within the final cover system

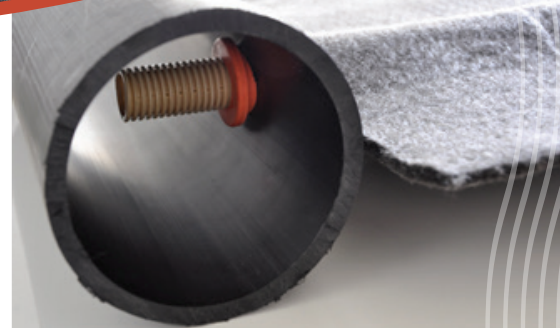
The final cover system must include a gas venting layer to provide a conduit for LFG to travel to gas wells. **DRAINTUBE™** 505 FT2 D25 as gas venting layer improves the collection rate, limits the gas pressure under the geomembrane and protects it from unexpected mechanical damages.

DRAINTUBE™ can be connected to the LFG network through a regular collector trench or directly to a manifold using Quick Connect System™.

Quick Connect System™

The **DRAINTUBE™** mini-pipes can be positively connected to interceptor drains without trenches with the Quick Connect System™.

Quick Connect System™ creates an airtight connection between the gas piping network and **DRAINTUBE™**.



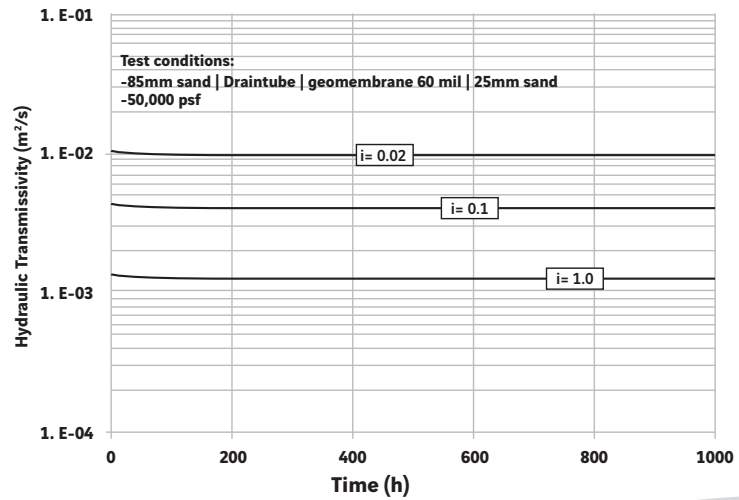
Design Considerations for Long Term Performance

DRAINTUBE™ offers better long term performance than any other drainage geocomposite. Its flow capacity remains the same, whatever load is applied on it. This leads to a higher safety factor in performance design.

The improved long term performance is achieved through soil arching over the pipes when confined. Due to its structure, **DRAINTUBE™** is not susceptible to geotextile intrusion, which reduces the flow in standard geocomposites.



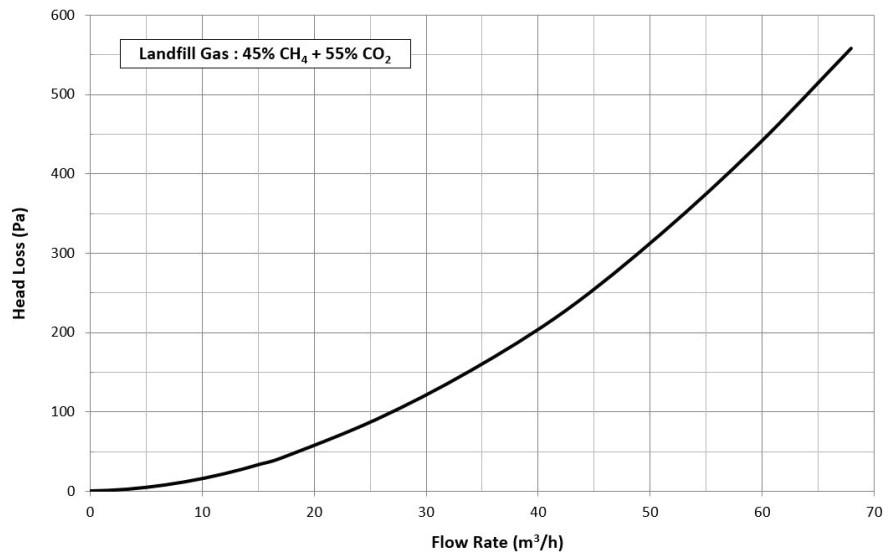
Hydraulic Transmissivity of DRAINTUBE™ FT4 D25 under 2394 kPa



Head Loss Calculation

Thanks to Lympha software, the **DRAINTUBE™** collection flow rate can be determined for each project function for the type of gas, the applied vacuum, the length of drainage, etc.

DRAINTUBE™ FT4 D25 - Head Loss per 30 m



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