

SURFACE WATER DRAINAGE STRATEGY

***Site:* Forge Washery, Lower Brynamman, Neath
Port Talbot, SA18 1SW**

***Development:* Reserved Matters Submission – 30 no.
Dwellings**

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Introduction

A surface water drainage strategy (SuDS) provides a natural approach to managing site surface water run off by reducing the rate of run off by means of infiltration or storage. Advantages of SuDS include:-

- reduction in risk of flooding
- prevention of water pollution
- increase in green amenity space
- provision of habitat for wildlife in urban areas.

Drainage Strategy Components

Drainage is a critical component of site development and it can be demonstrated that water is controlled to greenfield run off rates at a variety of return periods.

- A 5 l/s rate has been adopted as a minimum.
- The plans that are submitted demonstrate how the specified SuDS arrangement is integrated with the site landscaping and materials requirements - the scheme will contribute to the greening of the site as well as accessibility.
- The infiltration that is proposed is based on a suitable site investigation and given the site conditions no infiltration has been assumed.
- Dwr Cymru/Welsh Water has confirmed that there is suitable capacity in the foul water networks and no upgrades are required.

The ongoing maintenance over the lifetime of the development, will be the responsibility of Dwr Cymru/Welsh Water.

Existing Site

A site location plan forms part of the planning application documents. The existing site is a brownfield site. A topographical survey has been prepared of the site and is submitted as part of the reserved matters planning application. The site falls from east to west with levels in the range of 146m AOD and 152m AOD.

Existing Drainage System

Sewer records indicate that the Aman Valley trunk sewer crosses the site. The records also indicate a 225mm diameter foul sewer along the access track. A site inspection was undertaken to identify any historic connections to the public sewer. The results of this survey information have been included on the proposed drainage layout plan.

Existing Geology

The geology of the site has been ascertained by reference to the 1:50,000 British Geological Survey website. The data provided on the website indicates the bedrock and superficial drift geology for the site. The strata of the site (bedrock geology) comprise South Wales Lower Coal Measures – coal bearing silty clay, basal gravels. These sedimentary rocks are fluvial, palustrine and shallow marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).

Geological Assessment

A site specific soakage test undertaken to determine the infiltration properties of the soil. Infiltration properties have informed the submitted scheme.

Drainage Strategy Report

The test returned a steady rate of infiltration, which has been used in the design of the scheme.

Hydrogeology Setting

The closest strategic watercourse is the River Aman located adjacent to the site.

Existing Surface Water Run Off

The site has been previously developed, but an analysis of the greenfield run off rate is appropriate and will be made for the developable site area of 2.23 hectares. The greenfield run off rates have been calculated for the existing site. The existing site run off rates have been calculated based on the Interim Code of Practice for Sustainable Drainage Systems, Chapter 6 using the Micro Drainage design software. Outputs from the software analysis have informed the submitted scheme.

Information relevant to the drainage strategy is provided in the following pro-forma:-

PROJECT DETAILS	
Project/Site name:	Forge Washery, Lower Brynamman, Neath Port Talbot, SA18 1SW
O.S. grid reference:	SN 71498 13981
LPA reference:	P2008/0798
Description of proposal:	Construction of 30 no. residential dwellings
Site area:	2.23 ha
Total existing impervious area:	0.3 ha
Total proposed impervious area:	0.5 ha
Is the site within a surface water flood area:	Yes
Existing drainage connection and type:	Mains foul sewer Housing site – natural surface water drainage
Designer name:	C/o Francis Sant Engineers

PROPOSED DISCHARGE ARRANGEMENTS	
Superficial geology classification:	Alluvium; compressible silty clay; basal gravels
Bedrock geology classification:	Lower South Wales coal measures
Site infiltration rate:	N/A
Depth to groundwater level:	7 metres
Is infiltration feasible:	Yes
DRAINAGE HIERARCHY	
Storage of rainwater for future use:	Yes
Use infiltration techniques (porous surfaces):	Yes
Attenuation of rainwater in ponds or open water features for gradual release:	Yes
Attenuation of rainwater in storage tanks or sealed water features for gradual release:	Yes – but not required
Discharge of rainwater direct to watercourse:	Yes – once attenuated See drainage scheme
Discharge of rainwater to surface water sewer/drain:	No
Discharge of rainwater to combined sewer:	No
PROPOSED DISCHARGE DETAILS	
Proposed discharge location:	River Aman

Has the owner/regulator of the discharge location been consulted:	In process – discussions with NRW/Dwr Cymru/Welsh Water
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DRAINAGE STRATEGY		
DISCHARGE RATES & REQUIRED STORAGE		
	GF run off rate (l/s)	Existing discharge rate (l/s)
Qbar	1.6	N/K
1 in 1		
1 in 30		
1 in 100		
1 in 100 + CC		
Climate change allowance used		5%
Principal method of flow control		Attenuation
PROPOSED SuDS MEASURES		
	Catchment area (m²)	
Rainwater harvesting:	50	
Infiltration systems:	200	
Green roofs:	0	
Blue roofs:	0	
Filter strips:	0	
Filter drains:	0	
Bioretention/tree pits:	0	
Pervious highways:	1,000	
Swales:	350	
Basins/ponds:	0	
Attenuation tanks:	0	
Total:	1,600	

SUPPORTING INFORMATION	
DISCHARGE & DRAINAGE STRATEGY	
Infiltration feasibility	Site is underlain by silty clay
Drainage hierarchy	Water flow controlled by attenuation measures before discharge to River Aman

Proposed discharge details	Adequate provision has been made to cater for all surface water via attenuation measures to the River Aman
Discharge rates & storage	See scheme
Proposed SuDS measures & specifications	Water butt/rain planter; any disturbed hard landscaping to be replaced with permeable paving alternatives
OTHER SUPPORTING DETAILS	
Detailed development layout	See site layout plan
Detailed drainage design drawings, incl. exceedance flow routes	Minimal chance for off site drainage exceedance
Detailed landscaping plans	Site to include considerable tracts of permeable surfacing – see landscaping plan
Maintenance strategy	Dwr Cymru/Welsh Water to adopt
Demonstration of how proposed SuDS measures will improve:-	
i. Water quality of run off	New scheme will significantly improve quality of water discharge to River Aman from current land use
ii. Biodiversity	Major improvement in overall biodiversity level throughout site
iii. Amenity	Amenity areas provided to satisfy Welsh Government's placemaking strategies resulting in community gain

This strategy comprises a draft scheme and can only be finalised once approval is received from the SAB authority. The drainage scheme that has been prepared is considered robust in terms of capacity to accommodate all expected surface water discharge at this location.