

Junction 4, M8 Distribution Park



SuDS used

- *Attenuation ponds*
- *Detention basins*
- *Swales*
- *Permeable surfaces*

Benefits

- *Water quality - Prevention of contamination reaching the River Almond.*
- *Flood risk - Neutral hydrograph to maintain flood risk management.*
- *Amenity - Excellent amenity for workers and staff use at lunchtime.*

1. Location

Junction 4, of the M8 Motorway, Whitburn, West Lothian, EH48 2FB

55.8806° N, 3.6452° W

2. Description

Ponds and basins serve individual plots which are large distribution and logistics depots. These then drain to a network of swales which in turn flow to a large regional pond, before discharge under the motorway to the River Almond – formerly Scotland's most polluted river.



3. Main SuDS components used

Ponds, basins and swales with some permeable paving surfaces.

4. How it works

Each unit has its own SuDS which are generally ponds or basins. Some permeable block paving is used in some car parks while other car parking is drained directly to swales.

Each plot is then discharged to the swale network which acts as a (near) pipe-free drainage network and, in turn, to the large regional pond which acts as an attenuation pond prior to discharge to the water environment.

Reduction in peak flows to the River Almond where historic flooding has been a problem has been achieved. In addition, treatment of diffuse pollution from the large areas of hardstanding (200+ loading bays) to protect what is a significantly improved watercourse that once received large volumes of poorly (and un-) treated sewage.

The swale network has delivered significant benefits through over 1 km of open channels that act to provide flood storage, excellent treatment and creates useful habitat to increase biodiversity across this, essentially industrial, landscape.

Ecology inspections have seen large amounts of frog spawn in the swale network and diverse flora including orchids. There is some evidence of water voles.



Occasional spills and vehicle washing have seen plumes of pollutants enter the swale network, but this does not reach far enough in to the swales or regional pond to cause harm to the eventual receptor of the water environment.

5. Maintenance and operation

Grass cutting and occasional repairs where lorries have parked on verges.

6. Benefits and achievements

- Water quality - Protection of adverse contamination reaching the River Almond.
- Flood risk - Neutral hydrograph to maintain flood risk management.
- Amenity - Excellent amenity for workers and staff use at lunchtime.

7. Lessons learnt

Much work has been done to improve the River Almond's water quality. Many millions spent on sewage treatment and the requirement to preserve this is essential. The construction of such a large industrial estate is an obvious risk, however the SuDS installed have worked very well and continue to do so at limited maintenance costs.

The "bulking-up" of vegetation especially in roadside swales had initially caused some ponding with verges being slightly higher than road surfaces. This is a lesson learned for future construction where the detail is to allow 25-50 mm drop below road surface at construction stage to let bulking-up of vegetation roots occur.

This is a low cost solution for such a large park, with low maintenance requirements.

Vehicle management can be an issue when some HGVs cut corners and run over verges, damaging the appearance, although generally not the function of the roadside swales.



8. Project details

Construction completed: *This network has been in place for approaching 15 years with limited ongoing maintenance and excellent water quality and flood risk management provisions in addition to excellent green network creation.*

