

## Drip Distribution System - Domestic Kilkenny

An overloaded septic tank percolation area was replaced with a Geoflow drip system by Trinity College researchers as part of an EPA funded evaluation project looking for solutions for sites with low permeability soils throughout Ireland i.e. greater than T-90.

As part of the research project two sites located on low-permeability soil were upgraded by installing 2 pressure-dosed distribution [low-pressure pipe (LPP) and drip dispersal (DD)] systems.

Both systems performed well and the drip system performed particularly well. The report concluded *“This resulted in a decrease in the faecal contamination of groundwater, as well as the prevention of surface ponding of effluent, at both sites”*.

### Design Details:

Site Address:	Danesfort, Kilkenny
T-value	75
Design Flow	240 litres/day
Wastewater Quality	Secondary filtered effluent to 130 micron
Infiltration rate:	3 litres/m <sup>2</sup> /day
Area:	80 sq metres
Dimensions:	8m x 10m
Pump capacity:	14 litres/min
TDH Head:	18 metres



Old septic tank percolation area was flooded

Driplines were manually inserted into the soil 6” (150mm) below ground level allowing evapotranspiration of water by air and grass and maximizing soil treatment of wastewater contaminants.

Driplines are usually mole ploughed into the soil.



Manual insertion of dripline by Trinity PhD research students.



Driplines connected to manifolds in a single trench



Drip system completed



Intensive automated monitoring of moisture levels below drip lines by Trinity and EPA

### The TCD/EPA study of drip found:

- Uniform and unsaturated soil below drip
- Doubling of infiltration rate without impact
- No surface water ponding
- Effluent was evenly distributed
- Favourable conditions for denitrification
- Reduced nitrate to groundwater likely
- Decrease in faecal contamination of groundwater
- Its use is recommended in low permeability soils up T-120 with 600mm unsaturated subsoil.

As a result of the successful research evaluation of drip as a solution to low permeability soils, drip is the only solution recommended to be used in soils from T-90 to T-120 and with 33% reduced separation of 600mm to water table or other limiting condition.