

Brockhurst Gate Retail Park, Gosport



SuDS used

- *Two swales*
- *Porous paving*
- *Infiltration blanket*
- *Attenuation*

Benefits

- *Reduce immediate impact of storms on sewerage system*
- *Provides a better water quality at discharge*
- *Provides biodiversity*
- *Aesthetically pleasing*
- *General public unaware of other elements*

1. Location

Brockhurst Gate Retail Park, Heritage Way, Gosport, PO13 0AF

2. Description

The site was a former Naval exercise ground in front of Brockhurst Castle, known as the fire grounds due to the direction the cannons pointed. Later a number of 'tank blocks' had been deposited during the WWII to protect the castle. The soil is of Clayey variety with little to no infiltration which was not how the drainage strategy was first sold to the Client.

The land was not accessible to the public and remained in MOD hands

3. Main SuDS components used

Two swales

Infiltration blanket

4. How it works

The site has an open area to the North, which was partly built up with as dug material gained from excavations to prevent great quantities from being exported off site to land fill. This was levelled off and seeded with the intention of providing a sports field for the community. To the lower corner of this field an infiltration ditch with attenuation crate sat to absorb excess runoff, this crate was also to attenuate the yard area behind the retail units once flows had passed through a petrol interceptor. And continued downstream to the East of the site.

To the West where the general traffic would come from trapped road gullies are located for the main thoroughfare the food outlet units drainage mainly consisted of sump protected linear channels.

The main car parking area in front of the retail units consisted of permeable paving to the parking spaces with an attenuation blanket beneath the entire area. The water from the sodden blanket would be transferred to a land drain and then discharge directly into one or other of the swales.

Two flow control manholes have been designed that have weir walls such that during storm events typically in excess of 1:10yr occurrence, water overflows into the swales which are linked underneath a walkway through the middle. The flow control manhole at the discharge end prior to it connecting to the Public Sewer ensures that only the Greenfield rate of discharge is passed on to the sewerage network

5. Specific project details

Initially the Client was advised that the SuDS opportunity here was to take all rainwater to ground using infiltration methods and hence deal with it at source, the ideal solution and one that was bought into. The simplest of things are often overlooked and the adjacent Fort that the area gets its name has a moat, which implies that the ground may not be suitable for infiltration methods.

Site investigations soon proved this to be the case and the clay substrata beneath required a re-think with the disposal of surface water from site whilst maintaining public amenity space and the SuDS requirements.

6. Maintenance & operation

Nothing unusual, sumps, traps, litter and grass to cut

7. Monitoring and evaluation

The Public Sewer it connects to frequently backs up and as such the swales often fills in smaller storm profiles and take several days to dissipate

8. Benefits and achievements

- *Reduce immediate impact of storms on sewerage system*
- *Provides a better water quality at discharge*
- *Provides biodiversity*
- *Aesthetically pleasing*
- *General public unaware of other underground elements*

9. Lessons learnt

It doesn't matter how detailed Engineers can be with their software in balancing flows between features if the Ground worker does apply the same level of understanding.

10. Interaction with local authority

Southern Water flatly refused as they will not allow 'ground water' to discharge into their system, their interpretation of ground water is not the same as say a Geotechnical Engineer, the site is impermeable and so if the whole site was concrete with a positive drainage system and underground tanks then they would accept it!!

The Planning Condition was released by demonstrating to the LLFA that the site implemented SuDS wherever possible on the site.

11. Project details

Construction completed: *November 2019*

Cost: *don't know*

Extent: 4.6ha

12. Project team

Funders	<ul style="list-style-type: none"> • Millngate Gosport Developments 	
Clients	<ul style="list-style-type: none"> • The Harris Partnership 	
Designers	<ul style="list-style-type: none"> • WFBA Consulting Engineers • Jon Burges Hull Raiser Ltd 	
Contractors	<ul style="list-style-type: none"> • Amiri Construction • Sub-Contractor for ground works 	



Swale 2

Fort Brockhurst is the other side of the woods which overlooks these 'fire fields'
The retail park is to the left and these information boards are at the entrance
To the retail park as you come off the buses, the raised footway that dissects the two
Swales as shown on the plan



Swale 1

This view is standing on the raised path as per swale 2 but looking across swale 1. You can see the inlet at the far end where a weir exists that is exceeded when the water level reaches the crown of the 450mm pipe that runs down the left-hand side. Twin 450mm pipes extend towards the fast food outlet. In the middle is an outlet from the infiltration blanket underneath the car park that has porous blocks work car parking spaces. To the right is the link to Swale 2



Swale 1

Looking back at the raised path and the link to Swale 2



Swale 2

Link from Swale 1 to the left, overflow from the infiltration blanket central and another inlet from the right again a weir taking excess flows one the crown of the 450mm is reached