

DRAINAGE STRATEGY

WATERFOLD LANE

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HOUSING DEVELOPMENT

Off WATERFOLD LANE

HEAP BRIDGE

BURY

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1. The Site.

The site boundary detailed in the application is 0.23ha.

The site is situated to the East of Waterfold Lane and behind rows of terraced housing.

The site is bounded by an alleyway to the West which provides access to the rear of a row of terraced housing along Waterfold Lane. The areas to the North and East comprise detached dwellings. To the South of the site is an extension of the alleyway access, providing access to the rear of a row of terraced housing numbered 65 onwards. The area to the South-East of the plot is grassed farmland with occasional trees and bushes lining the boundary between the plots.

For the history of the site from as far back as 1851, refer to the GEO2 GeoEnvironmental report. Its more recent use is that of an allotment and gardens with the narrower area to the South serving as detached garages with a concrete flagged hard-standing area at the rear of the garages.

It is likely that the construction of the dwelling to the immediate North of the site has seen the demise of the allotment in order for the site to serve as a temporary “yard” during the construction of the previously mentioned. The former use of the now developed house plot to the North was for bulk construction aggregates storage.

The proposal is for the development of five detached dwellings with associated accessway, parking spaces, gardens and landscaped areas.

2. Topography

The site generally falls from East to West. To the West of Waterfold Lane is the River Roch.

3. Proposals.

SUDS HEIRARCHY

The usual / accepted SUDS hierarchy gives the below preferred order of merit:

1. To drain rainwater on site via soakaways into a natural granular/permeable sub-soil stratum. This is subject to ground conditions and there being no groundwater.
2. To drain water into local water-courses should these prove to be nearby and practicable in terms of achieving a connection.
3. To connect to local surface water sewer network or to connect to highways drains.
4. To Connect to combined drainage.

The GEO2 Geo-Environmental Investigation included 7no trial pits. These were carried out on the 26th March 2024 to depths of upto 3.0m below ground level. The trial holes revealed there to be made ground conditions to depths below ground level varying from 1.0m to 2.4m. Below this there was seen to be clay for the remainder of the trial hole depth. Two trial pits showed a clay layer underlain by peat.

The presence of peat would preclude the use of soakaways (within the peat layer) given the inclusion of water into a peat layer would cause rapid degradation of the peat leading to settlement and other related issues. The presence of clay would also preclude the use of soakaways (above or within the clay layer) given clay is generally impermeable. Deeper horizons of the below ground soil could be investigated to establish the presence of granular and naturally permeable soils which may offer a potential to naturally drain away the rainwater from site. This would require extending of the site investigation by investigating the deeper soils strata in addition to BRE:365 Soakaway tests to determine the rate of percolation.

For now, the design will be carried out in accordance with SUDS hierarchy preferred option No1. We will make the assumption that there are deeper granular/naturally permeable soils (if and until it is confirmed otherwise) which will allow for natural site drainage potential. This assumption will need to be confirmed by further/deeper site investigation in addition to BRE:365 soakaway testing as previously mentioned. At the time when this further investigation is carried out, should it become clear that the deeper strata is impermeable, or do not offer sufficient soakaway potential, then the drainage proposal will switch do SUDS hierarchy Option 2, to use the nearby surface water course (River Roch), at an attenuated flow-rate.

5. Design.

The impermeable site area is approximately 1141m².

The surface water will be designed to drain to a soakaway. Given there are, as yet no BRE:365 Soakaway tests to confirm the percolation potential of the below ground soils, the design will be based on a theoretical site discharge of 5Litres per second. The reason for this, is that this would likely be the discharge limit of the surface water by United Utilities for connection to the local surface water sewer. The limit is based upon a minimum 100mm diameter outlet sized such that this mitigates against blockage.

See below calculation. For a tank sized to limit discharge to 5 Litres per second. Using a climate change of 40%, results in a tank which is 39 cubic metres.

Ideally, this would be split, with one larger tank serving the 4 side by side houses and a separate tank for the single house.

Site:	Waterfold Lane. Bury			
Date:	01.09.24			
Storage Volumes				
To estimate the volume of storage required to provide attenuation of an outfall				
Catchment impermeable area: ¹	1141	square metres		
Maximum permitted discharge: ²	5.0	litres/sec		
Location	Bury			
r	0.37			
M5-60	19			
Climate Change	40	%		
Storm Duration (mins)	Rainfall 1:100 + C.C (mm/hr)*	Inflow Volume (m3)	Outflow Volume (m3)	Storage Required (m3)
5	173.21	16	2	15
10	135.34	26	3	23
15	119.04	34	5	29
30	76.34	44	9	35
60	50.15	57	18	39
120	31.29	71	36	35
240	18.47	84	72	12
360	13.78	94	108	-14
600	9.37	107	180	-73
1440	4.77	131	432	-301
2440	2.67	124	732	-608
Required storage volume is:		39	m ³	
Approx flow rate into tank is:		14	l/s (1:30)	
Approx flow rate into tank is:		17	l/s (1:100)	
Approx flow rate into tank is:		24	l/s (1:100 + C.C.)	

The proposals outlined in the strategy are shown on the attached drawing HC-24476-(30)-001. The drawing is issued as a separate PDF file for clarity.

