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FAO Cheryl Wellstead

Ref: 24025

Stables at Allington Lane, Allington, Hants F/24/96845
Condition #7 & #8 Surface Water Drainage Design

Dear Sirs

Further to the LLFA comments we have run the design through the UK SUDS storage design tool which confirms that for 1%AEP storm + 40%CC and 10% UC the critical event is the 30 minute storm with a maximum storage requirement of 1.9m³. A copy of the output is attached.

The original proposed basin size of 3.4m³ remains adequate and we have tweaked the design storage value on the drawing to align with UKSUDS calculation.

Flow control is by infiltration to and exfiltration from the underdrain passing from below the storage to the filter strip to the west.

Further to the ecologists comments:

- The proposed gravel is a pervious material and will continue to pass rainwater to the underlying soils which will continue to infiltrate this to the ground at the natural rate with the remainder running off at the natural rate, as occurs currently. The gravel simply maintains the existing pathway to the ground and maintains the greenfield performance.
- The exceedance direction is the natural slope direction as was marked on the drawing. There is no change in the pathway direction. The applicants existing ditch is the existing receptor of current and proposed surface flow.
- Manure is a solid waste and we recommend that the applicant manages his manure in accordance with DEFRA regulations www.gov.uk/guidance/storing-organic-manures-in-nitrate-vulnerable-zones The regulations require that:

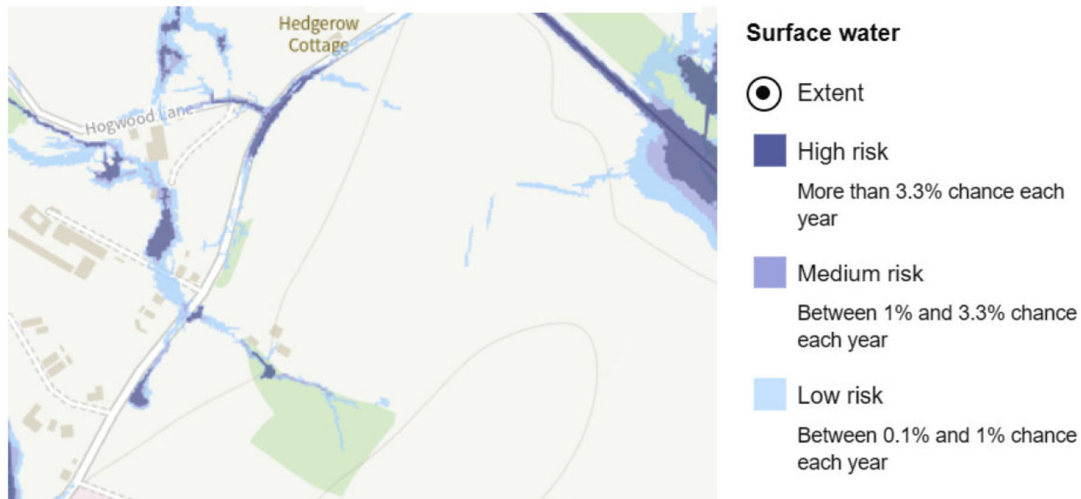
- make sure your field heap is at least 10 metres from any surface water (such as a river, pond or ditch) or land drain, or 30 metres if the land slopes at 12 degrees or more
- make sure the location of the field heap is not liable to being waterlogged or flooded
- locate field heaps at least 50 metres from a spring well or borehole
- move the field heap at least every 12 months
- leave a 2 year gap before returning to the same site
- keep a record of the sites used for field heaps and the dates of use

- You must show all the low risk areas suitable for temporary field heaps on your risk map if you plan to use them.
- Temporary field heaps must:
- be made from manure solid enough to be stacked in a freestanding heap
- not give rise to free drainage from within the stacked material
- occupy as small a surface area as is needed to support the weight of the heap without it collapsing

The manure control is being dealt with by others

To comply with bullet 1 highlighted grey the manure heap should be located sufficiently far from the ditch.

To comply with bullet 2 highlighted in grey the manure heap should not be located in areas at risk of surface water flooding:



Surface water flood risk

- The O&M for pervious pavement has been amended to reflect unbound nature of the gravel surface

Yours Sincerely,

Aqua Callidus Consulting Ltd

Andy Traves

Enc. UKSUDS storage calculations
ACC24025-01-A
SUDS O&M pervious pavement sheet v2

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is recommended that the total storage volume for the site is distributed across the site using multiple SuDS and that hydraulic modelling software is used to undertake and finalise the detailed design of the drainage system.

