



7 Mellingey Fields
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Our Ref : J-1161-01
Date: 5th February 2024

11 Park Hayes
Leigh On Mendip
BA3 5QN

Via email : David Bissex davebissex@icloud.com

Dear David

REF: SURFACE WATER ASSESSMENT – New bungalow, 11 Park Hayes, Leigh On Mendip. BA3 5QN

You have asked us to prepare a surface water design based upon the SuDS strategy in order to comply with the planning condition for the erection of the new dwelling in the garden to the north of 11 Park Hayes.

We were not provided with a .dwg file of the site only a .pdf so we have had to import the position of the new dwelling onto into the drawing. This has been sufficient to prepare the concept surface water design.

The site slopes from the north of the site towards the south. Percolation testing in accordance with BS 6297 was undertaken on Thursday 25th January 2024 by the contractor. A pit 1m x 1m x 1.2m deep with a 0.3m sump in the base was dug for the tests.

A conversion was used to on the percolation tests to generate this report. However, Percolation tests to BS 6297 are not British Standard compliant. To be compliant for surface water drainage test to BRE 365 are required. PWS were not in attendance at the time of the test and can expect no liability for the accuracy and/or reliability of the percolation test provided.

Three tests were performed, No groundwater was encountered. Weather was overcast and damp, the pit was sited in centre of rear boundary approximately 4.60m from rear wall of bungalow. 1st test = 14:10 to empty 14:25, 2nd test = 15:00 to empty 15:22 and 3rd test = 15:40 to empty 16:08.

A conversion factor was applied and an infiltration rate of 0.25m/hr used in the sizing of the soakaway.

The client has confirmed the access and driveway and will remain permeable and as such has not been considered as part of this Surface Water Strategy. The roof drainage has impermeable area of 50m².

Pipework and Manholes to confirm to Building Regs part H but in general the surface water 150mm diameter laid no flatter than 1:100 with 450mm diameter IPPC manholes.

The sizing of the soakaway was undertaken using Micro Drainage Hydraulic Modelling Software and using the following parameters:

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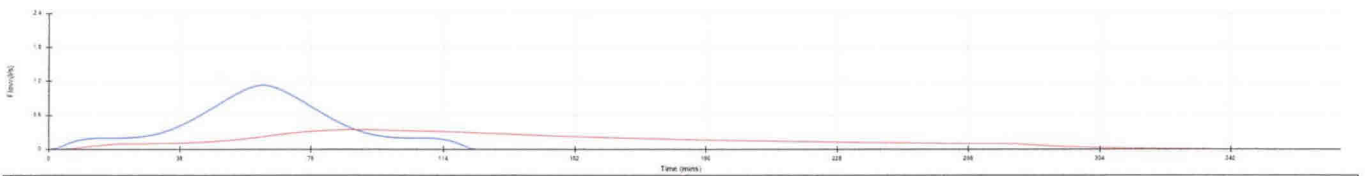
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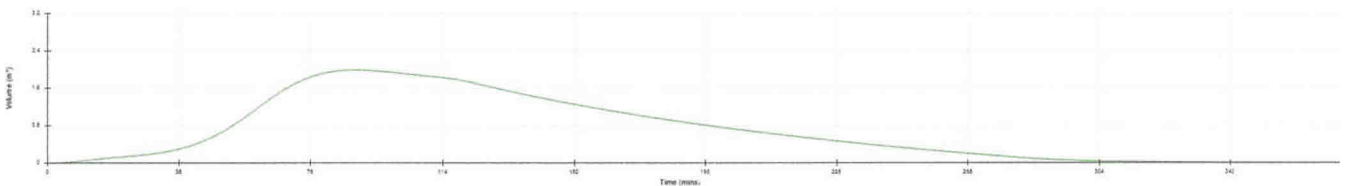
Area of impermeable area	50m ²
Factor of Safety	2
Porosity	0.95
Infiltration value	0.25m/hr
Soakaway size	0.5m (l) x 5m (w) x 0.8m (d)
Crate size	1m (l) x 0.5m (w) x 0.4m (d)

Results taken from Micro-drainage

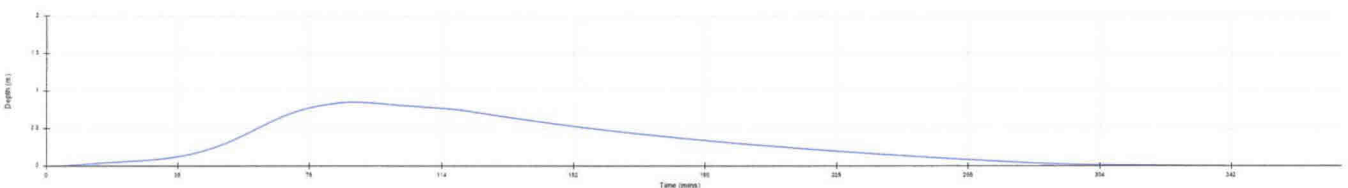
Flow



Volume



Depth



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The location of the soakaway is proposed at under the parking area. Wavin Aquacel Core R is to be used in these areas with a minimum cover of 640mm.

It is a requirement to fit an upstream silt chamber immediately upstream of the soakaway. We have used the heavy duty Wavin 6LB600 silt trap upfront of the soakaway as it will be under the parking area.

Installation and maintenance of all products used to be in accordance with manufacturers instruction, and as outlined further in the document. If/where there is conflict the more rigorous instruction shall be applied.

Disclaimers:

It is our recommendation to undertake a detailed design for this site when the site levels are known. Percolation tests to BS 6297 are not British Standard compliant for surface water drainage testing. To be compliant for surface water drainage test to BRE 365 are required. PWS were not in attendance at the time of the test and can expect no liability for the accuracy and/or reliability of the percolation test provided. The soakaway and SuDS design does not confirm to British Standards and Best Practice so therefore we cannot accept any liability for the design or performance.

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Surface Water Management, Construction & Quality Control Plan

This report has been completed to address Condition 4 of the full planning permission requesting construction quality control plan.

The existing garage is to be demolished and the site lightly stripped and partially levelled. The stripped landscape will create approximately 300mm level difference to the neighbouring sites which will ensure surface water run-off is fully contained within the site. The ground underlying the site is assumed to be freely draining ensuring that rainfall is readily directed to ground. Any Surface water run-off over and above which can infiltrate to ground, and/or water from the de-watering of service trenches etc. would be directed to temporary swale located at a suitable position within the construction area.

During the construction phase surface water run-off does not have to drain exclusively to the main swale and can be directed to temporary swale(s) as required. Additional fencing of the swales may be required depending on finished depth. The size of the swale(s) will need to be visually assessed during the works and should be varied as required. Surface water within the swale(s) will be contained within the site until such time water can be directed to the final surface water drainage scheme.

During the construction works, areas where surface water collects will be monitored, and in the event of silt building up this will be removed to ensure continuing infiltration. The timing of this will depend upon the amount of rainfall on the site and the extent of silt carried into the swale(s). Typical swale shown below:

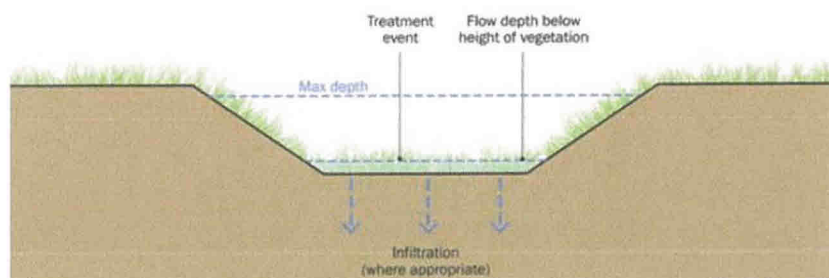


Figure 1 Typical Swale Feature (Fig 17.1 CIRIA SUDS MANUAL)

Should infiltration techniques not be possible due to space constraints, a positive temporary discharge to the public sewer could be considered. Water from the site will then be disposed of to the sewer after treatment to remove any silt. There are proprietary items which collect, de-silt and discharge at controlled rates. The flow rate from the site will be agreed with South West Water.

The proposed surface water drains are to be constructed through the east boundaries of the site. Temporary bunding and/or concrete backfill to trenches will be installed to ensure that surface water from the site is not provided with a route off site during these works.

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Maintenance Programme

Attenuation systems will require regular maintenance to ensure continuing operations to design performance standards, and this section will provide the guidance for this development site.

Generally, the maintenance schedule should follow the guidance in Table 21.3 of the SUDS Manual reproduced below:

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

The attenuation crates will include monitoring points (inspection chambers) where the water level in the system can be observed

Maintenance will usually be carried out annually, although a suction tanker can be used for sediment/debris removal. This needs to be annual if longer the deposits will become hard-packed and will require further effort and costs to remove.

Replacement of the geocellular units (crates) will be necessary if the system becomes blocked with silt. Therefore, monitoring is key to view any changes in flow rate or water backing up in the system should provide warning of

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potential failure and the crates should be inspected monthly for the first 3 months (and thereafter annually as per the table above) and if works are required, they should be carried out immediately or as reasonably practical to do so.

Maintenance responsibility will be with the owner of the dwelling.

If you require any further information, please do not hesitate to contact the under signed.

Yours sincerely,
For and on behalf of Premier Water Solutions 10 Ltd


Louisa Inch
CEnv | MCIWEM | MIEMA | BSC Hons
Managing Director

Enc.
J-1161-1000 A.pdf drawing
J-1161 Micro drainage Results.

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