Project details

Date	03/02/2026
Calculated by	A Traves
Reference	24025
Model version	2.2.2

Location

Site name	Allington Lane
Site location	West End



Site easting (British National Grid)	447364
Site northing (British National Grid)	116178

Site areas

Total site area (ha)

0,053

ha

Roof area

Total roof area (ha)

0.009

ha

Contributing roof area (ha)

0.009

ha

Non-contributing roof area (ha)

0

ha

Paved area

Total paved area (ha)

0.044

ha

Contributing paved area (ha)

0

ha

Non-contributing paved area (ha)

0.044

ha

Grass / vegetated area

Total grass / vegetated area (ha)

ha

Contributing grass / vegetated area (ha)

ha

Non-contributing grass / vegetated area (ha)

0

ha

Total area

Total contributing area (ha)

0.009

ha

Contributing areas with urban creep allowance

Urban creep allowance factor

+10%

Contributing roof area (adjusted for urban creep) (ha)

0.009

ha

Contributing paved area (adjusted for urban creep) (ha)

0

ha

Contributing grass / vegetated area (adjusted for urban creep) (ha)

0

ha

Storage design parameters

Storage base shape

Rectangular / square

Storage base length to width ratio

3:1

Storage design depth (m)

0.5

m

Storage side slope (1 in x)

1 in 3

Storage voids ratio (%)

100% (all voids)

Storage volume design return period (years)

1:100 years

Discharge flow rate from the site

Method

Type of site	Greenfield
Specify the method	Default 3l/s/ha

Default 3l/s/ha

Total area for greenfield runoff calculation (ha)	0.053	ha	☒	0.053
Flow rate (default) (l/s)	0.16	l/s		

Final discharge rate

Runoff calculation method	Default 3l/s/ha	
Design flow rate (l/s)	0.2	l/s

Blockage risk

Specify the method	Flow rate			
Minimum discharge flow rate to prevent blockage	2l/s			
	<u>My value</u>		<u>Calculated value</u>	
Design orifice diameter (mm)	37	mm	☒	37
Flow rate of orifice (l/s)	1.99	l/s		

Rainfall and runoff

Rainfall input type	FEH22 CSV file	
	FEH_Point_Rainfall_FEH22_AM_447356_116165 (1).csv	
Distance from FEH location to site (km)	0	km
Climate change allowance factor	140%	

Model results

- **Maximum discharge flow rate:** 2.0 (l/s)
- **Outflow orifice diameter:** 37 (mm)
- **Storage base length:** 0.0 (m)
- **Storage base width:** 0.0 (m)
- **Storage base area:** 0.0 (m²)
- **Storage total volume:** 1.9 (m³)
- **Storage total water volume:** 1.9 (m³)
- **Storm return periods run:** 1, 2, 10, 30, 100, 200 (years)
- **Storm durations run:** 15, 30, 60, 120, 180, 240, 360, 540, 720, 900, 1080, 1440, 1800, 2160, 2880, 3600, 4320, 5040, 5760 (minutes)

Return Period (years)	Critical Duration (minutes)	Peak Flow Rate (l/s)	Max Depth (m)	Max water volume (m³)	Max storage volume (m³)
1	15	1.3	0.21	0.2	0.2
2	15	1.5	0.25	0.3	0.3
10	15	1.8	0.38	0.9	0.9
30	30	1.9	0.44	1.3	1.3
<u>100</u>	<u>30</u>	<u>2.0</u>	<u>0.50</u>	<u>1.9</u>	<u>1.9</u>
200	30	2.1	0.53	2.2	2.2

Please note runoff estimation and storage volume estimation are subject to uncertainty. Storage volume results are therefore reported to the nearest 1 m³ value, unless storage volumes are less than 10 m³, in which case, storage volumes are provided to 1 decimal place.

Disclaimer

This report was produced using the surface water storage volume design tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate surface water storage volumes for the whole site based on a limiting discharge rate from the site. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

HR Wallingford are not responsible for any rainfall data shared that is subject to licensing terms imposed by UK Centre for Ecology & Hydrology's Flood Estimation Handbook web service (<https://fehweb.ceh.ac.uk/Home/Terms> (<https://fehweb.ceh.ac.uk/Home/Terms>)).

Pervious pavement operation and maintenance (v2)

Maintenance schedule	Required action	Frequency
Occasional maintenance	Stabilise and mow adjacent areas.	As required
	Removal of weed.	As required
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required
	Remedial work to any depressions, and rutting considered detrimental to the structural performance or a hazard to users.	As required
	Rehabilitation of surface and upper sub-structure.	As required (if infiltration performance is reduced as a result of significant clogging).
Monitoring	Initial inspection.	Monthly for 3 months after installation.
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action.	3-monthly, 48 h after large storms.